Guru Nanak College (Autonomous)

(Affiliated to University of Madras & Re-Accredited At "A" Grade by NAAC)
No. 161, Guru Nanak Salai, Velachery, Chennai - 600042, Tamil Nadu
Website: www.gurunanakcollege.edu.in

1.1.3 Courses having focus on Employability / Entrepreneurship / Skill development

Supporting Documents | Copy of the Syllabus

|| 2019-20 ||

GURU NANAK COLLEGE (AUTONOMOUS)
Affiliated to the University of Madras
Accredited by NAAC at "A" Grade.
ISO Certified (9001 - 2015)
Guru Nanak Salai, Velachery, Chennai - 600 042.

CERTIFIED DOCUMENTS

METRIC NO. : 1.1.3

PAGE NO. 1 TO 2.014

PRINCIPAL

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A- Grade' by NAAC
(Affiliated to the University of Madras)

BACHELOR OF ARTS

B.A ENGLISH

SYLLABUS

(For the Candidates admitted in 2019 -2020 and thereafter)

VISION

Globalization has placed a great demand for English proficiency and the development of critical and analytical skills through historical and cultural learning in literature. It has become a much sought-after education to match the modern trends in any employment field. Hence, a role of prominence is conceived by the English fraternity, to nurture the students' career, for the overall development of our nation.

MISSION

- To inculcate the importance of human values through the study of Literature.
- To enable students to excel in Creative Writing and Communication.
- To facilitate learners of literature, to become authors in academia and government sectors.
- To train young minds to become industry ready professionals.

Programme Outcomes

PO1: To Comprehend the various forms of literature like prose, poetry, drama and fiction
PO2: To Apprehend the different cultures and cultural sensibilities around the world
PO3: To Develop the knowledge of grammatical system of English language.
PO4: To know the Perspectives of literary movements that existed in different ages.
PO5: To enrich and develop four language skills LSRW among the students

Programme Specific Outcomes

PSO 1: To make the students to write analytically in different formats like essays, reviews, research papers.

PSO 2: To know the Scope of employability and entrepreneurship in the field of Media and Journalism, Teaching, Public Relations, Human Resource, Civil Service, Creative Writing.

COURSE STRUCTURE (2019-2022 Batch)

Sem.	Part	Course Component	Subject Name	Cdt	Hrs	CIA	ESE	Total
I	I	Language	Tamil I [0r any one of the following: French, Hindi, Sanskrit, Telugu]	3	6	50	50	100
	II	English	English I	3	4	50	50	100
	III	Core I	Age of Chaucer & Elizabethan Age	4	5	50	50	100
		Core II	Age of Milton & Restoration Age	4	5	50	50	100
		Allied I	History of English Literature - I	5	6	50	50	100
	IV	NME/ Basic Tamil	Technical Writing	3	2	50	50	100
		Skill based subjects	Introduction to Study Skills	2	2	50	50	100
CREDIT TOTAL =24 / TOTAL HOURS PER WEEK: 30								
II	I	Language	Tamil II	3	6	50	50	100
	II	English	English III	3	4	50	50	100
	III	Core III	Romantic Age	4	5	50	50	100
		Core IV	Indian Writing in English	4	5	50	50	100
		Allied II	History of English Literature - II	5	6	50	50	100
	IV	1. NME/ Basic Tamil	Creative Writing	3	2	50	50	100
		2. Skill based subjects	Life Skills	2	2	50	50	100
CREDIT TOTAL =24 / TOTAL HOURS PER WEEK: 30								
III	III	Language	Tamil III	3	6	50	50	100
		English	English III	3	4	50	50	100
		Core V	Shakespeare	4	6	50	50	100
		Core VI	Victorian Age	4	6	50	50	100
		Allied III	Literary forms	5	6	50	50	100
	IV	Skill based subjects	Job-Oriented Skills	3	2	50	50	100
		2.EVS	Environmental science	2				
CREDIT TOTAL =24 / TOTAL HOURS PER WEEK: 30								
IV	III	Language	Tamil IV	3	6	50	50	100
		English	English IV	3	4	50	50	100
		Core VII	Modern Age	4	5	50	50	100

		Core VIII	English Phonetics and Phonology	4	5	50	50	100
		Allied IV	Media and communication	5	6	50	50	100
	IV	Skill based subjects	Computing Skills	3	2	50	50	100
		EVS	Environmental science	2	2		100	100
CREDIT TOTAL =24 / TOTAL HOURS PER WEEK: 30								
V	III	Core IX	American Literature	4	6	50	50	100
		Core X	Introduction to Linguistics	4	6	50	50	100
		Core XI	Women's Writing	4	6	50	50	100
		Core XII	Literary Criticism	4	6	50	50	100
		Elective I	Travel Writing	5	6	50	50	100
	IV		Value education	2			100	100
			Internship	2				
CREDIT TOTAL =25 / TOTAL HOURS PER WEEK: 30								
VI	III	Core XIII	Indian Literatures in Translation	4	6	50	50	100
		Core XIV	European Drama	4	6	50	50	100
		Core XV	World literature	4	6	50	50	100
		Elective II	Modern Latin American Literature	5	6	50	50	100
		Elective III	Interpretation of Literature	5	6	50	50	100
	V	Extension Activities		1				
CREDIT TOTAL =23 / TOTAL HOURS PER WEEK: 30								
GRAND TOTAL CREDITS =144 / TOTAL HOURS PER WEEK: 180								

SEMESTER - I

PART III ENGLISH
I YEAR - SEMESTER I
CORE PAPER I- AGE OF CHAUCER & ELIZABETHAN AGE

SUBJECT CODE :19UEGL301	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 4**	**TOTAL NO OF HOURS: 60**

Objectives:

- To introduce students to poetry, prose and drama in the respective ages of Literature by the representative writers
- To explicate specific literary texts.

UNIT I

Prose **(12 Hours)**

1. Francis Bacon - Of Truth, Of Studies & Of Friendship

UNIT II

Prose **(12 Hours)**

1. The Book of Job - Old Testament (Authorised Version) (non-detailed)

UNIT III

Poetry **(12 Hours)**

1. Geoffrey Chaucer – Sections from General Prologue Introduction ll 1 -27, Portraits – The Knight 43-63, The Squire 79-100, The Yeoman 100-117, The Prioress 118-136,The Monk 165-181, The Merchant 270- 284, The Physician 411-421, The Wife of Bath 445-452, Conclusion 715-724
2. Edmund Spenser –Prothalamion (lines 1 –54)
3. Sir Philip Sidney-Astrophel and Stella (Sonnets 5 &10)
4. John Donne -The Sun Rising, Valediction forbidding mourning

UNIT IV

Drama **(12 Hours)**

1. Christopher Marlowe –Edward II
2. Ben Jonson – Everyman in his humour (non-detailed)

UNIT V

Fiction **(12 Hours)**

1.Sir Thomas More- Utopia (non-detailed)

Methodology

Class lectures and discussions
Assignments – paper presentations
Listening to recorded poetry
Presentation and seminars

Instructional Hours : 5 per week

Reading List:
The Book of Job – Old Testament (Authorised Version) Macmillan Publishers India Ltd.

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

PART III ENGLISH I
YEAR - SEMESTER I
CORE PAPER II- AGE OF MILTON & RESTORATION AGE

SUBJECT CODE : 19UEGL302	THEORY	MARKS 100
SEMESTER: I	CREDITS: 4	TOTAL NO OF HOURS: 60

Objectives:

- To introduce students to poetry, prose and drama in the respective ages of Literature by the respective writers.
- To explicate specific literary texts.

UNIT I

Prose **(12 Hours)**

1. Charles Lamb - Dissertation upon Roast pig
2. Joseph Addison - Character of Will. Wimble
3. Richard Steele -The Spectator Club

UNIT II

Poetry **(12 Hours)**

1. John Milton - Paradise Lost -Book II (lines 1- 200)

UNIT III

Poetry **(12 Hours)**

1. Alexander Pope -The Rape of the Lock (lines 121-148))
2. John Dryden -Alexander's feast
3. Thomas Gray -Elegy written in a Country Churchyard

UNIT IV

Drama **(12 Hours)**

1. Richard B Sheridan - The School for Scandal

UNIT V

Fiction **(12 Hours)**

1. Daniel Defoe - Robinson Crusoe (Non-detailed)

Methodology

Class lectures and discussions
Group work – analysis and summary
Seminars and paper presentations

Reading List:

1. NL Hailward, MA Cantab & SC Hill. Ed. *Essays of Elia*. Trinity, New Delhi. 1895. Vrinda Nabar. Ed.
2. Paradise Lost – Book I &II. Ed. Vrinda Nabar. Orient Blackswan.1978.

Instructional Hours: 5 per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

PART III ENGLISH
I YEAR - SEMESTER I
ALLIED I – PAPER I HISTORY OF ENGLISH LITERATURE – 1 (1500 – 1798)

SUBJECT CODE 19UEGL303	**THEORY**	**MARKS 100**
SEMESTER: I	**CREDITS: 5**	**TOTAL NO OF HOURS:72**

Objectives:

- The scope of the paper is to help students gain knowledge about the major writersof the different centuries, their characteristics and the major literary movements.

UNIT I

Prose **(18 Hours)**

1. Early Prose - More, Sidney, Bacon,
2. Beginnings of Modern English Prose - Dryden, Addison, Steele, Goldsmith, Swift, Johnson
3. Romantic Age - Lamb, Hazlitt, Dequincy

UNIT II

Poetry **(18 Hours)**

1. 14th Century - Chaucer
2. Elizabethan & Jacobean Poetry - Characteristics with reference to Spenser, Shakespeare, Donne
3. Caroline Age & Milton - Milton
4. Neo – Classical - Characteristics with reference to Dryden and Pope
5. Pre – Romantics - Characteristics with reference to Gray, Blake, Collins, Burns

UNIT III

Drama **(18 Hours)**

1. Early Drama - Liturgical drama, Mystery, Miracle, Morality, Interludes
2. Elizabethan & Jacobean Drama - Characteristics with reference to University wits, Marlowe, Shakespeare, Jonson
3. Restoration Drama - Characteristics with reference to Congreve, Wycherley Sentimental comedy - Characteristics with reference to Addison, Cumberland
4. Anti – sentimental comedy – Characteristics with reference to Goldsmith, Sheridan

UNIT IV

Novel **(18 Hours)**

1. Early English novel - Elizabethan Romances, Bunyan
2. 18th Century Novel - Defoe, Richardson, Fielding, Sterne, Smollett Greene, Golding

Methodology:

Class lectures
Self-reading and note-making Paper presentations

Reading List:

1. W. H. Hudson –An Outline History of English Literature
2. Edward Albert- History of English Literature **Publisher:** Barnes & Noble Imports; 5 Sub edition (December 1979)
3. Compton Rickett – A History of English Literature

Instruction Hours: 6 per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

PART III- ENGLISH
I YEAR SEMESTERI
NON-MAJOR ELECTIVE - TECHNICAL WRITING

SUBJECT CODE : 19UNME401Q	**THEORY**	**MARKS 100**
SEMESTER: I	**CREDITS: 2**	**TOTAL NO OF HOURS: 24**

Objectives:

- To give an exposure about the essential features of language and communication
- To instill excellent writing skills in the learners.

1. Communication: Language and communication, differences between speech and writing, distinct features of speech, distinct features of writing.
2. Writing Skills; Selection of topic, thesis statement, developing the thesis introductory, developmental, transitional and concluding paragraphs, linguistic unity, coherence and cohesion, descriptive, narrative, expository and argumentative writing.
3. Technical Writing: Scientific and technical subjects; formal and informal writings; formal writings/reports, handbooks, manuals, letters, memorandum, notices, agenda, minutes; common errors to be avoided.

Methodology

Class Lectures
Discussing
sample writings in class

Recommended Reading:

1. M. Frank. Writing as thinking: *A guided process approach*, *Englewood Cliffs*,Prentice Hall Reagents.
2. L. Hamp-Lyons and B. Heasely: Study Writing; *A course in written English.* For academic and professional purposes, Cambridge Univ.Press.
3. R. Quirk, S. Greenbaum, G. Leech and J. Svartik: *A comprehensive grammar of the English language*, Longman,London.
4. Daniel G. Riordan & Steven A. Panley: *"Technical Report Writing Today"* - Biztaantra.

Additional Reference

5. Daniel G. Riordan, Steven E. Pauley, Biztantra: *Technical Report Writing Today*, 8th Edition (2004).

Instruction Hours: 2 per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 5 out of 10 questions	1 – 10	20	**100**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	4	
	Unit – 2	3	
	Unit – 3	3	

SEMESTER - II

PART III ENGLISH
I YEAR - SEMESTER II
CORE PAPER III- ROMANTIC AGE

SUBJECT CODE : 19UEGL304	**THEORY**	**MARKS 100**
SEMESTER: II	**CREDITS: 4**	**TOTAL NO OF HOURS: 60**

Objectives:

- To introduce students to poetry, prose and drama in the respective ages of Literature by the representative writers
- To explicate specific literary texts.

UNIT I

Prose **(12 Hours)**

1. William Hazlitt – On the Ignorance of the Learned
2. Charles Lamb - The Old and the New Schoolmaster

UNIT II

Poetry **(12 Hours)**

1. William Blake -- The Tyger & The Lamb
2. John Keats -Ode to Autumn

UNIT III

Poetry **(12 Hours)**

1. William Wordsworth – Ode on Intimations of Immortality'
2. Samuel Taylor Coleridge -Rime of the Ancient Mariner
3 P. B. Shelley - Ode to a skylark

UNIT IV

Drama **(12 Hours)**

1. Lord Byron - Manfred

UNIT V

Fiction **(12 Hours)**

1. Mary Shelley – Frankenstein (Non-detailed)

Methodology

Class lectures and discussions
Group work for analysis and summary
Seminars and Paper presentations
Listening to recorded, poetry readings,
Viewing movie adaptations

Reading List:

1. William Blake: Songs of Innocence & Songs of Experience. Ed.K. Dwarakanath. Macmillan.1980.
2. Five Centuries of Poetry. Ed. CN Ramachandran and Radha Achar. Trinity Press.1991.
3. Selected Poems. Jainco Publishers, New Delhi.

Instruction hours: 5 per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

PART III ENGLISH
I YEAR - SEMESTER II
CORE PAPER IV – INDIAN WRITING IN ENGLISH

SUBJECT CODE : 19UEGL304	**THEORY**	**MARKS 100**
SEMESTER: II	**CREDITS: 4**	**TOTAL NO OF HOURS: 60**

Objectives:

- To introduce students to poetry, prose and drama in the respective ages of Literature by the respective writers.
- To explicate specific literary texts.

UNIT I

Prose **(12 Hours)**

1. Swami Vivekananda – The Secret of Work
2. Jawaharlal Nehru –Kamala
3. Nirad C Chaudhuri – My Mother
4. B.R. Ambedkar, *Annihilation of Caste* in *Dr. Babasaheb Ambedkar: Writings and Speeches*

UNIT II

Poetry **(12 Hours)**

1. Toru Dutt – Our Cauarina Tree
2. Sarojini Naidu – Palanquin Bearers
3. K. Ramanujan – Small-scale Refelections on a Great House
4. Kamala Das – An Introduction

UNIT III

Poetry **(12 Hours)**

1. Nissim Ezekeil – Goodbye Party to Miss Pushpa T. S
2. R. Parthasarathy – From *Homecoming* 1,3 & 4
3. Jayantha Mahapatra – Hunger
4. Eunice De Souza – Varca 1942

UNIT IV

Drama **(12 Hours)**

1.Girish Karnad – Nagamandala

UNIT V

Fiction **(12 Hours)**

Kiran Desai – The Inheritance of Loss (Non-detailed)

Methodology

Class lectures and discussions
Group work for analysis and summary
Seminars and Paper presentations
Listening to recorded poetry readings

Reading List:

1. Indian Drama in English. Ed. Kaustav Chakraborty. PH1 Learning Private Limited, New Delhi.2011.
2. The Plays of Girish Karnad: A Critical Assessment. Ed. D RSubramanian. Gokula Radhika. Publishers.
3. An Anthology of Commonwealth Poetry. Ed. CD Narasimhaiah. Trinity Press.

Instruction Hours: 5 per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

PART III ENGLISH
I YEAR - SEMESTER II
ALLIED I – PAPER II - HISTORY OF ENGLISH LITERATURE -2
(1798 – Present Day)

SUBJECT CODE : 19UEGL305	THEORY	MARKS 100
SEMESTER: II	CREDITS: 4	TOTAL NO OF HOURS: 72

Objectives:

- The scope of the paper is to help students gain knowledge, about the major writers of the different centuries, their characteristics and the major literary movements.

UNIT I

Prose **(18 Hours)**

1. Victorian Age – Carlyle, Ruskin, Arnold, Macaulay
2. 20th Century Age – Orwell, Huxley, Gardiner, Lynd, Chesterton

UNIT II

Poetry **(18 Hours)**

1. Romantic Poetry – Revolt and Revival – Characteristics with reference to Wordsworth, Coleridge, Byron, Shelley, Keats
2. Victorian Poetry - General characteristics with particular reference to Tennyson, Arnold, Browning, Rossetti, Morris, Swinburne
3. 20th Century – Hopkins, Wilfred Owen, Seigfried Sassoon, T. S. Eliot, Yeats, Auden,, Spender, Macniece, Cecil Day Lewis, Larkin, Hughes, R. S. Thomas, Thomas Gunn

UNIT III

Drama **(18 Hours)**

1. Revival of Drama – Oscar Wilde
2. 20th Century – Various dramatic movements with reference to Shaw, T. S. Eliot, Synge, Galsworthy, Beckett, Brencht, Osborne

UNIT IV

Novel **(18 Hours)**

1. Victorian Age – Dickens, Thackeray, George Eliot, Bronte sisters, Stevenson, Hardy
2. 20th Century – Conan Doyle, Wells, Lawrence, Orwell, Virginia Woolf, Conrad, Maugham,
3. Greene, Golding

Methodology

Class lectures
Self-study and note-making
Paper Presentations

Reading List:

W. H. Hudson – An Outline History of English Literature Edward Albert – History of English Literature

Publisher: Barnes & Noble Imports; 5 Sub edition (December 1979) Crompton Rickett – A History of English Literature

Instruction Hours: 6 per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

PART III ENGLISH
I YEAR - SEMESTER II
NON-MAJOR ELECTIVE - PAPER CREATIVE WRITING

SUBJECT CODE : 19UEGL306	**THEORY**	**MARKS 100**
SEMESTER: II	**CREDITS: 5**	**TOTAL NO OF HOURS: 24**

Objective:
To provide scope for students, to enrich their excellence with proficiency in creative writing.

UNIT I:

Various Kinds of Writing **(5 Hours)**

1. The creative impulse, creative ability
2. Tools and Techniques
3. Genices Talent

UNIT II: **(5 Hours)**

1. Poetry
2. Prose
3. Features and non-features
4. Writing for the media

UNIT III: Practice 1 **(5 Hours)**

1. Sketching the plot, conflict, climax, resolution
2. Characters ketch
3. Action Description

UNIT IV: Practice 2 **(5 Hours)**

1. Point of View
2. Dialogue
3. Setting an atmosphere

UNIT V: **(4 Hours)**

1. Film Review
2. Book Review

Methodology
Class lectures and discussions, Sample writings
Practice sessions

Recommended Reading:
Creative writing: A Beginner's Manual by Anjana Neira Dev and Others, Published by Pearson, Delhi, 2009.

Instruction Hours: 2 per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 5 out of 10 questions	1 – 10	20	**100**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	

SEMESTER - III

PART III ENGLISH
II YEAR – SEMESTER III
CORE PAPER V- SHAKESPEARE

SUBJECT CODE : 19UEGL307	**THEORY**	**MARKS 100**
SEMESTER: III	**CREDITS: 4**	**TOTAL NO OF HOURS: 60**

Objectives:

- To introduce students to poetry, prose and drama in the respective ages of Literature by the respective writers
- To explicate specific literary texts.

UNIT I **(12 Hours)**

Introduction
Elizabethan Stage
Characters -Women Characters, Villains, Clowns and Fools Sonnets
Shakespearean Comedy
Shakespearean Tragedy
Historical Plays
Dark Comedies and Last plays

UNIT II **(12 Hours)**

The Merchant of Venice (Non-detailed)

UNIT III **(12 Hours)**

Julius Caesar

UNIT IV **(12 Hours)**

Othello (Non-detailed)

UNIT V **(12 Hours)**

King Lear

Methodology

Detailed study of the plays.
Enacting sections from the plays by students
Discussions, Seminars & Paper presentations

Reading List:

1. Leech Clliford : Shakespeare's tragedies, and other studies in seventeenth century drama. London: Chatto and Windus,1965
2. BradleyA.C: Shakespearean Tragedy: Lectures on Hamlet, Othello, King Lear, and Macbeth (Penguin Classics) Published October 1st 1991 by Penguin Books (first published1904)
3. Ridler Anne: Shakespeare Criticism 1919-1935 (World classics) Oxford University Press, London,1965

Recommended Reading:

1. Callaghan, Dympna (ed) A Feminist Companion to Shakespeare. Oxford and Massachussetts: Balckwell Publishers, 2001
2. Harish Trivedi. “Shakespeare in India”. Colonial Transactions: English Literature and India. Manchester : Manchester University Press, 1995.

Instructional hours:5 hrs per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

PART III ENGLISH

II YEAR - SEMESTER III
CORE PAPER VI- VICTORIAN AGE

SUBJECT CODE : 19UEGL308	**THEORY**	**MARKS 100**
SEMESTER: III	**CREDITS: 4**	**TOTAL NO OF HOURS: 60**

Objectives:

- To introduce students to poetry, prose and drama in the respective ages of Literature by the representative writers
- To explicate specific literary texts.

UNIT I
Prose **(12 Hours)**
1. John Ruskin -Sesame and Lilies Thomas Carlyle
2. The Hero as poet

UNIT II
Poetry: **(12 Hours)**
1. Alfred Tennyson – The Lotos-Eaters
2. Robert Browning -My Last Duchess

UNIT III:
Poetry **(12 Hours)**
1. Matthew Arnold -Dover Beach
2. Dante Gabriel Rossetti -The Blessed Damozel

UNIT IV:
Drama: **(12 Hours)**
1. Oscar Wilde -The Importance of Being Earnest

UNIT V :
Fiction: **(12 Hours)**
1. Charles Dickens -Oliver Twist(non-detailed)
2. Emily Bronte -Wuthering heights (Non-detailed)

Methodology
Class lectures and discussions
Group work for analysis and summary
Seminars and Paper presentations
Viewing movie adaptations

Reading List:
1. Five Centuries of Poetry. Ed. CN Ramachandran and Radha Achar. Trinity Press.1991.
2. Selected Poems. Jainco Publishers, New Delhi.
3. Oscar Wilde: The Importance of Being Honest. Ed. A. Ramaswamy. Trinity Press.1981.

Recommended Reading:
1.Complete Stories of Oscar Wilde. Kings, Kolkotha. 2012.

Instructional Hours: 5 per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

PART III ENGLISH
II YEAR - SEMESTER III
ALLIED III – LITERARY FORMS

SUBJECT CODE : 19UEGL309	**THEORY**	**MARKS 100**
SEMESTER: III	**CREDITS: 5**	**TOTAL NO OF HOURS: 72**

Objectives:

- To give an exposure to the students about the different styles used by the writers, and which constitute the literary family tree.

UNIT I **(14 Hours)**

Literary terms

Allegory, anecdote, black comedy, didactic literature, dystopia, epigram, fable, legend, memoir, myth, noir fiction, novella, parable, parody, pastoral, utopia, surrealism, limerick, palindrome, blank verse, acronym, haiku, parody, farce, couplet, figure of speech, imagery, irony, metaphor, metonymy, onomatopoeia, paradox, refrain, chorus, existentialism, travelogue, prosody, rhyme scheme, epithet, transferred epithet, aside, masque

UNIT II

Poetry **(14 Hours)**

Lyric, Ballad, Ode, Sonnet, Elegy, Epic, Idyll

UNIT III

Drama **(14 Hours)**

Tragedy, Comedy, One act play, Absurd Drama, Melodrama, Epic theatre, Miracle play, Tragi- comedy

UNIT IV

Novel **(15 Hours)**

Detective novel, Stream of Consciousness Novel, Historical novel, Science fiction, Picaresque novel, Sentimental novel, Psychological novel, Epistolary novel

UNIT V

Essay **(15 Hours)**

Personal essay, Critical essay, Periodical essay, Aphoristic essay, Character essay, Short story, Biography, Autobiography, Criticism

Methodology

Class lectures and discussions
Paper presentations

Reading List:

M H Abrams .A Glossary of Literary Terms, Macmillam India Ltd., New Delhi.

Instructional Hours : 6 per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

SEMESTER - IV

PART III- ENGLISH
II YEAR –SEMESTER IV
CORE PAPER VII - MODERN AGE

SUBJECT COD19UEGL310	**THEORY**	**MARKS 100**
SEMESTER: IV	**CREDITS: 4**	**TOTAL NO OF HOURS: 60**

Objectives:

- To introduce students to poetry, prose and drama of 20th Century writers
- To explicate specific literary texts

UNIT I

Prose: **(12 Hours)**

1. Aldous Huxley-Work and Leisure
2. G.K. Chesterton-On running after one's hat
3. George Orwell- Shooting an Elephant

UNIT II

Poetry: **(12 Hours)**

1. T. S. Eliot -Journey of The Magi
2. W. H. Auden -The Unknown Citizen
3. Wilfred Owen - Strange Meeting

UNIT III

Poetry **(12 Hours)**

1. D.H Lawrence - Snake
2. Seamus Heaney - Digging
3. Philip Larkin - Church Going

UNIT IV **(12 Hours)**

Drama: Bernard Shaw - Pygmalion

1. J. M. Synge - Riders to the Sea (non-detailed)

UNIT V

Fiction: (Novel & Short Story) **(12 Hours)**

Somerset Maugham – The Moon and Sixpence

METHODOLOGY

Class lectures and discussions

Group work for analysis and summary Seminars and Paper presentations

Reading List:

1. Five Centuries of Poetry. Ed. CN Ramachandran and Radha Achar.Trinity Press.1991.
2. Selected Poems. Jainco Publishers, New Delhi.

Instructions hours 6 per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

PART III- ENGLISH

II YEAR – SEMESTER IV

CORE PAPER VIII – ENGLISH PHONETICS AND PHONOLOGY

SUBJECT CODE : 19UEGL311	**THEORY**	**MARKS 100**
SEMESTER: IV	**CREDITS: 4**	**TOTAL NO OF HOURS: 60**

Objectives:

- To enrich students' knowledge about the speech sounds that constitute the fundamental components of the English language.
- To create the exposure for the practical application of the system of speech sounds

UNIT I **(12 Hours)**

1. An Introduction to Phonetics and Phonology
2. The unphonetic character of English Orthography and the Need for a phonetic script
3. Air Stream Mechanisms
4. Organs of Speech – Respiratory Region, Phonatory Region and Articulatory Region
5. Phonemes – Mnimal Pairs – Contrastive Distribution, Phonetic Environment, Allophones - Complementary Distribution and Free Variation

UNIT II **(12 Hours)**

Description of Consonants – Air Stream Mechanism, Position of the Vocal Cords, Position of the Soft Palate, Place of Articulation, Manner of Articulation – Articulation of Individual Consonants

UNIT III **(12 Hours)**

1. Description of Vowels – Pure Vowels – Three Term Label – Cardinal Vowel, Vowel Chart, Description of Individual Vowels
2. Description of Semivowels
3. Diphthongs – Description of Diphthongs

UNIT IV **(12 Hours)**

1. Transcription – Narrow and Broad
2. Syllable, Syllable Division, Syllabic Structure, Consonant Clusters, Arresting and Releasing Consonants
3. Supra segmenta Phonemes
4. Stress – Words Stress, Sentence Stress, Rhythmic Stress
5. Intonation – Tone Group, Tone Syllable, Tone (Static and Kinetic)

UNIT V **(12 Hours)**

Exercises – 30 Marks for Practical Exercises

Practical Exercises

1. Marking Phonetic environment, Identifying Phonemes through Minimal Pair,
2. Allophonic Variation – Aspirated, Unexploded, Nasally Exploded, Phonetic Realization of Plural, Past, Third Person Singular morphemes
3. Syllable Division and structure
4. Transcription – Simple words with Stress, Sentences marking Stressed and unstressed Syllables

Methodology
Class lectures Practice sessions, Paper Presentations

Reference Books:

1. Daniel Jones – The Pronunciation of English, Cambridge University Press, 08-Jun-2006 - Foreign Language Study
2. Balasubramanian T – A Text Book of English Phonetics for Indian Students – A Work Book, Macmillan publishers India.
3. R K Bansal and J B Harrison – Spoken English, Publisher: Orient Blackswan (March 14,2013)
4. Lalitha Ramamurthi – A History of English Language and Elements of Phonetics
5. T Balasubramanian – English Phonetics for Indian Students – A Workbook, Macmillan publishers India.
6. Exercises in Spoken English – Consonants, Vowels, Accent, Rhythm and Intonation – CIEFL

Instructional hours: 6 hours per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

PART III- ENGLISH

II YEAR- SEMESTER- IV

ALLIED IV- MEDIA AND COMMUNICATION

SUBJECT CODE : 19UEGL312	THEORY	MARKS 100
SEMESTER: IV	CREDITS: 5	TOTAL HOURS: 72

Objectives:

- To introduce students to the various aspects of Media and the importance of communication
- To teach the students the rudiments of advertisements and to write for the media.

UNIT I **(14 Hours)**

1. Introduction to Mass Communication
2. What is Communication?
3. Mass Communication and Globalization Forms of Mass Communication
4. Barriers to communication
5. Interpersonal, group and mass communication

UNIT II **(14 Hours)**

Advertisement

1. Types of advertisements
2. Advertising ethics
3. How to create advertisements
4. Concept of storyboards and their importance

UNIT III **(14 Hours)**

Media Writing

1. Scriptwriting for TV and Radio
2. Writing News Reports and Editorials
3. Editing for Print and Online Media
4. Feature writing: Photo journalism and Cartoons 5. Investigative, Sports and development journalism

UNIT IV **(15 Hours)**

1. Introduction to Cyber Media and Social Media
2. Internet and its contribution to Journalism
3. Types of Social Media
4. The Impact of Social Media
5. Introduction to Cyber Media
6. Creating a website

UNIT V **(15 Hours)**

Cyber Media and Social Media

1. Social networking sites- Face book, Orkut, Twitter
2. Virtual Journalism

3. Blogging – self expression
4. Print -Media Challenges against Electronic Media and New Media
5. Drawbacks

Methodology
Class lectures and discussions
Group work for analysis and summary
Seminars and Paper presentations
Practice sessions

Instruction hours 6 per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

SEMESTER - V

PART III- ENGLISH III YEAR - SEMESTER V

CORE PAPER IX -AMERICAN LITERATURE

SUBJECT CODE : 19UEGL313	THEORY	MARKS 100
SEMESTER: V	CREDITS: 4	TOTAL NO OF HOURS: 72

Objectives:

- To help students acquire knowledge about English drama and prose written by American writers.
- To explicate specific literary texts

UNIT I

Prose: **(14 Hours)**

1. Edgar Allan Poe -The Philosophy of Composition
2. R.W. Emerson, The American Scholar
3. H.D.Thoreau- Walden pond

UNIT II

Poetry: **(14 Hours)**

1. Robert Frost - After Apple Picking & Mending Wall
2. Walt Whitman -Miracles
3. Robert Lowell- Skunk Hour

UNIT III **(14 Hours)**

Poetry

1. Emily Dickinson -Because I could not stop for death & I felt a funeral in my brain
2. William Carlos Williams -The Red wheel Barrow
3. Wallace Stevens- Anecdote of the Jar

UNIT IV

Drama **(15 Hours)**

1. Arthur Miller – The Death of A Salesmsn

UNIT V

Fiction (Novel & Short Story) **(15 Hours)**

1. Saul Bellow -Herzog
2. F.Scott Fitzgerald -The Great Gatsby(non-detailed)
3. Ernest Hemingway- The old Man and the Sea(non-detailed)

Methodology

Class lectures and discussions
Paper Presentations and Seminars
Watching Movie clips

Reading List:

1. Egbert S. Oliver ed., An Anthology: American Literature, 1890-1965, Eurasia Publishing House (Pvt) Ltd., New Delhi.
2. Mohan Ramanan ed., 1996, Four centuries of American Literature, Macmillan India Ltd., Chennai.
3. Owen Thomas, 1986, Walden and Civil Disobedience: Norton Critical Edition ed., Prentice – Hall & IndianDelhi.

4. Henry David Thoreau, 'Battle of the Ants' excerpt from 'Brute Neighbours', in Walden (Oxford: OUP, 1997) chap.12.
5. Ralph Waldo Emerson, 'Self Reliance', in The Selected Writings of Ralph Waldo Emerson, ed. with a biographical introduction by Brooks Atkinson (New York: The Standard Editions of texts

Reference Books :

1. John Russell Brown and Bernard Harris, ed., 1970, American Theatre, Edward Arnold.
2. Daniel Hoffman ed., 1979, Harvard Guide to Contemporary American Writing, Oxford University Press, New Delhi. Modern Library, 1964).
3. Website, e-learning resources www.gonzago.edu/faculty/cample/enl311/litfram.htmlMc Cormick J:

Instruction hours 5 per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

PART III- ENGLISH
III YEAR - SEMESTER V

CORE PAPER X- AN INTRODUCTION TO LINGUISTICS

SUBJECT CODE : 19UEGL314	**THEORY**	**MARKS 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 72**

Objectives:

- To facilitate the students to gain the knowledge about the origin and features of English language with a creative aspect and scientific approach.

UNIT I **(14 Hours)**

1. Introduction - Origin of Language – Divine Source, Natural sound source, Oral Gesture, Glasso Genetics.
2. What is Linguistics? – Linguistics as a science – Synchronic and Diachronic approaches
3. Language - Definition – Uses of language - Phatic communion. Properties of language– Species specific and species uniform, Symbolic system, Arbitrariness, Duality of Structure, Productivity, Displacement, Cultural Transmission, discreteness, Inter changeability, Specialization, Non directionality.

UNIT II **(14 Hours)**

1. Morphology, Syntax and Semantics (Word Meaning)
2. Word - Morphemes – Free Morphemes and bound Morphemes – Prefix and suffix
3. Inflectional and Derivational – Allomorphs - Zero morphemes – Morphological Study of words
4. Language Variation – Dialect, Standard and Non – Standard, Isoglasses , Dialect Boundaries, Bilingual, Bidialectal, Idiolect, Register, Lingua Franca, Pidgin, Creole, The Post Creole Continum
5. Language Change – Protos – Family relationship - Cognates – Comparative Reconstruction

UNIT III **(14 Hours)**

Grammar

What is Grammar ? Misconceptions regarding grammar - The development of English grammar - Objections of modern grammarians to traditional approach – Nominative Rules - Latinate Fallacy – Logical Fallacy – - Historical Fallacy – Descriptive and Prescriptive approaches – Concept of correctness and social acceptability – Form and substance - Speech and Writing

UNIT IV **(15 Hours)**

1. Language Learning Skills
2. Listening, Speaking, Reading and Writing (LSRW) & their sub-skills

UNIT V **(15 Hours)**

Structural analysis – IC Analysis - Labelled Tree diagram - Using IC analysis to disambiguate simple sentences - Deep and Surface Structure

Word Meaning, Association, connotation, collocation, Semantic Field

Methodology
Class lectures
Practice sessions
Seminars and paper presentations

Reading List:
1. George Yule – The Study of Language (Chapters 1, 2, 3, 8,9,10,19,20)
2. Wallwork - Language and Linguistics – (Chapters 1, 2, 6 ,7)
3. Palmer – Grammar (Chapter1)
4. Pushpinder Syal & DV Jindal. An Introduction to Linguistics. Prentice Hallof India, Pvt. Ltd., New Delhi.1999.

Reference Books:
1. S.K Verma, N.Krishnaswamy -Modern Linguistics – AnIntroduction
2. Dr. Varshney - An Introductory Text book of Linguistics andPhonetics
3. Adrian Akmajian & others- Linguistics – An introduction to Language and Communication

Instructional Hours: 5 per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

PART III- ENGLISH
III YEAR - SEMESTER V

CORE PAPER XI -WOMEN'S WRITING

SUBJECT CODE : 19UEGL315	THEORY	MARKS 100
SEMESTER: V	CREDITS: 4	TOTAL NO OF HOURS: 72

Objectives:

- To introduce students to poetry, prose and drama by Women writers of the different centuries.
- To explicate specific literary texts.

UNIT I

Prose **(14 Hours)**

1. Betty Friedan " The Crisis in Women's Identity" From The Feminine Mystique Chapter 3
2. Mary Wollstonecraft A Vindication of the Rights of Woman (New York: Norton, 1988) chap. 1, pp. 11–19; chap. 2, pp. 19–38.
3. Ramabai Ranade 'A Testimony of our Inexhaustible Treasures', in Pandita Ramabai Through Her Own Words: Selected Works, tr. Meera Kosambi (New Delhi: OUP, 2000) pp. 295–324.
4. Rassundari Debi Excerpts from Amar Jiban in Susie Tharu and K. Lalita,eds.,
5. Women's Writing in India, vol. 1 (New Delhi: OUP, 1989) pp. 191–2 5.Virginia Woolf. A Room of One's Own. Chapter1

UNIT II

Poetry **(14 Hours)**

1. Emily Dickinson 'I cannot live with you'
2. Sylvia Plath 'Daddy'
3. Eunice De Souza 'Advice to Women'
4. Maya Angelou Phenomenal Woman
5. Ifi Amadiume Gypsy Woman (from Bending the Bow: African Love Poems p.86)

UNIT III

Fiction **(14 Hours)**

1. Alice Walker The Color Purple (Non-detailed)

2. Charlotte Perkins Gilman 'The Yellow Wallpaper' (Non-detailed) 3. Katherine Mansfield 'Bliss'(Non-detailed)

UNIT IV

Fiction **(15 Hours)**

1. Taslima Nasrin Lajja (Non-detailed) 2.Anita Nair Ladies Coupe (Non-Detailed)

UNIT V

Drama **(15 Hours)**

1. Mahashweta Devi 'Draupadi', tr. Gayatri Chakravorty Spivak (Calcutta: Seagull, 2002) (Non-detailed)
2. Lorraine Hansberry – A Raisin in the Sun

Methodology

Class lectures and discussions
Paper Presentations and Seminars Watching Movie clips

Reading List:

1. Virginia Woolf, A Room of One's Own (New York: Harcourt, 1957) chaps.1 and6.
2. Simone de Beauvoir, 'Introduction', in The Second Sex, tr. Constance Borde and Shiela Malovany-Chevallier (London: Vintage, 2010) pp.3–18.
3. Kumkum Sangari and Sudesh Vaid, eds., 'Introduction', in Recasting Women: Essays in Colonial History (New Delhi: Kali for Women, 1989) pp.1–25.
4. Chandra Talapade Mohanty, 'Under Western Eyes: Feminist Scholarshipand Colonial Discourses', in Contemporary Postcolonial Theory: A Reader, ed. Padmini Mongia (New York: Arnold, 1996) pp.172–97.

Instructional Hours: 5 per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

PART III- ENGLISH

III YEAR – SEMESTER V

CORE PAPER XII- LITERARY CRITICISM

SUBJECT CODE : 19UEGL316	THEORY	MARKS 100
SEMESTER: V	CREDITS: 4	TOTAL NO OF HOURS: 72

Objectives:

- To make students realize the role of critics in the study of literature.
- To make familiar the students about the different aspects of criticism in literature.
- To introduce the students to basic texts in criticism, relating to various movements and schools of thought
- To enhance and nurture critical thinking of the students, in the study of literature

UNIT I **(18 Hours)**

CLASSICAL CRITICISM

Aristotle: Concepts of tragedy, plot

Plato: Concept of Art, criticism of poetry and drama

(Contemporary relevance of the ideas in the above to be discussed)

CORE READING

Aristotle. "Poetics" classical appendix in English Critical Texts, OUP, Madras, 1962.

Prasad, B. An Introduction to English Criticism. Macmillan, India, 1965. pp 1-28.

UNIT II **(18 Hours)**

INDIAN AESTHETICS

1. Theory of Rasa, Vyanjana and Alankara.
   Das Guptha,S.N. "The Theory of Rasa", (pp 191 -196) in Indian Aesthetics : An Introduction ed.. V.S.Sethuraman, Macmillan, India, 1992.
2. Kuppuswami Sastri. "The Highways of Literary Criticism in Sanskrit" (pp 173 - 190), in Indian Aesthetics : An Introduction ed.. V.S. Sethuraman, Macmillan, India, 1992.
3. Raghavan, V. "Use and Abuse of Alankara"(pp 235 - 244) in Indian Aesthetics An Introduction. India , Macmillan, 1992.

UNIT III **(18 Hours)**

ENGLISH CRITICISM

This section is meant to make the students familiar with English critical writing.

CORE TEXTS

1. William Wordsworth: Preface to Lyrical Ballads- p. 163-167
2. T Coleridge : Biographia Literaria p. 190-194
3. Samuel Johnson: Preface to Shakespeare p. 132-137
4. Philip Sydney: An Apology for Poetry p. 4-10
5. P.B. Shelley: A Defence of Poetry p. 225-228
6. Matthew Arnold: The Study of Poetry p. p. 260-264
7. T.S. Eliot – Tradition and the Individual Talent p. 293-297

CORE BOOKS

English Critical Texts. Ed. DJ Enright & Ernst De Chickera. OUP Madras. 1962.

Wordsworth, William "Preface to Lyrical Ballads" in Enright, D J et al .English Critical Texts OUP, Madras, 1962 paragraphs 5 to 12. P. 164-172.

Eliot, T S. "Tradition and Individual Talent" in English Critical Texts Madras, 1962 pp 293 - 301.

UNIT IV **(18 Hours)**

In this Unit, students need to critically analyze short poems and short stories in terms of theme, diction, tone, figures of speech, imagery etc.

CORE READING:

Sethuraman, V.S. et al. Practical Criticism. Macmillan, India,1990.

Methodology

Class lectures and discussions
Seminars and Paper presentations
Practical sessions and analysis

Recommended Reading:

1. Indian Aesthetics. An introduction V S Sethuraman, India: Macmillan ,1992.
2. Oxford Dictionary of Literary Terms
3. A Glossary of Literary Terms Abrams, M.H India: Macmillan,Rev. Edition.
4. Literary Terms and Criticism Peck, John et al Macmillan: India, 1993.
5 An Introduction to English Criticism - Prasad, B India: Macmillan, 1965. 6 Beginning Theory - Barry, Peter. Manchester and New York:

Instructional hours: 6 per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	3	
	Unit – 4	3	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
Section C	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	

PART III- ENGLISH

III YEAR SEMESTER V
ELECTIVE PAPER I - TRAVEL WRITING

SUBJECT CODE : 19UIDE323	**THEORY**	**MARKS 100**
SEMESTER: V	**CREDITS: 5**	**TOTAL NO OF HOURS: 72**

Objectives:

- To enable students to write Travelogues as a different genre of Literature.
- To expose students to the Travel and Tourism guide vocation
  a different genre of Literature

UNIT I **(14 Hours)**

Chapters 1, 2, 3 from Travel writing by Carl Thompson
Introduction
Defining the genre

UNIT II **(14 Hours)**

Travel writing through the ages- An overview

UNIT III **(14 Hours)**

Articles in travel magazines
Columns in Newspapers describing actual experiences

UNIT IV **(15 Hours)**

Application – Writing Travelogues by students

UNIT V **(15 Hours)**

Mark Twain: The Innocent Abroad (Chapter VII, VIII & IX). Wordsworth Classic Edition.

Methodology

Class Discussions
Paper
Presentations
Debates

Reference Books:

1. Casey Balton, 'Narrating Self and Other: A Historical View', in Travel Writing: The Self and The Other (Routledge, 2012), pp.1-29
2. Sachidananda Mohanty, 'Introduction: Beyond the Imperial Eyes' in Travel Writing and Empire (New Delhi: Katha, 2004) pp. ix –xx.
3. "Travelling to write" by Peter Hulme
4. " Travel Writing and Gender" by Susan Basnett
5. " Travel Writing and Ethnography" by Joan Pau Rubes

Instructional hours: 5 per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

SEMESTER - VI

PART III- ENGLISH
III YEAR SEMESTER VI
CORE PAPER XIII - INDIAN LITERATURES IN TRANSLATION

SUBJECT CODE : 19UEGL317	**THEORY**	**MARKS 100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL NO OF HOURS: 72**

Objectives:

- To introduce the students to the manifold Indian Literatures through translated sources
- To emphasize the literary value and cultural significance of the study.
- To expose students to a cross-culture perspective in the study.

UNIT I **(14 Hours)**

Background Study

UNIT II **(14 Hours)**

Prose

1. Who is the Buddha - An extract from Periyar on Buddhism (Critical Quest,New Delhi)
2. Buddhadev Bose - An Extract from An Acre of Green Grass – A Reviewof Modern Bengali Literature (The Picador Book of Modern Indian Literature Ed. Amit Chaudhuri)
3. Namwar Singh, 'Decolonising the IndianMind'

UNIT III **(14 Hours)**

Poetry

1. Rabindranath Tagore -The dialogue between Karnaand Kunti (Bengali)
2. Amrita Pritam I will meet you yet again (Punjabi)
3. Harivansh Rai Bachchan There wasastar (Hindi)
4. Gopalakrishna Adiga - Do Something, Brother (Kannada)
5. Jayaprabha-Stares (Telugu)
6. Bharatiyar Freedom-The Sparrow (Tamil)

UNIT IV **(15 Hours)**

Drama

1. Shakuntala Act IV Kalidasa
2. Rudaali Mahasweta Devi (Non-detailed)

UNIT V **(15 Hours)**

Fiction

1. Premchand: The Shroud (Hindi) (Non-detailed)
3. Ambai: A Kitchen in the Corner of the House (Tamil)(Non-detailed)
4. Vaikom Muhammad Basheer: Birthday (Malayalam)(Non-detailed)
5. U R Ananthamurthy : Samskara (Non-detailed)

Methodology
Class lectures and discussions
Group work for analysis and summary Seminars and Paper presentations
Viewing movie adaptations

Reading List:

1. Mohanty, J. M., Indian Literature in English Translation. Mysore: CIIL,1984.
2. Dasgupta, S.N., Fundamentals of Indian Literature. Bombay: BharatiyaVidya Bhavan,1971.
3. Raghavan V. & Nagendra, An Introduction to Indian Poetics.Bombay: Macmillan,1970.
   Paper 1: Modern Indian Writing in English Translation
4. Premchand 'The Shroud', in Penguin Book of Classic Urdu Stories, ed.M. Assaduddin (New Delhi: Penguin/Viking,2006).
5. Ismat Chugtai 'The Quilt', in Lifting the Veil: Selected Writings ofIsmat Chugtai, tr.M. Assaduddin (New Delhi: Penguin Books,2009).
6. Gurdial Singh 'A Season of No Return', in Earthy Tones, tr. RanaNayar (Delhi:Fiction House,2002).
7. Fakir Mohan Senapati 'Rebati', in Oriya Stories, ed. Vidya Das, tr.Kishori Charan Das (Delhi: Srishti Publishers, 2000).
8. Rabindra Nath Tagore 'Light, Oh Where is the Light?' and 'When My Play was with thee', in Gitanjali: A New Translation with an Introduction by WilliamRadice (New Delhi: Penguin India,2011).
9. G.M. Muktibodh 'The Void', (tr. Vinay Dharwadker) and 'So Very Far', (tr. Tr. Vishnu Khare and Adil Jussawala), in The Oxford Anthology of Modern Indian Poetry, ed. Vinay Dharwadker and A.K. Ramanujam (New Delhi: OUP, 2000).
10. Amrita Pritam 'I Say Unto Waris Shah', (tr. N.S. Tasneem) in Modern Indian Literature: An Anthology, Plays and Prose, Surveys and Poems, ed. K.M. George, vol. 3 (Delhi: Sahitya Akademi, 1992).
11 Dharamveer Bharati Andha Yug, tr. Alok Bhalla (New Delhi: OUP, 2009).
12 G. Kalyan Rao Untouchable Spring, tr. Alladi Uma and M. Sridhar (Delhi: Orient BlackSwan, 2010)
13. Namwar Singh, 'Decolonising the Indian Mind', tr. Harish Trivedi,Indian Literature, no. 151 (Sept./Oct.1992)
14. B.R. Ambedkar, Annihilation of Caste in Dr. Babasaheb Ambedkar: Writings and Speeches, vol. 1 (Maharashtra: Education Department, Government of Maharashtra,1979) chaps. 4, 6, &14.
15. Sujit Mukherjee, 'A Link Literature for India', in Translation asDiscovery (Hyderabad: Orient Longman, 1994) pp.34–45.
16. G.N. Devy, 'Introduction', from After Amnesia in The G.N. Devy Reader (New Delhi: Orient BlackSwan, 2009) pp. 1–5.

Reference Books:

1. Dharwad, Vinay and A.K.Ramanujam The Oxford Anthology of Modern Indian Poetry. New Delhi : OUP, 1994
2. Ramanujam, A.K Interior Landscape: Love Poems from a Classical Tamil Anthology, Delhi, OUP, 1994.
3. Tharu, Susie J. Subject to Change: Teaching Literature in the Nineties. New Delhi Orient Longman, 1998.

4. Instructional Hours: 6 Hours per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

PART III- ENGLISH

III YEARSEMESTER VI

CORE PAPER XIV – EUROPEANDRAMA

SUBJECT CODE : 19UEGL318	**THEORY**	**MARKS 100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL NO OF HOURS: 72**

Objectives:

- To enrich students' interest with detailed knowledge and understanding of the texts and extracts studied, with an independent and intelligent approach to the complex questions and issues arising thereafter.
- To expose students to wider perspectives of the social, cultural and historical studies of the period.

UNIT I **(14 Hours)**

Henrik Ibsen : A Doll's House (Non-Detailed)

UNIT II **(14 Hours)**

Bertolt Brecht : Mother Courage and her Children

UNIT III **(14 Hours)**

Samuel Beckett: Waiting for Godot

UNIT IV **(15 Hours)**

Eugene Ionesco: Rhinoceros (Non-Detailed)

UNIT V **(15 Hours)**

Luigi Pirandello: Six Characters in Search of an Author (1921) (Non-Detailed)

Methodology

Class lectures and discussions
Seminars and Paper presentations
Watching movie adaptations
Enacting scenes

Reading List:

1. Bertolt Brecht, 'The Street Scene', 'Theatre for Pleasure or Theatre for Instruction', and 'Dramatic Theatre vs Epic Theatre', in Brecht on Theatre: The Development of an Aesthetic, ed. and tr. John Willet (London: Methuen, 1992)pp. 68–76,121–8.
2. George Steiner, 'On Modern Tragedy', in The Death of Tragedy(London: Faber, 1995) pp.303–24.
3. ed. Cole, T Playwrights on Playwrighting (MacGibbon and Kee,1960)
4. Esslin, M The Theatre of the Absurd (Pelican,1980)
6. Orr, J Tragic Drama and Modern Society (Macmillan,1989)
7. Styan, J.L. The Elements of Drama (Cambridge University Press,1973)
   8.ed. Wager, W The Playwrights Speak (Longman,1969)
8. Williams, R Drama from Ibsen to Brecht (Chatto and Windus, 1968)

Reference Books:

1. Brustein, R The Theatre of Revolt (Elephant Paperbacks, 1992)
2. Dukore, B.F. Harold Pinter (Macmillan, 1988)
3. ed. Esslin, M Samuel Beckett: Twentieth Century Views (Prentice-Hall, 1965)
4. Hugo, L Bernard Shaw: Playwright and Preacher (Methuen, 1971)
5. Hunter, J Tom Stoppard's Plays(Faber,1982)
6. ed. Lyman, J Perspectives on Plays (Routledge Kegan Paul,1976)
7. ed. Nicol, B Varieties of Dramatic Experience (University of London,1969)
8. compiled by Page, M File on Pinter (Methuen,1993)
9. Plunka, G.A. Roles, Rites and Rituals In the Theater (Associated University Presses,1988)
10. Styan, J.L. The Dark Comedy (Cambridge University Press,1968)
11. Williams, R Modern Tragedy (Chatto,1966)

Instructional hours 6 per week

Question paper pattern

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
			TOTAL MARKS	**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

PART III- ENGLISH
III YEAR SEMESTER VI
CORE PAPER XV- WORLD LITERATURE

SUBJECT CODE : 19UEGL319	THEORY	MARKS 100
SEMESTER: VI	CREDITS: 4	TOTAL NO OF HOURS: 72

Objective:

- To acquaint students with masterpieces in world literature from literature in various languages.
- To create in them an awareness of the existence of great works of imagination in the Western literary landscape so it serves as an effective backdrop for a study of the prescribed texts.

UNIT I. **(14 Hours)**

Introduction to World Literature – Gothe on "World Literature"

UNIT II **(14 Hours)**

Prose

Rousseau- Discourse (Section

1) Albert Camus – Betwixt and Between

UNIT III **(14 Hours)**

Poetry

1. Goethe The Magic Net
2. Anna Akmathova Solitude
3. Arthur Rimbaud- Tale
4. Schiller – Longing

UNIT IV **(15 Hours)**

Drama

1. Anton Chekov - Ivanov Moliere –
2. The Miser (French)

UNIT V **(15 Hours)**

Fiction

1. Antoine De Saint-Exupery, The Little Prince (New Delhi: Pigeon Books,2008)
2. Julio Cortazar, 'Blow-Up', in Blow-Up and other Stories (New York: Pantheon, 1985).
3. Kafka Metamorphosis

Methodology

Class lectures and discussions Seminars and Paper presentations
Watching movie adaptations
Enacting scenes

Reading List:

1. Sarah Lawall, 'Preface' and 'Introduction', in Reading World Literature: Theory, History, Practice, ed. Sarah Lawall (Austin, Texas: University ofTexas Press, 1994) pp. ix–xviii, 1–64.
2. David Damrosch, How to Read World Literature? (Chichester: Wiley- Blackwell, 2009) pp. 1–64,65–85.
3. Franco Moretti, 'Conjectures on World Literature', New Left Review,vol.1 (2000), pp.54–68.
4. Theo D'haen et. al., eds., 'Introduction', in World Literature: AReader (London: Routledge,2012).

Reference:

1. Gabriel Okara, 'The Mystic Drum', in An Anthology of Common wealth Poetry, ed. C.D. Narasimhaiah (Delhi: Macmillan, 1990) pp.132–3.
2. Kishwar Naheed, 'The Grass is Really like me', in We the Sinful Women (New Delhi: Rupa, 1994) p.41.
3. Shu Ting, 'Assembly Line', in A Splintered Mirror: Chinese Poetry From the Democracy Movement, tr. Donald Finkel, additional translations by Carolyn Kizer (New York: North Point Press,1991).
4. Jean Arasanayagam, 'Two Dead Soldiers', in Fussilade (New Delhi: Indialog, 2003) pp.89–90.

Instructional hours 6 per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

PART III- ENGLISH
III YEAR SEMESTER VI

ELECTIVE – PAPER II - MODERN LATIN AMERICAN LITERATURE

SUBJECT CODE : 19UEGL320	**THEORY**	**MARKS 100**
SEMESTER: VI	**CREDITS: 5**	**TOTAL NO OF HOURS: 72**

Objectives:
To familiarize students with the writings of the various Spanish and Latin American writers.

UNIT I **(14 Hours)**

Introduction

Social, cultural, literary and historical background to the Latin Americas and Spain.
Major literary movements: Romanticism, Realism, Vanguardias, Post- Vanguardias, The Boom and the New Novel, Magic Realism
Spain: Art and Culture under Francisco Franco and post Franco- Spain

UNIT II **(14 Hours)**

Prose

1. Mario Vargas Llosa: Is Fiction the Art of Living?
2. JoseMarti Our America
3. Octavia Paz Mexican Masks

UNIT III **(14 Hours)**

Poetry

1. Pablo Neruda: If you forget me, I Can Write the Saddest Lines Tonight
2. Octavia Paz: No More Cliches, As One Listens to the Rain
3. Miguel Hernandez : Lullaby of the Onion, Letter

UNIT IV **(15 Hours)**

Fiction (Short story & Novel)

Short story

1. Jorge Luis Borges: The Aleph, The Babylon Lottery
2. Julio Cortazar: Blow up The House Taken

Over. Novels

1. Gabriel Garcia Marquez: One Hundred years of Solitude(non-detailed)
2. Carlos Fuentes: The Death of Artemio Cruz(non-detailed)

UNIT V **(15 Hours)**

Drama

1. Frederico Garcia Lorca: Blood Wedding
2. Ariel Dorfman: Death and the Maiden(non-detailed)

Methodology

Class lectures and discussions Seminars and Paper presentations Watching movie adaptations Enacting scenes

Reading List:

1. Jo Labanyi Spanish Literature: A Short Introduction
2. John King (ed) The Cambridge Companion to Modern Latin American Culture
3. Walters, Gareth D (ed) The Cambridge Companion to Spanish Poetry
4. Swanson , Philip Latin American Fiction: A Short Introduction
5. Eschevarria, Roberto Gonzalez Modern Latin American Literature
6. Hart, Stephen. M. A Com panion to Latin American Literature

Instructional hours 6 per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

PART III- ENGLISH
III YEAR - SEMESTER VI

ELECTIVE PAPER III - INTERPRETATION OF LITERATURE

SUBJECT CODE : 19UEGL321	**THEORY**	**MARKS 100**
SEMESTER: VI	**CREDITS: 5**	**TOTAL NO OF HOURS: 72**

Objectives

- To facilitate students to interpret an analysis of any content.
- To enable students to identify the literary devices in unfamiliar contexts.
-

UNIT I **(14 Hours)**

Formal elements of Literature
Literature as Deviance – Literary Diction & Syntax
Image (Visual & Auditory) Images of Endorsement, Illustration and Evocation Image as objective Correlative
Tone

UNIT II **(14 Hours)**

Style
Formal Operators; Ambivalence, ambiguity, Paradox, Irony etc. Metrical Analysis
Various aspects of English prosody like feet, metre, rhyme, stanza etc

UNIT III **(14 Hours)**

Analyzing fiction
Narrative Techniques, Perspectives, Characterization

UNIT IV **(15 Hours)**

Analyzing non- fiction
Short story

UNIT V **(15 Hours)**

Drama (Including One Act-Plays) – Characterization

Methodology Class
Lectures
Paper presentations
Practical sessions and discussions

Recommended reading

1. Millar, Robert and Ian Currie The Language of Poetry. London: Heinemann Educational 1970.
2. Millar, Robert and Ian Currie The Language of Prose. London: Heinemann Educational 1972
3. Sethuraman,v & C T Indira . Ed Practical Criticism. Chennai: Macmillan, 2002

Instructional hours 6 per week

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

EXTENSION ACTIVITIES CREDITS: 1

GURU NANAKCOLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042

Re-accredited at 'A - Grade' by NAAC

(Affiliated to the University of Madras)

BACHELOR OF ARTS

DEPARTMENT OF DEFENCE AND STRATEGIC STUDIES

(SEMESTER SYSTEM WITH CREDITS)

REGULATIONS AND SYLLABUS

(For Students Admitted from 2019-20 onwards)

B.A. (DEFENCE & STRATEGIC STUDIES)

VISION

To develop professionals with demonstrable in-depth knowledge and cognitive skills to deal with strategic and security affairs.

MISSION

- To impart knowledge and develop Defence oriented aptitude and disseminate ideas of war and peace.
- To mobilize public opinion in favour of the requirements of National Security.
- To create security consciousness.
- To give mature guidance regarding national security problems and prospects.

PROGRAMME OUTCOME:

PO1: Scientific Knowledge: Acquire the knowledge of Defence and Strategic Studies to issues,
challenges and national security threats faced by the country
PO2: Problems Analysis: Identify, formulate, research literature and analyze complex problems
reaching substantiated conclusions using first principles of Defence and Strategic Studies
PO3: Design/Development of Solutions: Design solutions for complex national security problems and processes that meet the specified needs with appropriate consideration for evolving
right policy choices
PO4: Conduct investigations of complex problems link with the society.
PO5: Modern tool usage.

PROGRAMME SPECIFIC OUTCOMES:

PSO1: Familiarize the student to read, write and speak with confidence on different aspects
affecting national security and offer solutions. Make the students socially responsible and adopt
ethical standards or practice and develop the feeling of patriotism and nationalism
PSO 2: Students with a B.A degree in Defence and Strategic Studies may be employed as research assistants with scholarships, Strategic Analyst, internships, Civil Services, Armed forces, Industrial Security Officers, Defence Journalist, Print Media, primary and secondary teachers with suitable teaching qualifications.

COURSE STRUCTURE 2019-20 BATCH
B.A (DEFENCE & STRATEGIC STUDIES)

Semester	Part	Course Component	Subject Code	Subject Name	Credits	Hours	Internal	External	Total
Semester - I	I	Language	19UTAM141	Tamil I	3	6	50	50	100
	II	English	19UENG241	English I	3	4	50	50	100
	III	Core Paper-I	19UDEF301	Strategic Study of India	4	5	50	50	100
	III	Core Paper-II	19UDEF302	Fundamentals of War and Peace	4	5	50	50	100
	III	Allied-I	19UDEF303	Political Science An Introduction -I	5	6	50	50	100
	IV	Non-Major Elective-I	19UNME401B	Independent India	2	2	50	50	100
	IV	Soft Skills-I	19UGSL401	Essentials of Language and Communication	3	2		100	100
Total Credits -24, Total Hours/ week-30									
Semester - II	I	Language	19UTAM142	Tamil II	3	6	50	50	100
	II	English	19UENG242	English II	3	4	50	50	100
	III	Core Paper-III	19UDEF304	Art of Warfare in India (up to 1947)	4	5	50	50	100
	III	Core Paper-IV	19UDEF305	World Military History	4	5	50	50	100
	III	Allied-II	19UDEF306	Political Science An Introduction -II	5	6	50	50	100
	IV	Non-Major Elective-II	19UNME402B	Human Rights	2	2	50	50	100
	IV	Soft Skills-II	19UGSL402	Essentials of Spoken English and Presentation Skills	3	2		100	100
Total Credits -24, Total Hours/ week-30									
Semester - III	I	Language	19UTAM143	Tamil III	3	6	50	50	100
	II	English	19UENG243	English III	3	4	50	50	100
	III	Core Paper-V	19UDEF307	Fundamentals of National Security	4	5	50	50	100
	III	Core Paper-VI	19UDEF308	International Relations	4	5	50	50	100
	III	Allied-III	19UDEF309	Principles of Economics- I	5	6	50	50	100
	IV	Soft Skills-III	19UGSL403	Personality Enrichment	3	2		100	100
	IV	EVS	19UEVS401	Environmental Studies		2			
Total Credits -22, Total Hours/ week-30									

COURSE STRUCTURE 2020-21 BATCH
B.A (DEFENCE & STRATEGIC STUDIES)

Semester	Part	Course Component	Subject Code	Subject Name	Credits	Hours	Internal	External	Total
Semester - IV	I	Language	19UTAM144	Tamil IV	3	6	50	50	100
	II	English	19UENG244	English IV	3	4	50	50	100
	III	Core Paper-VII	19UDEF310	Military Geography and Geo-Politics	4	5	50	50	100
	III	Core Paper-VIII	19UDEF311	International Organizations	4	5	50	50	100
	IV	Allied-IV	19UDEF312	Principles of Economics-II	5	6	50	50	100
	IV	Soft Skills-IV	19UGSL404	English for Competitive Examinations	3	2		100	100
	IV	EVS	19UEVS401	Environmental Studies	2	2	50	50	100
Total Credits -24, Total Hours/ week-30									
Semester - V	III	Core Paper-IX	19UDEF313	National Security of India	4	6	50	50	100
	III	Core Paper-X	19UDEF314	Specialized Warfare	4	6	50	50	100
	III	Core Paper-XI	19UDEF315	Basics of Defence Economics	4	6	50	50	100
	III	Core Paper-XII	19UDEF316	Higher Defence Organization of India	4	6	50	50	100
	III	Elective-I (Inter-disciplinary Elective)	19UIDE302	An Introduction to Defence Journalism	5	5	50	50	100
	IV	Value Education	19UVED401	Value Education	2	1		100	100
	V	Internship		Internship	2				
Total Credits -25, Total Hours/ week-30									
Semester - VI	III	Core Paper-XIII	19UDEF317	International Law	4	6	50	50	100
	III	Core Paper-XIV	19UDEF318	Post Independent wars of India	4	6	50	50	100
	III	Core Paper-XV	19UDEF319	Disarmament and Arms Control	4	6	50	50	100
	III	Elective-II	19UDEF320	Limited Wars	5	6	50	50	100
	III	Elective-III	19UDEF321	Defence Management	5	6	50	50	100
	V	Extension Activities	19UEXT501	Extension Activities	1				
Total Credits -23, Total Hours/ week-30									
Grand Total Credits -142, Total Hours/ week-180									

SEMESTER-I

CORE PAPER – 1 STRATEGIC STUDY OF INDIA

SUBJECT CODE:19UDEF301	THEORY	MAX MARKS: 100
SEMESTER: I	CREDITS 4	TOTAL HOURS: 75

Course Objectives: -

India is a civilizational concept, which has witnessed numerous ups and downs in its evolution in the contemporary international system. Modern India is destined to play a commanding role in the global affairs. This paper attempts to broaden the understanding of India in terms of its strong and weak potentialities.

Unit 1: Introduction: (a) Explanation of terms: Bharat, Hindustan and India (b) Salient features of India's freedom struggle (c) Geo-Strategic location, size, borders. **(15 Hours)**

Unit 2: Physiographic Features: (a) Himalayas, Indo-Gangetic Plain and Deccan Plateau (b) Ethnic and Linguistic Composition. **(15 Hours)**

Unit 3: System of Governance: (a) Salient Features of Indian Constitution (a) National Flag, National Anthem & National Institutions. **(15 Hours)**

Unit 4: Power Resources: (a) Agricultural (b) Industrial (c) Natural. **(15 Hours)**

Unit 5: Military Potential: (a) Defence Industries (b) Institutions of DRDO. **(15 Hours)**

Reference: -

1. India Year Book, Publication Division – New Delhi
2. Manorama Year Book
3. D.G.Chandler, The Atlas of Military Strategy: the art, theory and practice of war, London.

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

CORE PAPER – II FUNDAMENTALS OF WAR AND PEACE

SUBJECT CODE: 19UDEF302	(THEORY)	MAX MARKS: 100
SEMESTER-I	CREDITS 4	TOTAL HOURS: 75

Course Objectives: -

The history of mankind is highlighted by incidents of war and peace. It is therefore necessary to have in depth knowledge of these concepts for better understanding and clarity.

Unit 1: Introduction (a) Nomenclature and understanding of the terms Military Science, Military Studies, War Studies, Peace Studies, Conflict Studies, Defence Studies and Defence and Strategic Studies (b) Relevance and significance **(15 Hours)**

Unit 2:(a) Basic Concepts: War, Strategy, Grand Strategy, Tactics, Campaign, Battle, Operations, Defence and Security (b) Categorization of War: Civil war, Limited war, Chemical and Biological war, nuclear war, Guerrilla war, Insurgency and Low Intensity Conflicts **(15 Hours)**

Unit 3: Causes and Principles of War. **(15 Hours)**

Unit 4: Understanding of Peace: (a) Meaning, Definition and Forms of Peace (b) Role of Peace Education and Peace Movements (c) Concepts of Peaceful Co-existence & Zone of Peace **(15 Hours)**

Unit 5: Mechanics of War and Peace. (a) Amicable Settlement of International Disputes **(b)** International Law and Peace, Peace Treaties, International Court of Justice (c) Concepts of Peace Making, Peacekeeping & Peace Building **(15 Hours)**

References: -

1) Philip, T.R., (ed), Roots of Strategy, 1943.
2) Michael Howard, (Ed), The Theory and Practice of War, 1965.
3) D.G.Chandler, The Atlas of Military Strategy: the art, theory and practice of war (London, 1980)
4) Fuller, J.F.C., The Foundation of the Science of War (London, 1925)
5) Field Marshal, Montgomery, Viscount, A History of Warfare, (London: Collins, 1968).
6) Galtung, Johan, The Struggle for Peace, (Ahmedabad: Gujarat Vidyapeeth, 1986)

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

ALLIED I: POLITICAL SCIENCE AN INTRODUCTION - I

SUBJECT CODE: 19UDEF303	THEORY	MAX MARKS: 100
SEMESTER-I	CREDITS 5	TOTAL HOURS: 75

Course Objectives: -

This paper tries to introduce to the discipline of Political Science- State, Government and political systems: besides the theories of governance.

UNIT I –I INTRODUCTION (15 Hours)

Political Science as a discipline-Meaning and Definition-Nature and Scope-Is Politics a Science or Art-Methods of Political Science

UNIT II –-STATE AND NATION (15 Hours)

State Definition, Element and Functions of State-Distinction between State and Government-Distinction between State and Society and Association

UNIT III—THEORIES OF ORIGIN OF STATE (15 Hours)

Divine Origin Theory-force Theory-Social Contract Theory: (EXCLUDING HOBBES, LOCKE, and ROUSSEAU'S THEORIES) Patriarchal and Matriarchal theory Historical or Evolutionary Theory

UNIT IV—SOVEREIGNTY AND PLURALISM (15 Hours)

Sovereignty-Definition and Kinds of Sovereignty-Austin's Theory of Sovereignty-The concept of Pluralism

UNIT V—THE STATE AND THE INDIVIDUAL (15 Hours)

Law: Meaning and Features-Rights: Kinds and Fundamental Rights-Liberty: Its kinds and safeguards-Equality: Relation with Liberty and Rights

References: -

1. Amal Roy and Mohit Bhattacharya: Political Theory: Ideas and Institutions, Calcutta: The World Press
2. R.C. Macridis (ed) Modern Political System, Prentice Hall International
3. A.C.Kapoor: Principles of Political Science.
4. R.L.Gupta: Introduction to Political Science.

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

NME: INDEPENDENT INDIA

SUBJECT CODE:19UNME401B	THEORY	MAX MARKS: 100
SEMESTER-I	CREDITS 2	TOTAL HOURS :75

Course Objectives:

To highlight the physiographic, historical, socio-political, cultural, and economic structure of independent India. To understand to relate this to the contemporary developments that impinges on its politico strategic policy orientation.

UNIT I -- INTRODUCTION—Size, Location and Physical Environment **(15 Hours)**

UNIT II –-Cultural Patterns, Population Dimension, Rural and Urban India **(15 Hours)**

UNIT III—Basics of Indian Economy-Resources and Life Lines of Economy **(15 Hours)**

UNIT IV—Constitution of India-Its Features, Preamble, Fundamental Rights-Directive Principles of State Policy **(15 Hours)**

UNIT V—Causes of India's Social Disharmony-Poverty, Illiteracy and Social Backwardness **(15 Hours)**

Reference: -

1. India Year Book, Publication Division – New Delhi
2. Manorama Year Book
3. D.G.Chandler, The Atlas of Military Strategy: the art, theory and practice of war (London, 1980)

SEMESTER - II

CORE PAPER III - ART OF WARFARE IN INDIA (Up to 1947)

SUBJECT CODE: 19UDEF304	THEORY	MAX MARKS: 100
SEMESTER-II	CREDITS 4	TOTAL HOURS: 75

Course Objectives: - :

This paper attempts to familiarize the students with the evolution of the art of warfare in India. It is to establish that the art of warfare changes with changes in political governance, nature of threat, and weapon systems

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Unit 1: Warfare in Ancient India: (a) Military System in Vedic, Puranic and Epic ages (b) Alexander's Invasion of India (c) Rise of Mauryan Empire and its military system (d) Kautilya's philosophy of war and peace. **(15 Hours)**

Unit 2: Warfare in Medieval India: (a) Arab Conquest of Sind (Battle of Rawar) (b) Ghazni's invasions (Battle of Somnath) (c) Md.Ghori's Conquest of India (Battle of Terrain I and II) (d) Foundation of Mughal Empire in India (Battle of Panipat I and II) **(15 Hours)**

Unit 3. Military system of South India (Medieval Period) : (a) Rise of Pallavas and their Military system (b) Chola Imperialism and military system (C) Conquests of Pandya emperors and their military system**(15 Hours)**

Unit 4: Revival of Hindu Monarchy: (a) Sivaji as a great guerrilla leader (b) Military system of the Marathas (c) Rise of Sikhism (d) Military system of Maharaja Ranjit Singh **(15 Hours)**

Unit 5: Coming of the Europeans: (a) British Conquest of Bengal (b) Anglo- Mysore Wars **(c)** Rise of Presidency Armies (d) First War of Independence 1857(Causes and Consequences) **(15 Hours)**

References:

1) Majumdar, R.C., An Advanced History of India, New York: St.Martin,1967
2) Malleson, G.B., The Decisive Battles of India, London: W.H.Allen, 1885
3) Saxena, K.L.M., Military System of India-1850-1900, Delhi'1976.
4) Roy, Koushik., From Hydespas to Kargil : A History of Warfare in India from 326 B.C. to A.D 1999, Delhi: Manohar,2004.
5) AnjoliNirmal, The Decisive Battles of Indian History, Jaipur: Pointer Publications,1999.
6) Sarkar, Jadunath., Military History of India, Bombay: Orient Longmans,1970.
7) Das, S.T., Indian Military: Its History and Development, Allahabad: Kitab Mahal,1979.
8) V.R.R. Dikshitar, Wars in Ancient India, 1948.

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

CORE PAPER – IV - WORLD MILITARY HISTORY

SUBJECT CODE: 19UDEF305	THEORY	MAX MARKS: 100
SEMESTER-II	CREDITS 4	TOTAL HOURS: 75

Course Objectives:

On successful completion of the paper, the candidates will be able to narrate the evolution of warfare from early times. This paper outlines the wars which were fought from 4th century BC to 19th Century AD. To make the students understand the evolution of wars in the world from early period.

Unit 1: Military system in Ancient Greece: (a) Greek Military Organization, (b) Greeco Persian War (Battle of Marathon, Thermopylae and Salamis), (c) Rise of Alexander's Empire (Battle of Isus, Arbela) **(15 Hours)**

Unit 2: Military System in Ancient Rome: (a) Roman Military organization, (b) Rome-Carthage Conflict (Battle of Canne, Zama) (c) Julius Caesar's Military Campaigns **(15 Hours)**

Unit 3: Military System in Medieval Empire: (a) Military Reforms of Gustavus Adolphus (b) French Revolution – Causes and Consequences(c) Napoleon's art of war (Battle of Trafalgar and Waterloo) **(15 Hours)**

Unit 4: World War I: (a) Causes (b) Trench and Static Warfare, Use of Gas (c) Role of Naval and Air Power (d) Military lessons **(15 Hours)**

Unit 5: World War II: (a) Causes (b) Blitzkrieg Tactics, (C) Role of Air Power and Naval Power (d) Military Lessons. **(15 Hours)**

References: -

1) Howard, Michael. War in European History, Oxford: Oxford University Press, 1977.
2) Keegan, John., A History of Warfare, New York: Vintage, 1993.
3) Fuller, J.F.C., A Military History of the Western World, New York: Funk &Wagnalls Company, 1955
4) Neilberg, Michael,S., Warfare in World History, London / New York : Routledge,2001.
5) Andre Corviser, (ed.), A Dictionary of Military History, Oxford: Blackwell Publishers,1994.
6) Dupey&Dupey, Encyclopaedia of Military History.

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

ALLIED PAPER II: POLITICAL SCIENCE AN INTRODUCTION – II

SUBJECT CODE: 19UDEF306	THEORY	MAX MARKS: 100
SEMESTER-I	CREDITS 5	TOTAL HOURS: 75

Course Objectives:

This paper tries to introduce government, its structure and function: forms of government structure of government and the role of public opinion, Political parties and pressure groups on governance.

UNIT I –I FORMS OF GOVERNMENT (15 Hours)
Leacock's classification of Governments-Its Meaning-Unitary and Federal forms of governments-Merits and Demerits-Parliamentary and Presidential form of government

UNIT II –-DEMOCRACY (15 Hours)

Democracy-Definition, Meaning and Principles-Merits and Demerits of Democracy-Conditions for the success of Democracy

UNIT III—ORGANS OF GOVERNMENT (15 Hours)

Legislature: Its powers and functions and types-**Executive:** Its powers and functions-**Judiciary:** Its powers and functions and Methods for independence

UNIT IV—PUBLIC OPINION, POLITICAL PARTIES AND PRESSURE GROUPS (15 Hours)

Public Opinion: Meaning, Definition and Types-Agents of Public Opinion-Political Parties and types-Pressure Groups

UNIT V—ELECTION (15 Hours)

Electoral System, Importance of Elections and Universal Franchise-Qualifications of Voters and candidates-Methods of minority representation-Territorial and Functional Representation-conditions of good electoral process

References: -

1, A.C, Kapoor: Principles of Political Science

2. A. Appadurai: Substance of Politics, Oxford University Press, India

3. V.D. Mahajan: Modern Governments, S.C.Chand and Co., New Delhi

4. M. N. Kaul and S.L. Shakdhar, Practice and Procedure of Parliament, Metropolitan Book Company

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

NME: HUMAN RIGHTS

SUBJECT CODE: 19UNME402B	THEORY	MAX MARKS: 100
SEMESTER-II	CREDITS 2	TOTAL HOURS: 75

Course Objectives:

Efforts towards the establishment of a just and egalitarian society have been in vogue since the beginning of the civilization. Understanding certain basic right that contributes to the overall, dignified and honourable life to individuals is vital. This paper endeavours towards this.

UNIT I --INTRODUCTION—Concept, Definition and Meaning, Classification of Human Rights, History of Human Rights, and Principles **(15 Hours)**

UNIT II –List of Human Rights and Abuses **(15 Hours)**

UNIT III—International Human Rights Norms-Humanitarian Law, Universal Declaration of Human Rights **(15 Hours)**

UNIT IV—Human Rights and International Organizations—UNO and Human Rights **(15 Hours)**

UNIT V—National Human Rights Commission of India-Composition and Functions **(15 Hours)**

References: -

1. Philip Gourevitch, We Wish to Inform You That Tomorrow We Will Be Killed with Our Families.

2. David Batstone**,** The Return of the Global Slave Trade and How We Can Fight It

SEMESTER-III

CORE PAPER V – FUNDAMENTALS OF NATIONAL SECURITY

SUBJECT CODE: 19UDEF307	THEORY	MAX MARKS: 100
SEMESTER-III	CREDITS 4	TOTAL HOURS: 75

Course Objectives:

National security is the highest political goal of all states; the approaches adopted by states differ based on their individual power status, and the prevailing political and strategic dynamics at regional and global level. This paper introduces threats to a state, typology of threats, national power and its elements, doctrinal orientation for security; its linkages with foreign policy and Defence policy.

Unit I: Introduction (a) Concepts of Nation, State and Nation – State (b) Origin, concept and Course Objectives: - of National Security. **(15 Hours)**

Unit II: Spectrum of Threats: (a) Definition of Threats & Challenges (b) Security Structure (e) Security Spectrum (d) National Security Paradigm. **(15 Hours)**

Unit III: Instruments of National Security (a) Power (b) National Power (c) Military power and its components. **(15 Hours)**

Unit IV: Mechanics of National Security (a) Threat Perception, b) Threat Assessment and c) Threat Analysis and Policy Formulation **(15 Hours)**

Unit V: National Security Analysis Concept, Components and formulation of Security and Defence Policies and their linkages. **(15 Hours)**

References: -

1) Barry, Buzan. People, State and Fear: The National Security Problems in International Relations, Sussex; Wheatsheaf Books, 1983.
2) Bajpai, U.S.,(ed) India's Security : The Politico-Strategic Environment, New Delhi :Lancers Books, 1983.
3) Dixit, J.N., Across Borders: Fifty Years of India's Foreign Policy, New Delhi: Picus Books, 1998.
4) Satish Kumar, (ed)., Yearbook on India's Foreign Policy, New Delhi : Deep & Deep,1993.
5) Jayaramu, P.S., India's National Security and Foreign Policy, New Delhi: ABC Publishers, 1978.

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

CORE PAPER VI – INTERNATIONAL RELATIONS

SUBJECT CODE: 19UDEF308	THEORY	MAX MARKS: 100
SEMESTER-III	CREDITS 4	TOTAL HOURS: 75

Course Objectives:

Ever since states were identified on their territoriality, the need for jealously guarding their territoriality and if possible expanded has been the prime motive of international relations. To grasp its historical progress and the expanding scope of relationship amongst the states becomes imperative for the students of Defence and strategic studies.

Unit I Introduction (a) Components of State (b) Evolution of State system **(15 Hours)**

Unit II State System and its corollaries (a) Elements of National Power (b) National Interest c) Foreign Policy **(15 Hours)**

Unit III Theories of International Relations (a) Idealist and Realist (b) Integration and **(c)** Behaviourist and (d) Structuralism **(15 Hours)**

Unit IV Diplomacy **a)** Concept of Diplomacy, b) Kinds of Diplomacy c) Functions of Diplomacy **(15 Hours)**

Unit V Control of International Relations (a) Collective Security (b) Balance of Power(c) International Law **(15 Hours)**

References:

1. Introduction to International Relations: Theories and Approaches, Robert H. Jackson, Georg Sorensen, Oxford University Press,
2. International Relations, Palmer and Perkins,
3. International Relations, Prem Arora, IAS Study Circle, New Delhi
4. Man, the State, and War: A Theoretical Analysis, Kenneth Waltz,
5. International Relations Theory: A New Introduction, Palgrave Macmillan

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

ALLIED PAPER III: PRINCIPLES OF ECONOMICS – I

SUBJECT CODE: 19UDEF309	THEORY	MAX MARKS: 100
SEMESTER-III	CREDITS 5	TOTAL HOURS: 75

UNIT – I INTRODUCTION (15 Hours)

Definitions of Economics: Adam Smith, Alfred Marshall, Lionel Robbins and Samuelson – Nature of Economics: Micro and Macro Economics- Central problems of an Economy

UNIT – II CONSUMPTION (15 Hours)

Wants and their characteristics – Consumer's equilibrium- Marginal utility analysis and Indifference curve analysis - Consumer's surplus

UNIT – III PRODUCTION (15 Hours)

Factors of production, Law of variable proportions, Laws of returns to scale – Producer's equilibrium – Expansion Path

UNIT – IV MARKETSTRUCTURE (15 Hours)

Perfect competition- Monopoly and Monopolistic competition- Oligopoly and Kinked Demand Curve

UNIT – V DISTRIBUTION (15 Hours)

Functional vs. personal distribution – Factor Pricing- Marginal Productivity Theory of Distribution – Quasi Rent – Keynes' Liquidity Preference Theory of Interest – Schumpeter's Theory of Profit

Reference

1. AHUJA H. L - PRINCIPLES OF MICRO ECONOMICS
2. MICROECONOMIC THEORY.R. CAUVERY & TEAM.
3. AHUJA H. L -ADVANCE ECONOMIC THEORY

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

PART IV: ENVIRONMENTAL STUDIES

Course Objectives:

The importance of environmental science and environmental studies cannot be disputed. The need for sustainable development is a key to the future of mankind. Continuing problems of pollution, loss of forget, solid waste disposal, degradation of environment, issues like economic productivity and national security, Global warming, the depletion of ozone layer and loss of biodiversity have made everyone aware of environmental issues. The United Nations Conference on Environment and Development held in Rio de Janerio in 1992 and world Summit on Sustainable Development at Johannesburg in 2002 have drawn the attention of people around the globe to the deteriorating condition of our environment. It is clear that no citizen of the earth can afford to be ignorant of environment issues. Environmental management has captured the attention of health care managers. Managing environmental hazards has become very important.

Unit 1: Multidisciplinary nature of environmental studies Definition, scope and importance and need for public awareness.
Unit 2: Natural Resources: Renewable and non-renewable resources: Natural resources and associated problems. a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people. b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems. c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies. d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. e) Energy resources: Growing energy needs, renewable and non- renewable energy sources, use of alternate energy sources. Case studies. f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

Unit 3: Ecosystems: Concept of an ecosystem. Structure and function of an ecosystem, Producers, consumers and decomposers. Energy flow in the ecosystem. Ecological succession. Food chains, food webs and ecological pyramids. Introduction, types, characteristic features, structure and function of the following ecosystem: -

a. Forest ecosystem

b. Grassland ecosystem

c. Desert ecosystem

d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit 4: Biodiversity and its conservation Introduction – Definition: genetic, species and ecosystem diversity. Bio geographical classification of India, Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values. Biodiversity at global, National and local levels. India as a mega-diversity nation. Hot-spots of biodiversity. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. Endangered and endemic species of India, Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

Unit 5: Environmental Pollution. Definition. Cause, effects and control measures of: -a. Air pollution b. Water pollution c. Soil pollution d. Marine pollution e. Noise pollution f. Thermal pollution g. Nuclear hazards. Solid waste Management: Causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. Pollution case studies. Disaster management: floods, earthquake, cyclone and landslides.

References:

Environmental Studies, UGC Syllabus, Periyar EVR College, Trichy

SEMESTER- IV

CORE PAPER VII – MILITARY GEOGRAPHY & GEO – POLITICS

SUBJECT CODE: 19UDEF310	THEORY	MAX MARKS: 100
SEMESTER-IV	CREDITS 4	TOTAL HOURS: 75

Course Objectives:

To enable the student, understand the influence of Geography on the nature and function of war. Geography has had great influence on the scope and outcome of several decisive battles across the globe. Geography is the fundamental determinants of the national power and decides on the politico strategic structure of the states.

Unit I Introduction (a) Fundamentals of military geography (Accessibility, Visibility, Location, Distance, Climate etc.,) (b) Role and Importance of Geo – Politics (c) Geographic components of National Power. **(15 Hours)**

Unit II Geo – Political Thought: a) Theories of Mackinder, b) Haushofer and c) A.T. Mahan. **(15 Hours)**

Unit III Applied Military Geography: a) Basics of Global Positioning System (GPS), b) Global Information System (GIS) and c) Remote Sensing. **(15 Hours)**

Unit IV Geo – Strategic significance of India: (a) Geographical Location (b) Natural resources, Land mass, Rivers, Minerals & Oil (c) Importance of Andaman, Nicobar and Lakshadweep Islands **(15 Hours)**

Unit V India's Borders (a) Nature and characteristics of land borders (b) Maritime boundaries (c) Concept of Territorial waters and Exclusive Economic Zone. **(15 Hours)**

References: -

1) Das, S.T., Geo-Strategies, Allahabad: KitabMahal, 1985.
2) Black, Jeremy, Cambridge Illustrated Atlas, Warfare, Renaissance to Revolution: 1492-1792, (Cambridge: Cambridge University Press, 1996).
3) Chandler, David G., Atlas of Military Strategy: The Art, Theory and Practice of War, 1618-1878, (1980 reprint, London: Arms and Armour, 1996)
4) William D Puleston, The Life and Work of Alfred Thayer Mahan, U.N.S. (New Haven, CT,1939) 5) Earl Meade, Edward, Makers of Modern Strategy: Military Thought from Machiavelli to Hitler,1948.

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer Answer** any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

CORE PAPER VIII – INTERNATIONAL ORGANIZATIONS

SUBJECT CODE: 19UDEF311	THEORY	MAX MARKS: 100
SEMESTER-IV	CREDITS 4	TOTAL HOURS :75

Course Objectives:
In the contemporary world the survival of the mankind is conditioned by the facts of war and peace. The conditions of war and peace are influenced by various actors, viz., State, non-state and international organizations. This paper introduces the students to all these factors.

Unit I Introduction (a) Evolution of International Organisation and Regional Organisation (b) Characteristics (c) Overview of related theories (d)Significance of International and Regional Organisations**(15 Hours)**

Unit II League of Nations and UN system: Principles, Powers and Structures. **(15 Hours)**

Unit III Course Objectives: Functioning and Evaluation of SAARC, ASEAN and Asian Regional Forum (ARF) **(15 Hours)**

Unit IV Salient Features of European Union (EU) and Organisation for Security and Cooperation in Europe (OSCE). **(15 Hours)**

Unit V Fundamentals of Organisation of African Unity (OAU) Commonwealth of Independent States (CIS), Organisation of Islamic Conference (OIC), and Organisation of American States (OAS) BRICS, Asia-Pacific Economic Forum **(15 Hours)**

References: -

1) Palmer, N.D. and H.C.Perkins, International Relations, Boston: Houghton Mifflin, 1953.
2) Jackson, R. and G.Sorensen, Introduction to International Relations: Theory and Approaches, Oxford: Oxford University Press, 2003.
3) Frankel, J., International Relations in a Changing World, London: Oxford University Press, 1977.
4) Nicholson, M., International Relations: A Concise Introduction, New York: Palgrave, 2002.
5) Chatterjee, Aneek. International Relations Today: Concept and Applications, New Delhi: Pearson, 2010.
6) Johari, J.C., International Relations and Politics, New Delhi: Sterling Publishers, 1985.

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

ALLIED PAPER IV: PRINCIPLES OF ECONOMICS – II

SUBJECT CODE: 19UDEF312	THEORY	MAX MARKS: 100
SEMESTER-II	CREDITS 5	TOTAL HOURS: 75

UNIT - I NATIONAL INCOME (15 Hours)

Meaning of National Income – Concepts of National Income – Difficulties in the Measurement of National Income

UNIT – II PLANNING AND ECONOMIC DEVELOPMENT (15 Hours)

Course Objectives: - of Economic planning – Mixed Economy and Economic planning – PURA-A new Gandhian approach to development

UNIT – III PUBLIC FINANACE (15 Hours)

Government Budgets – Direct and Indirect taxes – Government Expenditure – Meaning of Deficit Financing- Functions of Financial Commission

UNIT – IV INTERNATIONAL TRADE (15 Hours)

Theories of International Trade – Comparative Cost theory, Balance of trade and balance of payments: Disequilibrium corrective methods- WTO-Trade Blocks: Meaning, EU, NAFTA and ASEAN

UNIT – V INTERNATIONAL MONETORY SYSTEM (15 Hours)

Functions of IMF and IBRD, the EURO, Meaning of Foreign Exchange- Purchasing Power Parity Theory - FEMA

References

1. Ahuja H. L – Principles of Micro Economics
2. Ahuja H. L – Macro Economics, Theory & Policy
3. Rudder Dutt, Sundharam, K. P. M. – Indian Economy
4. Francis Cherunilam, International Business
5. Seth, M. L. MACRO ECONOMICS
6. Singh S. K, Public Finance in theory and practice
7. Sawyer, Sprinkle, International Economics

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

PART IV: ENVIRONMENTAL STUDIES

Course Objectives: -The importance of environmental science and environmental studies cannot be disputed. The need for sustainable development is a key to the future of mankind. Continuing problems of pollution, loss of forget, solid waste disposal, degradation of environment, issues like economic productivity and national security, Global warming, the depletion of ozone layer and loss of biodiversity have made everyone aware of environmental issues. The United Nations Conference on Environment and Development held in Rio de Janerio in 1992 and world Summit on Sustainable Development at Johannesburg in 2002 have drawn the attention of people around the globe to the deteriorating condition of our environment. It is clear that no citizen of the earth can afford to be ignorant of environment issues. Environmental management has captured the attention of health care managers. Managing environmental hazards has become very important.

Unit 1: Multidisciplinary nature of environmental studies Definition, scope and importance and need for public awareness.

Unit 2: Natural Resources: Renewable and non-renewable resources: Natural resources and associated problems. a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people. b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems. c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies. d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer- pesticide problems, water logging, salinity, case studies. e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Case studies. f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

Unit 3: Ecosystems: Concept of an ecosystem. Structure and function of an ecosystem, Producers, consumers and decomposers. Energy flow in the ecosystem. Ecological succession. Food chains, food webs and ecological pyramids. Introduction, types, characteristic features, structure and function of the following ecosystem:

a. Forest ecosystem

b. Grassland ecosystem

c. Desert ecosystem

d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit 4: Biodiversity and its conservation Introduction – Definition: genetic, species and ecosystem diversity. Bio geographical classification of India, Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values. Biodiversity at global, National and local levels. India as a mega-diversity nation. Hot-spots of biodiversity. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. Endangered and endemic species of India, Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

Unit 5: Environmental Pollution. Definition. Cause, effects and control measures of: -a. Air pollution b. Water pollution c. Soil pollution d. Marine pollution e. Noise pollution f. Thermal pollution g. Nuclear hazards. Solid waste Management: Causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. Pollution case studies. Disaster management: floods, earthquake, cyclone and landslides.

References:

Environmental Studies, UGC Syllabus, Periyar EVR College, Trichy

SEMESTER -V

CORE PAPER IX – NATIONAL SECURITY OF INDIA

SUBJECT CODE: 19UDEF313	THEORY	MAX MARKS: 100
SEMESTER-V	CREDITS 4	TOTAL HOURS: 75

Course Objectives:

This paper encompasses all aspects of National Security of India - its national values, interests, Course Objectives: foreign policy and nature of threats both internal and external

Unit I Introduction: (a) India's national values, b) national security objective (c) India's Foreign policy goals. **(15 Hours)**

Unit II Internal Security Threats: (a) Poverty and Communal harmony (b) Corruption (c) Insurgency in North East. **(15 Hours)**

Unit III Issues with Pakistan: (a) Jammu and Kashmir (b) Siachin (c) Sir Creek Island (d) Wuller Barrage (e) Terrorism. **(15 Hours)**

Unit IV Issues with China: (a) Boundary dispute (b) Misperceptions on Tibet (c) Mutual Rivalry for Regional and Global Dominance **(15 Hours)**

Unit V Indian Ocean: (a) Strategic significance (b) India's interests (c) Power rivalry (militarization). **(15 Hours)**

References: -

1) AjeyLele, Strategic Technology for the Military, New Delhi: Sage, 2009.
2) Gopalakrishnan, K.V., Impact of Science and Technology on Warfare, New Delhi: National Book Trust, 2003.
3) Buzon, Barry. An Introduction to Strategic Studies: Military Technology and International Relations, New York: St.Martin Press,1987.
4) Kelin, John. Space Warfare: Strategy, Principles and Policy' London: Routledge, 2006.
5) Nair, K.K., Space the Frontier of Modern Defence, New Delhi: Knowledge World, 2006.
6) Pruthi, R.K.(ed)., Robotic Warfare, Delhi: Prashant Publishing House,2009.
7) Rappert, Brain (ed)., Technology and Security: Governing Threats in the New Millennium, New York: Hampshire, Palgrave Macmillan, 2007.

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

CORE PAPER: X - SPECIALIZED WARFARE

SUBJECT CODE: 19UDEF314	(THEORY)	MAX MARKS: 100
SEMESTER-V	CREDITS 4	TOTAL HOURS: 75

Course Objectives:
After completing the paper, the students will understand the types of war prevalent in the world. This paper describes the various types of warfare that are taught in the world. To understand the different types of war waged by nations at large.

Unit – I: Psychological Warfare (15 Hours)
a) Definition and nature of Psychological Warfare
b) Types of Propaganda
c) Brain washing and Rumour—Nature, Techniques and its Effects

Unit – II: Biological and Chemical Warfare (15 Hours)
a) Concept and Course Objectives: -
b) Characteristics
c) Types of Agents and its effects

Unit – III: Guerilla Warfare (15 Hours)
a) Concept and Course Objectives:
b) Characteristics of Guerilla Warfare
c) Elementary knowledge of Insurgency and Counter Insurgency

Unit – IV: Nuclear Warfare (15 Hours)
a) Concept and origin of Nuclear Warfare
b) Development of Nuclear Weapons
c) Effects of Nuclear Explosion- Flash, Thermal Radiation, Nuclear Radiation

Unit – V: Terrorism (15 Hours)
a) Definition
b) Causes
c) Types and Techniques

References: -
1) Philip M. Taylor, Munitions of the Mind: War Propaganda from the Ancient World to the Nuclear Age, (Wellingborough, 1990)
2) Qualter, T.H., Propaganda and Psychological Warfare, (New York, 1962)
3) SIPRI, The Problem of Chemical and Biological Warfare (4 Vols, New York, 1971)
4) Brown, F.J., Chemical Warfare : a Study in Restraint, (Princeton,1968)
5) Walter Laqueur, Guerilla, (London,1977)
6) Fairbairn, G., Revolutionary Guerilla Warfare (Harmondsworth,1974)
7) Asprey, R.B., War in the Shadows (London,1975)
8) Lawrence Freeman, The Evolution of Nuclear Strategy (London,1981)

Web Sites
http://www.cliffsnotes.com/cliffsnotes/history/what-is-guerrilla-warfare
http://www.britannica.com/EBchecked/topic/248353/guerrilla-warfare
http://www.opcw.org/about-chemical-weapons/what-is-a-chemical-weapon/
https://www.princeton.edu/~achaney/tmve/wiki100k/docs/Psychological_warfare.html
http://www.emedicinehealth.com/biological_warfare/article_em.htm

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

CORE PAPER XI –BASICS OF DEFENCE ECONOMICS

SUBJECT CODE: 19UDEF315	THEORY	MAX MARKS: 100
SEMESTER-V	CREDITS 4	TOTAL HOURS: 75

Course Objectives:

Economic imperatives are the vital factors in all activities of mankind to gauge its success. This applies to the study of Defence sector of a country in its endeavor to meet its security needs. Knowledge about budgeting, Defence allocation, resource augmentation, indigenization etc., are essential to understand the functioning of the Defence sector of the state.

Unit I Introduction: (a) Definition of Economics and Defence Economics **(b)** Economic System: kinds, features, merits and demerits (c) Defence and Development debate. **(15 Hours)**

Unit II Defence Budget: (i) Concepts of Finance, Revenue, Expenditure, process of Budget, National Income and Gross National Product (b) Analysis of India's Defence Budget. **(15 Hours)**

Unit III Defence Planning: (a) Parameters of Defence Planning (b) Use of Systems Analysis (c) Cost – effectiveness in selection of weapon systems. **(15 Hours)**

Unit IV Defence Production: (a) Assessment of Defence requirements (b) Role of Ordnance Factories and Public and Private sector undertakings (c) Contribution of DRDO. **(15 Hours)**

Unit V Effects of War on Economy: (a) Inflation (b) Balance of Payments **(c)** Mobilization of Resources. **(15 Hours)**

References: -

1. The Economics of Defence, Keith Hartley and Todd Sandler, Cambridge Surveys of Economic Literature
2. Economic Theories of Peace and War, Fanny Coulomb, Routledge
3. From Defence to Development?International Perspectives on Realizing the Peace Dividend**,** Sean M. DiGiovanna, Ann Markusen, Routledge.
4. Defence Production in India, Ron Mathews New Delhi: ABC,
5. Jasjit Singh, India's Defence Spending: Assessing Future Needs, New Delhi: Knowledge Publishers.
6. Y. Lakshmi, Trends in India's Defence Expenditure, New Delhi: ABC.

Web Sites

1. http://www.britannica.com/EBchecked/topic/155696/defense-economics
2. file:///C:/Users/defence/Downloads/1-Keith%20Hartley.pdf
3. http://en.wikipedia.org/wiki/Military_budget_of_India
4. http://ofbindia.gov.in/index.php?wh=ourunits
5. http://www.economicshelp.org/blog/2180/economics/economic-impact-of-war/

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

CORE PAPER XII –HIGHER DEFENCE ORGANISATION OF INDIA

SUBJECT CODE: 19UDEF316	THEORY	MAX MARKS: 100
SEMESTER-V	CREDITS 4	TOTAL HOURS: 90

Course Objectives:
The Defence of a country is structured on certain organizational pattern and mechanism. It is therefore essential to have a basic knowledge of them in the correct of India.

Unit I Introduction: (a) Defence and Functions of Higher Defence Organization of India (c) Role and Functions of President of India in relation to Armed Forces, c) Ministry of Defence and various Defence Committees—Composition and Functions **(20 Hours)**

Unit II Field & Static organizations of Indian Army, Indian Air Force and Indian Navy (b) Role and Functions of Para Military Forces. **(15 Hours)**

Unit III Organization & Function of various Indian Intelligence Agencies. **(15 Hours)**

Unit IV Structure of higher Defence Organizations of USA, Russia, China and Pakistan. **(20 Hours)**

Unit V Recruitment Organizations: System and Methods of recruitment in Indian Army, Navy and Air Force at all levels **(20 Hours)**

References: -

1) Venkateswaran, A.L., Defence Organisation in India, New Delhi: Government of India, 1967.
2) Government of India, The Army of India and its Evolution, Calcutta, 1924.
3) Ministry of Defence, Government of India, Indian Armed Forces Year Book, (Annual).
4) Palit, D.K., Essentials of Military Knowledge, (New Delhi:1989)
5) Singh, Nagendra., Defence Mechanism of Modern State, (New Delhi:1967).

Web sites

PAPER XII HIGHER DEFENCE ORGANIZATION OF INDIA

1. file:///C:/Users/defence/Downloads/jds_1_1_aprakash%20(1).pdf
2. http://isssp.in/tag/higher-defence-organisation/
3. http://pages.rediff.com/national-security-council--india-/980882
4. http://knowindia.gov.in/myindia/myindia_frame.php?id=6
5. http://en.wikipedia.org/wiki/List_of_Indian_intelligence_agencies

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

ELECTIVE – I: AN INTRODUCTION TO DEFENCE JOURNALISM

SUBJECT CODE:19UIDE302	THEORY	MAX MARKS: 100
SEMESTER-V	CREDITS 5	TOTAL HOURS: 75

Course Objectives:

Defence journalism, though very much a part of modern-day journalism, has practically very little literature for reference. There is an urgent need to understand essential information, facts, sources, and the qualities required to become a successful Defence journalist. Also, provide knowledge how to be responsible Defence Journalist. Depending on branch of service and specific Military Occupational Specialty, military journalists learn to do a surprising variety of jobs.

Unit I Introduction Journalism: Meaning, relevance and scope (b) News Organization Structure and functioning (c) Media: concept, kind and characteristics. **(15 Hours)**

Unit II Defence News: (a) Purpose and meaning (b) Kinds and sources (c) Theories of news selection. **(15 Hours)**

Unit III Reporting Defence Stories: (a) Format, Language and Grammar (b) Kinds: Eye Witness, Computer assisted Features (c) Concepts of Graphics and animation (d) Interviewing skills. **(15 Hours)**

Unit IV Editing: (a) Abbreviations and definition of military terms (b) Proof – reading symbols (c) Caption writing and picture editing. **(15 Hours)**

Unit V Hurdles in Defence writing: (a) Media Ethics (b) Media Laws (c) Military vs. Media debate (d) News Photography. **(15 Hours)**

References: -

1) Menon, P.K., Practical Journalism, Jaipur: Aavishkar Publishers & Distributers, 2005.
2) Dhara,R., Journalism, Calcutta : Industry Publishers,1945.
3) Basu, R.N., Handbook of Journalism, Jaipur: Pointer Publishers, 2005.
4) Kamath,M.V., The Journalist's Handbook, New Delhi : Vikas,1980.
5) Professional Journalism, New Delhi: Vikas, 1983.

Web Sites

1. http://en.wikipedia.org/wiki/Journalism
2. http://en.wikipedia.org/wiki/Mass_media
3. http://www.poynter.org/how-tos/journalism-education/190429/in-defense-of-journalism-education-the-3-essentials-it-teaches/
4. http://www.w3.org/TR/CSS21/media.html

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No.Of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

PART IV: VALUE EDUCATION

Course Objectives:

Values are socially accepted norms to evaluate objects, persons, and situations that form part and parcel of sociality. A value system is a set of consistent values and measures. Knowledge of the values are inculcated through education. It contributes in forming true human being, who are able to face life and make it meaningful.

Unit I:

Value education-its purpose and significance in the present world – Value system – The role of culture and civilization-Holistic living – Balancing the outer and inner – Body, Mind and Intellectual level- Duties and responsibilities. **(3 Hours)**

Unit II:

Salient values for life- Truth, commitment, honesty and integrity, forgiveness and love, empathy and ability to sacrifice, care, unity, and inclusiveness, Self-esteem and self-confidence, punctuality – Time, task and resource management – Problem solving and decision-making skills- Interpersonal and Intra personal relationship – Team work –Positive and creative thinking **(3 Hours)**

Unit III:

Human Rights – Universal Declaration of Human Rights – Human Rights violations – National Integration – Peace and non-violence – Dr. A P J Kalam's ten points for enlightened citizenship – Social Values and Welfare of the citizen – The role of media in value building. **(3 Hours)**

Unit IV:

Environment and Ecological balance – interdependence of all beings – living and non- living. The binding of man and nature – Environment conservation and enrichment **(3 Hours)**

Unit V:

Social Evils – Corruption, Cybercrime, Terrorism – Alcoholism, Drug addiction – Dowry – Domestic violence – untouchability – female infanticide – atrocities against women- How to tackle them **(3 Hours)**

References: -

1. M.G.Chitakra: Education and Human Values, A.P.H.Publishing Corporation, New Delhi, 2003
2. Chakravarthy, S.K.: Values and ethics for Organizations: Theory and Practice, Oxford University Press, New Delhi, 1999.
3. Satchidananda, M.K.: Ethics, Education, Indian Unity and Culture, Ajantha Publications, Delhi, 1991

Web sites

1. http://moe.edu.tt/curriculum_pdfs/Morals_and_Values_Curriculum_Prim.pdf
2. http://www.edpsycinteractive.org/topics/affect/valuesga.html
3. http://www.ohchr.org/EN/Issues/Pages/WhatareHumanRights.aspx
4. http://www.publishyourarticles.net/knowledge-hub/essay/essay-on-social-evils-in-india.html

SEMESTER - VI

CORE PAPER: XIII - INTERNATIONAL LAW

SUBJECT CODE: 19UDEF317	THEORY	MAX MARKS: 100
SEMESTER-VI	CREDITS 4	TOTAL HOURS: 75

Course Objectives:

This paper aims at introducing to the student different aspects of International Law. The laws which govern the conduct of war, Laws of neutrality and the organization of the International court of Justice are covered in this paper.

Unit I Introduction: (15 Hours)

(a) Definition, Basis of international Law, History and its development
(b) Nature, Source and Codification
(c) Distinction between International and Municipal laws

Unit II Laws of Land, Sea and Air Warfare (15 Hours)

(a) Laws of Land Warfare
(b) Laws of Maritime Warfare
(c) Laws of Aerial Warfare
(d) War Crimes and Genocide

Unit III laws of Neutrality (15 Hours)

(a) The laws of Neutrality
(b) Right of Angary
(c) Contraband and Doctrine of Continuous Voyage

Unit IV Management of International Law (15 Hours)

(a) Settlement of International Disputes
(b) War its Legal Character and Effects
(c) Enemy Character

Unit - V Legal Mechanisms (15 Hours)

(a) Blockade - Concept, Establishment, Kinds and Penalties for breach
(b) Prize Courts
(c) Organization, role and functions of International Court of Justice.

References:

1) Tandon, M.P, and Rajesh Tandon, An Introduction of International Law, Allahabad: Allahabad Law Agency, 1987.
2) Kapoor, S.K., International Law, Allahabad; Allahabad Law Agency,1989.
3) Chavan, R.S., An Approach to International Law, New Delhi: Sterling, 1971.
4) Starke, J., An Introduction to International Law.
5) Oppenheim, International Law.

Web Sites

1. https://www.google.co.in/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#safe=active&q=international law
2. http://www.loc.gov/rr/frd/Military_Law/pdf/law_warfare-1956.pdf
3. https://www.icrc.org/eng/resources/documents/misc/57jpcl.htm
4. http://www.geneva-academy.ch/docs/academyLecture/Lecture_Heinegg.pdf
5. http://dictionary.reference.com/browse/blockade

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

CORE PAPER: XIV – POST INDEPENDENT WARS OF INDIA

SUBJECT CODE: 19UDEF318	THEORY	MAX MARKS: 100
SEMESTER-VI	CREDITS 4	TOTAL HOURS: 75

Course Objectives:

The course of Political and strategic dynamics in Indian sub-continent becomes essential to appreciate the series of wars India encountered with her neighboring states

Unit I Introduction: (a) Partition of British Indian Army (b) Early Challenges: Annexation of Junagadh – 1947. Operations Polo (Integration of Hyderabad 1948), Operation Vijay (Integration of Goa 1961). **(15 Hours)**

Unit II Operation in Kashmir – 1947 – 48 (a) Events leading to annexation (b) Operations of Indian Army (c) Military lessons. **(15 Hours)**

Unit III Chinese invasion of India – 1962; (a) Causes of War (b) Important Operations of War (c) Military Re – organization. **(15 Hours)**

Unit IV (a) Indo – Pakistan War of 1965: Outline of the Operations, Role of Artillery (b) Operation Cactus- Lily. (c) Liberation of East Pakistan1971- Origin and Causes of War. **(15 Hours)**

Unit V Internal Security Operations: (a) Operation Blue Star – 1984 (b) Operation Rhino (Northeast Region) (c) Operation Vijay. **(15 Hours)**

References:

1. Sinha Lt. Gen - Slender was the Thread
2. Johari, Sitaram - Chinese invasion of NEFA
3. Mankekar D.R - Pakistan Cut to size
4. Subramaniam. K. - Liberation War
5. Subramaniam. K - Kargil Report.

Web Sites

1. http://webcache.googleusercontent.com/search?q=cache:Wij-sSFZ1kcJ:en.wikipedia.org/wiki/Indo-Pakistani_War_of_1947+&cd=4&hl=ta&ct=clnk&gl=in
2. https://history.state.gov/milestones/1961-1968/india-pakistan-war
3. http://www.ndtv.com/article/cheat-sheet/how-india-bungled-1962-war-with-china-10-points-496995
4. http://www.globalsecurity.org/military/world/war/indo-pak_1971.htm
5. https://www.quora.com/India-Pakistan-Rivalry/What-is-the-truth-behind-kargil-war

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

CORE PAPER XV – DISARMAMENT AND ARMS CONTROL

SUBJECT CODE: 19UDEF319	THEORY	MAX MARKS: 100
SEMESTER-VI	CREDITS 4	TOTAL HOURS: 75

Course Objectives:

Disarmament efforts from the formation of nation state system is attempted in this paper which gained momentum after the Second World War and also Arms control measures are applied to Nuclear states which is being appraised in this paper.

Unit I Introduction (a) The evolution of the nuclear era since 1945 (b) Basics of nuclear technology, nuclear energy and its uses. **(15 Hours)**

Unit II Development of missiles (a) Classifications and characteristics, (b) Brief study of the theories of nuclear warfare: Preventive, Pre-emptive, Massive Retaliation, Counter Force, Counter Value, Flexible Response, MAD and MAS. **(15 Hours)**

Unit III Elementary study of Treaties: (a) Nuclear – weapon Treaties, (PTBT, TTBT, PNET & CTBT) (b) Nuclear Arms Limitation Treaties (ABM, SALT, INF,and START) (c) Nuclear – Weapon proliferation Treaties (NPT, MTCR) FMCT, NSG and its impact on Indo-US Agreement**(15 Hours)**

Unit IV (a) Conventions of (a) Chemical and Biological Weapons (b) Prevention of Accidental Wars **(15 Hours)**

Unit V (b) India's contribution in the process of arms control. **(15 Hours)**

References: -

1) Cochran, Thomas, Arkin, William, and Hoenig, William, Nuclear Weapons Databook (5 vols., Cambridge, Mss, 1984).
2) Glasstone, S., and Dolan, P.J., The Effects of Nuclear Weapons (Washington, 1977).
3) Grace, Charles, Nuclear Weapons: Principles, Effects and Survivability (London, 1994).
4) Brodie, Bernard, Strategy in the Missile Age (Princeton, 1959).
5) Lee, R.G., Guided Weapons (London, 1988).

Web Sites

1. http://en.wikipedia.org/wiki/Disarmament
2. http://en.wikipedia.org/wiki/Arms_control
3. http://en.wikipedia.org/wiki/Missile
4. http://www.britannica.com/EBchecked/topic/421797/nuclear-strategy
5. http://blog.oup.com/2014/11/cold-war-nuclear-strategy-agreed-framework/

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

ELECTIVE II: LIMITED WARS

SUBJECT CODE: 19UDEF320	THEORY	MAX MARKS: 100
SEMESTER-VI	CREDITS 5	TOTAL HOURS :75

Course Objectives:

After going through this paper students will have an understanding of wars that were fought after the end of World War – II . This paper deals with the evolution of limited wars after the end of World War – II. To make the students learn about some of the important wars that was fought after 1945.

Unit – 1: Korean War (15 Hours)

a) Concept, meaning and scope of limited wars

b) Causes of Korean War

c) Main events

d) Role of UNO

Unit – 2: Vietnam War (15 Hours)

a) Causes

b) Main events

c) Lessons learnt

Unit – 3: Arab Israeli Wars, 1967 & 1993 (15 Hours)

a) Causes

b) Main events

c) Role of Air power

d) Lessons learnt

Unit – 4: Iran – Iraq War (15 Hours)

a) Causes

b) Highlights of the war

c) Result and lessons learnt

Unit – 5: Gulf of War I & II (15 Hours)

a) Causes

b) Highlights of the war

c) Role of the UN

References:

1) Hastings, Max, The Korean War, (London: 1987)
2) Herring, George, America's Longest War (New York, 1996)
3) Fraser, T.G., The Arab - Israeli Conflict (London: 1995)
4) Agwani, M.S., The West Asian Crisis, New Delhi: 1995.
5) Colvocoressi, P., World Politics: 1954 - 2000, New Delhi: Pearson Education,2001.
6) Schoot, Ian., World Famous Battles, London: Magpie Books Ltd., 1994.

Web Sites

1. en.wikipedia.org/wiki/**Limited_war**
2. en.wikipedia.org/wiki/**Korean_War**
3. en.wikipedia.org/wiki/**Vietnam_War**
4. en.wikipedia.org/wiki/**Arab–Israeli** conflict
5. **en.wikipedia.org/wiki/Iran–Iraq_War**
6. en.wikipedia.org/wiki/**Gulf_War**

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

ELECTIVE – III - DEFENCE MANAGEMENT

SUBJECT CODE: 19UDEF321	THEORY	MAX MARKS: 100
SEMESTER-VI	CREDITS 5	TOTAL HOURS: 75

Course Objectives:

A clear insight into the principles and concepts of management, those are imperative in comprehending Defence management It is imperative for the practicing managers and the officers in the armed forces to get acquainted with the essentials of management. This paper Defence Management focuses on practical aspects of Defence management through the eyes of practioners.

Unit I Introduction (a) Definition of administration and management (b) Principles and process of Defence management. **(15 Hours)**

Unit II Planning (a) Definition and features (b) Steps in planning (c) Management by Course Objectives: - (d) Decision Making process and techniques. **(15 Hours)**

Unit III Organizing (a) Structure, function and characteristics of military organizations **(15 Hours)**

Unit IV Staffing (a) Sources of Manpower supply (b) Selection process for officers and other ranks in Indian Armed Forces and Para-Military Forces **(15 Hours)**

Unit V Directing and controlling (a) Military leadership (b) Parameters of morale and motivation (c) Control techniques. **(15 Hours)**

References;

1. Principles of Management, M. Govindarajan and S. Natarajan, PHI Learning Pvt. Ltd.,
2. Principles of Management, Tripathi, Tata McGraw-Hill Education.
3. Essentials of Management, Koontz, Tata McGraw-Hill Education.
4. Management: A Systems and Contingency Analysis of Managerial Functions, Harold Koontz, Cyril O'Donnell McGraw-Hill.
5. Principles of Management: A Modern Approach, P. K. Saxena, Global India Publications, New Delhi.

Web Sites

1. **en.wikipedia.org/wiki/Capability management**
2. **en.wikipedia.org/.../Organizational structure**
3. **en.wikipedia.org/wiki/Military organization**
4. odam.defense.gov/.../**Functions/Organizational**
5. **www.managementstudyguide.com/directing_**
6. **www.managementstudyguide.com/leadership**

Question paper pattern:

Sections	Question Components	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	**1-12**	**3**	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions. Each answer should not exceed 200 words	**13-19**	**6**	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	**20-25**	**10**	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**3**
	Unit - 4	**3**
	Unit - 5	**2**
Section B	Unit – 1	**2**
	Unit - 2	**2**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**
Section C	Unit – 1	**2**
	Unit - 2	**1**
	Unit - 3	**1**
	Unit - 4	**1**
	Unit - 5	**1**

GURU NANAK COLLEGE (AUTONOMOUS)

(Affiliated to University of Madras and Re-Accredited at 'A' Grade by NAAC)

Guru Nanak Salai, Velachery, Chennai – 600042.

B.A. Economics

(SEMESTER PATTERN WITH CHOICE BASED CREDIT SYSTEM)

Syllabus

(For the candidates admitted in the Academic year 2019-20 and thereafter)

Vision

- To uphold high standards of academic excellence in teaching and research.
- To grow to gain wide-spread recognition for Post-Graduate and Ph.D. programmes.
- To promote academic activities like research, internships, training, etc.
- To organize International/National Seminar/Workshop programmes to facilitate interaction with academicians and experts.
- To focus on a set of skills relevant to strengthening students' competency to gain employment.

Mission

- To provide students with a strong theoretical foundation in Economics.
- To train and equip students with the requisite skills to carry out Applied Economics Research.
- To promote experiential learning through the application of knowledge to new challenges.
- To provide the social capital necessary for establishing a healthy society by instilling values, ethics and confidence in young minds.
- 5. To provide students with a strong foundation in economic theory, strengthened by critical thinking and sharp analytical skills required for policy analysts.

Programme Outcomes

PO1: To understand and analyse all basic concepts in Economics

PO2: To analyse central and state Budget to maintain maximum social welfare

PO3: To understand the functions of international organisations such as IMF, WTO and World Bank and examine international trade policies

PO4: To develop problem solving skills, apply statistical and mathematical tools on economic theories and find solutions for different economic problems.

PO5: To demonstrate the importance of Gender economics to achieve inclusive growth

Programme Specific Outcome

PSO1: To prove the proficiency of the students with the ability to identify different environmental problems due to developmental activities and provide cost effective and efficient solutions.

PSO2: Analyse different economic doctrines and find out the applicability of all doctrines in the modern world and provide solutions for all major economic problems such as Inflation, unemployment, poverty, inequality in income and wealth.

B.A ECONOMICS

COURSE STRUCTURE 2019-20 BATCH

Semester	Part	Course Component	Subject Code	Subject Name	Credits	Hours	Internal	External	Total
Semester - I	I	Language	19UTAM141	Tamil - I / Other Language	3	6	50	50	100
	II	English	19UENG241	English - I	3	4	50	50	100
	III	Core-I	19UECO301	Micro Economics- I	4	5	50	50	100
	III	Core-II	19UECO302	Statistical Methods – I	4	5	50	50	100
	III	Allied-I	19UECO303	Industrial Economics	5	6	50	50	100
	IV	Non Major Elective-I	19UNME401A	Basics of Capital Market	2	2			100
	IV	Soft Skills-I	19UGSL401	Introduction to Study Skills	3	2			100
Total Credits -24, Total Hours/ week-30									
Semester - II	I	Language	19UTAM142	Tamil - II / Other Language	3	6	50	50	100
	II	English	19UENG242	English - II	3	4	50	50	100
	III	Core-III	19UECO304	Micro Economics- II	4	6	50	50	100
	III	Core-IV	19UECO305	Statistical Methods – II	4	5	50	50	100
	III	Allied-II	19UECO306	Entrepreneurial Development	5	5	50	50	100
	IV	Non Major Elective-II	19UNME402A	Indian Economy for Civil Service Exam	2	2	50	50	100
	IV	Soft Skills-II	19UGSL402	Life Skills	3	2			100
Total Credits -24, Total Hours/ week-30									
Semester - III	III	Language	19UTAM143	Tamil - III / Other Language	3	6	50	50	100
	III	English	19UENG243	English - III	3	4	50	50	100
	III	Core-V	19UECO307	Macro Economics – I	4	6	50	50	100
	III	Core-VI	19UECO308	Money and Banking - I	4	6	50	50	100
	III	Allied-III	19UECO309	Mathematics for Economists	5	6	50	50	100
	IV	Soft Skills-III	19UGSL403	Job Oriented Skills	3	2			100
Total Credits -22, Total Hours/ week-30									
Semester - IV	III	Language	19UTAM144	Tamil - IV/ Other Language	3	6	50	50	100
	III	English	19UENG244	English - IV	3	4	50	50	100
	III	Core-VII	19UECO310	Macro Economics – II	5	5	50	50	100
	III	Core-VIII	19UECO311	Money and Banking - II	4	5	50	50	100
	IV	Allied-IV	19UECO312	Basic Econometric Methods	5	6	50	50	100
	IV	EVS	19UEVS401	Environmental Studies	2	2	50	50	100
	IV	Soft Skills-IV	19UGSL404	Computing Skills	3	2			100
Total Credits -25, Total Hours/ week-30									
Semester - V	III	Core-IX	19UECO313	Indian Economic Development - I	4	6	50	50	100
	III	Core-X	19UECO314	Fiscal Economics – I	4	6	50	50	100
	III	Core-XI	19UECO315	International Economics - I	4	6	50	50	100
	III	Core-XII	19UECO316	Development of Economics of Doctrine	4	6	50	50	100
	III	Elective-I (Inter-Disciplinary Elective)	19UIDE301	Principles of Insurance and Risk Management	5	4	50	50	100
	IV	Value Education	19UVED401	Value Education	2	2	50	50	100
Total Credits -23, Total Hours/ week-30									
Semester - VI	III	Core-XIII	19UECO317	Indian Economic Development- II	4	6	50	50	100
	III	Core-XIV	19UECO318	Fiscal Economics – II	4	6	50	50	100
	III	Core-XV	19UECO319	International Economics – II	4	6	50	50	100
	III	Elective-II	19UECO320	Agricultural Economics*	4	6	50	50	100
	III	Elective-III	19UECO321	Labour Economics*	5	6	50	50	100
	V	Extension Activities	19UEXT501	Extension activities	1		50	50	100
Total Credits -22, Total Hours/ week-30									
Grand Total Credits -140 Total Hours/ week-180									

SEMESTER - I

.

CORE I

MICRO ECONOMICS - I

SUBJECT CODE: 19UECO301	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS : 75**

Objectives:

1. To acquaint students with the fundamental concepts, methods and principles of consumption and production branches of economics.
2. To enable students to understand the economic motives and behavior patterns of individual consumer.
2. To help the students to relate their day-to-day experience to the principles of economics.

Unit – I: Scope and Methodology of Micro Economics (15 Hrs.)

Definition of Economics – Adam Smith – Marshall – Robbins – Samuelson – Modern – Micro Economics – Its importance and limitations - Methodology of Economics – Deductive method and Inductive method – Static and Dynamics - Economic Laws

Unit – II: Theory of Consumer Behavior – Cardinal Utility Analysis (15 Hrs.)

Concept of Utility – Cardinal Utility – Ordinal Utility - Law of Diminishing Marginal Utility – Law of Equi-marginal utility – Concepts of Demand and Supply – Law of Demand – Law of Supply.

Elasticity of Demand – Price Elasticity of Demand – Income Elasticity of Demand – Cross Elasticity of Demand – Measurement of Elasticity of Demand – Factors influencing Elasticity of Demand – Concept of Demand Forecasting - Consumer's Surplus – Importance and Weakness.

Unit – III: Theory of Consumer Behavior – Ordinal Utility Analysis (15 Hrs.)

Indifference Curve Technique– Features of Indifference Curve – Consumer's Equilibrium – Price Effect – Income Effect – Substitution Effect – The Principles of DMRs – Hicks Revealed Preference Theory.

Unit – IV: Theory of Production (15 Hrs.)

Factors of Production – Features – Production Function - Assumptions – Cobb Douglas Production Function – Law of Diminishing Returns – Law of Increasing Returns – Law of constant Returns – Law of Variable Proportions – Returns to Scale – Equal Product Curves – The Principle of DMRTS – Producer's Equilibrium – Internal and External Economies – Economies of Scale and Diseconomies of scale of production – Their Merits and Demerits.

Unit – V: Cost and Revenue Curves (15 Hrs.)

Concepts of Cost – Fixed Cost – Variable Cost –Total Cost – Average Cost – Marginal Cost – Average Cost Curves – Nature of Short Run and Long Run Average Cost Curves – Derivation of LAC Curve – Revenue Concepts – Total Revenue – Average Revenue – Marginal Revenue – Relationship between Average Revenue & Marginal Revenue – Break-even Analysis.

PRESCRIBED TEXT BOOKS:

1. Salvatore – Micro Economics, 4/e, Oxford University Press, New Delhi, 2002.
2. Dewett.K.K – Micro Economics.
3. Jhingan M.L. and C.Murthy Micro Economics, Vrindha Publication, New Delhi, 2016.

REFERENCE BOOKS

1. Karl E. Case and Ray C. Fair, *Principles of Economics*, Pearson Education, Inc., 8th edition, 2007.
2. N. Gregory Mankiw, *Economics: Principles and Applications*, India edition by South Western, a part of Cengage Learning, Cengage Learning India Private Limited, 4th edition, 2007.
3. Joseph E. Stiglitz and Carl E. Walsh, *Economics*, W.W. Norton & Company, Inc., New York, International Student Edition, 4th edition, 2007.

WEB REFERENCES:

1. https://www.khanacademy.org/economics-finance-domain/ap-microeconomics/basic-economic-concepts
2. https://www.cliffsnotes.com/study-guides/economics/introduction/economic-policy

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

CORE 2

STATISTICAL METHODS - I

SUBJECT CODE: 19UECO302	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 75**

Objectives:

1. To understand the importance of Statistics, concept of data, diagrammatic and graphic presentation.
2. To study the measures of central tendency and measures of dispersion.
3. To know the measures of Skewness and measures Kurtosis.

Unit – I: Importance of Statistics and Presentation of Data (15 Hrs.)

Introduction, Meaning and Definition of Statistics – Relationship with other subjects – Functions, Objectives, Importance and Limitations; Classification –Types, Tabulation – Parts of Tabulation and Editing of Data – Diagrammatic and Graphic Presentation of Data – Advantages and disadvantages of graphic and diagrammatic Presentation.

Unit – II: Sources and Methods of Data Collection (15 Hrs.)

Primary and Secondary Data – Methods of Collecting Primary data - Their Advantages and Disadvantages - Census Method: Merits and Demerits – Planning a Statistical Investigation – Questionnaire – types of Questionnaires – Interview Schedule – Sources of Secondary Data: Published and Unpublished Sources – Sourcing through Online searches.

Unit – III: Measures of Central Tendency (15 Hrs.)

Measures of Central Tendency – Types of Averages – Mean, Median, Mode, Harmonic Mean, Geometric Mean – Combined Arithmetic Mean – Their Merits and Demerits.

Unit – IV: Measures of Dispersion (15 Hrs.)

Measures of Dispersion – Meaning – Properties of Dispersion – Range, Quartile Deviation – Mean Deviation, Standard Deviation – Coefficient of Variation – Lorenz curve – Importance of Lorenz Curve – Gini Co-efficient - Merits and Demerits of Measures of Dispersion.

Unit – V: Skewness and Kurtosis (15 Hrs.)

Skewness – Meaning – Difference between Dispersion and Skewness, Karl Pearson's and Bowley's Measures of Skewness – Co-efficients Based on Moments – Kurtosis – Meaning – Patterns of Kurtosis – Importance of Skewness and Kurtosis.

PRACTICALS

Preparation of Interview schedule

Text Book

1. Gupta, S.P. – Statistical Methods, S.Chand & Company, New Delhi, 1982.
2. Pillai, R.S.N. and V.Bhagavathi – Statistics Theory and Practice, S.Chand & Company, New Delhi, 1993.
3. Croxton, F.E., D.J.Cowden and S.Klein – Applied General Statistics.
4. Gupta, S.C. and V.K. Kapoor Speigal, M.R. – Theory and Problems of Statistics.

Reference Books:

1. Jay L. Devore, Probability *and Statistics for Engineers*, Cengage Learning, 2010.
2. John E. Freund, *Mathematical Statistics*, Prentice Hall, 1992.
3. Richard J. Larsen and Morris L. Marx, *An Introduction to Mathematical Statistics and its Applications*, Prentice Hall, 2011.

WEB REFERENCES:

1. https://www.khanacademy.org/math/statistics-probability
2. https://www.cliffsnotes.com/study-guides/statistics

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	1	1
	Unit – 2	2	1
	Unit – 3	1	1
	Unit – 4	2	1
	Unit – 5	1	1
Section B	Unit – 1	1	
	Unit – 2	1	1
	Unit – 3	1	1
	Unit – 4	1	1
	Unit – 5	1	
Section C	Unit – 1	0	
	Unit – 2	0	1
	Unit – 3	1	1
	Unit – 4	0	1
	Unit - 5	1	1

ALLIED – I:
INDUSTRIAL ECONOMICS

SUBJECT CODE: 19UECO303	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 5**	**TOTAL HOURS: 90**

Objectives:

1. To expose the students to understand the relationship between industry and economic development, and its dynamics.
2. To study the industrial location and its productivity.
3. To understand the various sources of industrial finance in India.
4. To assess the major industries performance in India.

Unit – I: Introduction (18 Hrs.)

Meaning and importance of industrial economics - Rationale of industrialization – Concepts of industrialization – Innovation – Entrepreneurship – Technology – Industrial Organization: Proprietorship – Partnership – Joint Sector – Co-operative Sector – Public Sector and Private Enterprises – Their Merits and Demerits – Multinational Corporations – Salient features of Industrial Organisation.

Unit – II: Industrial Location (18 Hrs.)

Industrial Location – Theories of Industrial Location – Alfred Weber – Bosch – Sergeant Florence – Methods of Induction and Deduction – Factors determining Industrial Location – Industrial Location and Performance – Types of Industry and Industrial Size – Large scale, Small Scale, Tiny and Cottage Industries– Micro Enterprises in India – Their advantages and disadvantages.

Unit – III: Industrial Productivity (18 Hrs.)

Industrial Productivity – Scope and Significance – Measurement – Factors influencing productivity – Productivity Movement in India – National Productivity Council – Importance of National Productivity Council – Principles of Industrial Management.

Unit – IV: Industrial Finance (18 Hrs.)

Industrial Finance – Term Finance: Short Term, Long Term – Lease Financing – Sources: Capital Market – Financial Institutions – Indian Capital Market – Specialized Financial Institutions: IFCI – IDBI – SIDBI – SFCs – Problems, Issues and Challenges of Industrial finance in India.

Unit – V: India's Industrial Performance (18 Hrs.)

Contribution of Industries to GNP – Major Indian Industries – Traditional: Cotton Textile – Sugar – Paper – Cement – Coal – Iron & Steel – Modern: Electronics – Engineering Goods – Food processing – Salient features of different Industries – Importance of major industries in India.

Reference Books:

1. Ahuluwalia I.J. Industrial Growth in India – Oxford University Press, New Delhi (1995)
2. Barthawal R.R. Industrial Economics – An introductory text book, Wiley Eastern Ltd., New Delhi (1992).
3. Singh A. and A. N.Sadhu, Industrial Economics, Himalaya Publishing House, Bombay (1988)
4. Devine P.J. An introduction to Industrial Economics, George Allen and Unwin, London (1978)
5. Dhingra. I.C, - Indian Industrial Economy, Sultan Chand & Co, New Delhi (1972).
6. Dutt Ruddar and Sundaram K.P.M., Indian Economy, S.Chand and Co, New Delhi (2004).
7. Kuchal S.C. Industrial Economy of India – Chitanya Publishing House, Allahabad.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

NME – I
BASICS OF CAPITAL MARKET

SUBJECT CODE: 19UNME401A	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 2**	**TOTAL HOURS: 30**

Objectives

1. To understand the functions and growth of capital markets in India.

Unit – I **(6 Hrs.)**

Capital Market - Definition - Growth of Capital Markets - Functions - Structure of Capital Market. Problems of capital market in India.

Unit – II **(6 Hrs.)**

Long Term Finance - sources - Financial Institutions - LIC - UTI - IDBI - ICIO - Mutual Funds. Role and significance of long -term Financial Institutions

Unit. III **(6 Hrs.)**

Corporate Securities - Equity Shares - Preference Shares - Debentures and Bonds - Global Depository Receipts. Importance of Share Market and problems of Share Market in India.

Unit – IV **(12 Hrs.)**

Public Issue of Shares - Primary market - Secondary market - Issue of shares at par and at premium - Functions of Stock Exchanges - Role of Securities and Stock Exchange Board of India (SEBI).

Reference Books:

1. Misra & Puri, Indian Economy, Himalaya Publshing House, 36th Revised Edition 2018
2. Dr.S.Gurusamy, Capital Market, Tata McGraw-Hill Company, 2009

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	Descriptive Questions Answer any 5 out of 8	1-8	20	100
TOTAL				100

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	

SEMESTER - II

CORE PAPER III
MICRO ECONOMICS – II

SUBJECT CODE: 19UECO304	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives:

1. To expose the understand the different market structure
2. To impart an understanding about the behavior of the producer in different types of market and pricing of factors of production.
3. To study the pattern of resource allocation for the well-being of the society.

Unit – I: Theory of Product Pricing (18 Hrs.)

Market structures – Meaning – Types – Perfect competition – Assumptions of Perfect Competition – Price and Output determination in Short-run and Long-run – Equilibrium of the firm and industry in Short-run and Long-run – role of time element.

Unit – II: Monopoly (18 Hrs.)

Meaning of Monopoly – Features of Monopoly Market – Discriminating Monopoly – Price and Output determination under simple and discriminating Monopoly – Short-run and Long-run – Concept of Bilateral Monopoly – Monopsony – Duopoly.

Unit – III: Monopolistic Competition and Oligopoly (18 Hrs.)

Meaning of Monopolistic competition – Features of Monopolistic Competition – Equilibrium of firm and Industry under short run and long run (Group Equilibrium) – Selling cost – Oligopoly-Meaning and Features – Price determination – Kinked demand curve model – Price leadership.

Unit – IV: Theory of Factor Pricing (18 Hrs.)

Marginal productivity theory of distribution, Rent-Ricardian theory of Rent – Modern theory of rent. Wages-Real and Nominal Wage – Demand and supply theory – Causes for wage difference – Trade Unions and Wages. Interest-Classical – Neoclassical – Keynes' Modern theory of Interest. Profit-Gross and Net Profit – Theories of Profit – Risk and uncertainty theory – Innovation theory.

Unit – V: Welfare Economics (18 Hrs.)

Social Welfare- Meaning of Social Welfare – Different concepts of Social Welfare, Welfare Economics- Meaning, Scope and Significance of Welfare Economics – Pareto criteria – Amartya Sen's views on Welfare Economics

Reference Books:

1. Stonier and Hague, A Text Book of Economic Theory, Long Mans Green & Co, London, 1958.
2. Seth M.L., Principles of Economics, Lakshmi Narain Agarwal, Agra, 1991.
3. Ahuja H.L. Principles of Micro Economics, S.Chand & Co, New Delhi, 2001.
4. Price, M.C, Welfare Economics, Macmillan, London, 1977.
5. Samuelson Paul. A, Price Theory.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

CORE PAPER- IV
STATISTICAL METHODS - II

SUBJECT CODE: 19UECO305	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 75**

Objective:
To understand the significance of advanced concepts of Statistics.

Unit – I: Correlation Analysis (15 Hrs.)

Meaning, Importance and Types of Correlation – Positive and Negative correlation, Simple and Multiple, Partial and Total correlation - Linear and Non-linear Correlation – Correlation and Causation – Methods of Correlation – 1. **Graphic methods:** Graph and Scatter Diagram 2. **Algebraic Methods**: (i) Karl Pearson's Coefficient of Correlation Method – (ii) Spearman's Coefficient of Correlation and Rank Correlation Method – (iii) Concurrent Deviation Method.

Unit – II: Regression Analysis (15 Hrs.)

Meaning, Definitions and Types of Regression - Simple and Multiple, Partial and Total Regression, Linear and Non-linear Regression – Methods of Regression: 1 **Graphic method:** Scatter Diagram through regression lines and Three Dimensional Diagram 2. **Algebraic Methods (Through regression Equations)**: (i) Regression Equation method – (ii) Regression Co-efficient method – Method of Least Squares – Uses of Regression – Difference between Regression and Correlation.

Unit – III: Index Numbers (15 Hrs.)

Meaning and definitions of Index Numbers – Need and Kinds of Index Numbers: 1. Price Index, 2. Quantity Index, 3. Value Index 4. Diffusion Index and others – Construction of Index Numbers –Uses and Procedure of Construction of Index Number – Problems in Construction of Index Numbers – Construction of Cost of Living Index Number – Methods of Measuring Price Index Numbers: Simple and Weighted Aggregated method – 1. Laspeyre's Method, 2. Paasche's, Method, 3. Fisher's Ideal Index Numbers.

Unit – IV: Analysis of Time Series (15 Hrs.)

Meaning, Definitions and importance of Time Series Analysis – Components of Time Series – **Short-term:** Seasonal Variation and Irregular Variation – **Long-term:** secular and cyclical variation - Measurement of Secular Trend – Moving averages - three years and five years – least square method of trend analysis – Uses of Time Series Analysis.

Unit – V: Probability (15 Hrs.)

Meaning , Uses and Importance of Probability – Basic Terminology of Probability – Types of Probability – Probability Theorems - addition and multiplication theorem.

Reference Books:

1. Gupta, S.P. – Statistical Methods, S. Chand & Company, New Delhi, 1982.
2. Pillai, R.S.N. and V.Bhagavathi, Statistics Theory and Practice, S Chand & Company, New Delhi, 1993.
3. Croxton, F.E., D.J.Cowden and S.Klein – Applied General Statistics
4. Gupta, S.C. and V.K.Kapoor Speigal, M.R. – Theory and Problems of Statistics

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	1	1
	Unit – 2	2	1
	Unit – 3	1	1
	Unit – 4	2	1
	Unit – 5	1	1
Section B	Unit – 1	1	
	Unit – 2	1	1
	Unit – 3	1	1
	Unit – 4	1	1
	Unit – 5	1	
Section C	Unit – 1	0	
	Unit – 2	0	1
	Unit – 3	1	1
	Unit – 4	0	1
	Unit - 5	1	1

ALLIED II
ENTREPRENEURIAL DEVELOPMENT

SUBJECT CODE: 19UECO306	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 5**	**TOTAL HOURS: 90**

Objective:
To understand the significance and importance of entrepreneurial development.

Unit – I Introduction to Entrepreneurial Development (18 Hrs.)
Meaning of entrepreneur—Evolution of term Entrepreneur- Character of entrepreneur – Relationship between entrepreneur, Entrepreneurial and Entrepreneurship – Functions of Entrepreneur – Types of entrepreneur – Classification of entrepreneurs-Barriers to Entrepreneurship- Role and importance of Entrepreneurship

Unit – II Theories of Entrepreneurship (18 Hrs.)
Theories of Entrepreneurship – Classical – Neo Classical – Schumpeter's Innovations theory. Motivating Factors of Entrepreneurial-Compelling factors and Facilitating Factors.

Unit – III Entrepreneurship in Economic Development (18 Hrs.)
Evolution of Indian entrepreneurship – Ideology of Mahatma Gandhi on entrepreneurship – Role of entrepreneurship in Economic Development – Role of Government and non-government organization policies and programmes on entrepreneur development – Industrial Policy.

Unit – IV Micro, Small and Medium Enterprises (18 Hrs.)
Micro, Small, Medium Enterprises (MSME) and Indian Economic development – Small scale industries and entrepreneurial development – Concessions – Incentives and subsidies to Small scale Industries – SIDBI – Venture Capital.-Importance of small scale industries in India

Unit – V Project Appraisal (18 Hrs.)
Meaning of project- Project identification-Project objectives- project appraisal – Classification of Projects – Project appraisal Formation of business idea-Contents of Project Report-Project life cycle. Project Appraisal Methods-Cash flows and Cost and Benefits, Payback period, Average rate of Returns.

Reference Books:

1. Bhattacharya, H – Entrepreneurial Development
2. Gupta, C.8. & Srinivasan. N.P. – Entrepreneurial Development in India
3. Jayashree Suresh – Entrepreneurial Development.
4. Kuldeep Mathbus.A.P. – Entrepreneurship – Development under TRysEM.
5. Misra.P.N. – Development Bank and New Entrepreneurship in India.
6. Rao, S.K. – Entrepreneurial Development in India.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

NME – II
INDIAN ECONOMY FOR CIVIL SERVICE EXAMINIATIONS

SUBJECT CODE: 19UNME402A	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 2**	**TOTAL HOURS: 30**

Objective:
To understand the significance and importance of key concepts in economics for civil services.

Unit – I **(6 Hrs.)**

Economic Development – Meaning and Definitions of Economic Development, Measurement of Development - Cause of under development - Development and the New Economic Policy - Development and the environment.

Unit – II **(6 Hrs.)**

Population – Causes of population growth in India - Age composition of population - population policy in India.

Unit III **(6 Hrs.)**

Poverty – Meaning and types of poverty-Measurement of Poverty - Poverty line - Policies for poverty alleviation programmes in India - Poverty and Regional Disparity.

Unit IV **(12 Hrs.)**

Inflation – Meaning of Inflation, types of Inflation-Price policy and Inflation History to price rise in India. Causes of Inflation- Inflation and Price control in the post - reform period – Meaning, tools of Monetary and Fiscal policies.

Reference Books:

1. Ruddar Datt and Sundaram K.P.M. - Indian Economy.
2. Jhingan, M.L. The Economic of Development & Planning.
3. Ahuja, H.L. Economic Environment of Business, Macro Economic Analysis.
4. General Studies Manual for the UPSC Civil Seruices Preliminary Examination (Latest edition).
5. Indian Economy Exam Oriented Series - Praitiyogita Darpan.
6. Sankar Ganesh, Indian Economy Key concepts

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

SEMESTER - III

CORE – V
MACRO ECONOMICS - I

SUBJECT CODE: 19UECO307	**THEORY**	**MARKS: 100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives:

1. To make the students understand the functional relationship between macro aggregates.
2. To study the various concept of macro economics

Unit – I: Introduction to Macro Economics (18 Hrs.)

Definition – Nature and scope of Macro Economics significance and limitations of macro economics. Difference between micro and macro economics. Types of macro economics, static macro economics, comparative static macro economics and dynamic macro economics.

Unit – II: National Income (18 Hrs.)

Definition – concept of national income, personal income and disposable income, GNP, NNP, National income and other related concepts. Methods of measurement of national income – Difficulties in measurement of national income – Uses of National income estimates.

Unit – III: The Classical theory of Employment (18 Hrs.)

Meaning, assumptions of classical theory of employment, say's law of markets, determination of output and employment, labour market equilibrium, wage price flexibility, goods market equilibrium money market equilibrium. Keynes's criticism of classical theory.

Unit – IV: Consumption Function (18 Hrs.)

Consumption function hypothesis, average and marginal propensity of consume, relationship between APC and MPC Keynes's psychological law of consumption function, implications of keynes's law, determinants of the consumption function, Equation of linear consumption function.

Unit – V: Investment Function (18 Hrs.)

Meaning of investment, types of investment – business fixed investment, residential investment, inventory investment, Autonomous and induced investment – Determinants of investment, marginal efficiency of capital and MEI Keynesian model of income and employment determinations.

Reference Books:

1. Dillard .D - Macro Economics
2. Shapiro .E - Macro Economic Analysis
3. Gupta R.D. - Introduction to Post Keynesian Economics

4. Mithani. D.M. - Macro Economics
5. Ahuja .H.L. - Macro Economics

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

CORE VI
MONEY AND BANKING – I

SUBJECT CODE: 19UECO308	**THEORY**	**MARKS: 100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives:

1. To make the students to understand the functional relationship of monetary policy.

Unit – I: Introduction to Monetary Economics (18 Hrs.)

Meaning and nature of monetary economics, Scope of monetary economics – Importance of monetary economics – Barter system – Evolution of money – Qualities of good money.

Unit – II: Functions of Money (18 Hrs.)

Definition of money, kinds of money, functions of money, Role of money in capitalist economy, socialist and mixed economy. Evils of money and need for control.

Unit – III: Monetary Standards (18 Hrs.)

Form of monetary standard – metallic monetary standards – paper standard. Gold standard – Features of Gold standard – Causes of failure of Gold standard.

Unit – IV: Money Supply and Demand (18 Hrs.)

Components of money supply and demand – Neutrality of money – Classical dichotomy – Quantity theory of money – Transaction Approach, Cash Balance Approach of Cambridge Equations – Real balance approach. Cash balance approach vs Transaction approach.

Unit – V: Inflation and Deflation (18 Hrs.)

Inflation : Meaning, causes, types, effects – Theories of inflation – inflationary gap – control of inflation – philip's curve.

Deflation : Meaning, causes, effects and control of deflation – stagflation.

Reference Books:

1. Gupta .S.B. : Monetary Economics
2. Sethi .T.T. : Monetary Economics
3. Kishore, G. Kulkarni : Modern Monetary Theory
4. Gupta .G.P. : Monetary Policy of the Reserve Bank of India
5. Mithani, D.M. : Money, Banking, International trade & Public finance

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

ALLIED – III
MATHEMATICS FOR ECONOMISTS

SUBJECT CODE: 19UECO309	**THEORY**	**MARKS: 100**
SEMESTER: III	**CREDITS: 5**	**TOTAL HOURS: 90**

Objectives:

1. To make the students understand the functional relationship of economic models.

Unit – 1: (18 Hrs.)
Introduction to Mathematical Economics: Meaning, Nature, Uses, Significance and Importance of mathematics in economic analysis –Ingredients of a mathematical models in economics – **Economic Variables**: One variable, two variables and multi-variables - Constants, Parameters and coefficients – **Functions**: General and Specific functions – Number System – the concept of Sets and inequalities in Economics

Unit II: (18 Hrs.)
Economic Application of Graphs and Equations: Rewriting and solving **equations**, types of equations – Linear Equation and Non – Linear Equations: quadratic equations, simultaneous equations - Co-ordinates, Graphs, slope and intercepts of a straight line equation in Economics – Relative scope of graphs and equations in economics – Graphs and Equations in Supply and Demand Analysis – Income and Consumption functions – Uses of equations in Economics

Unit III: (18 Hrs.)
Elementary Functions in Mathematical Economics: Meaning of function and Types of functions – Constant functions, Linear functions and **Non-linear functions:** Quadratic functions, Cubic functions, Rectangular functions, Exponential functions and Logarithmic functions – derivation of linear demand and supply functions, Production function and Homogeneous production function (Cobb-Douglas)

Unit IV: Differentiation in Economics: (18 Hrs.)
Meaning, Basic rules of differentiation: constant rule, Power-function rule, Sum-difference rule, Linear-Function rule and Inverse-function rule – Differentiation Applications to Economic analysis: Utility functions, Revenue functions, Short-run production functions, Cost functions - **Applications of differential calculus** – economic objectives of optimization – maximum and minimum values – identifying maximum and minimum turning points – Maximum Total Revenue – Maximum profit – Minimum Average Cost – Average and Marginal product of Labour - Uses of differentiation in Economics

Unit V: (18 Hrs.)
Integration in Economics: Meaning of Integration - Rules of Integration – Types of Integration: definite and indefinite integrals – **definite integrals in economics:** measures of Total Revenue, Total Variable Cost, Consumer's surplus and Producer's surplus – Uses and importance of integration in Economics.

Reference Books:

1. Jean Soper (2004), Mathematics for Economics and Business – An Interactive Introduction (2nd Edition), Blackwell Publishing.
2. Bradley, Teresa & Patton, Paul (2002), Essential Mathematics for Economics and Business, Wiley India Private Ltd., New Delhi.
3. Chiang, A.C. (1986), Fundamental Methods of Mathematical Economics, McGraw Hill, New York.
4. Renshaw, Geoff, (2009), Maths for Economics (2nd edi), Oxford University Press, New York.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	1	1
	Unit – 2	2	1
	Unit – 3	1	1
	Unit – 4	2	1
	Unit – 5	1	1
Section B	Unit – 1	1	
	Unit – 2	1	1
	Unit – 3	1	1
	Unit – 4	1	1
	Unit – 5	1	
Section C	Unit – 1	0	
	Unit – 2	0	1
	Unit – 3	1	1
	Unit – 4	0	1
	Unit - 5	1	1

SEMESTER - IV

CORE: VII
MACRO ECONOMICS – II

SUBJECT CODE: 19UECO310	**THEORY**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 5**	**TOTAL HOURS: 75**

Objectives:

1. To make the students understand the concept of multiplier.
2. To study the various concept of demand for money

Unit – I: Theory of Multiplier (15 Hrs.)

The concept of investment multiplier – Diagrammatic representation of multiplier, leakages in the multiplier process, static and dynamic multiplier, induced investment multiplier, govt. expenditure multiplier, tax multiplier, balanced budget multiplier and foreign trade multiplier. Principle of acceleration, super multiplier.

Unit – II: Keynes' Theory of Output and Employment (15 Hrs.)

Simple Keynesian model, demand for money in the Keynesian theory – Liquidity trap – Keynesian economics in developing countries, Keynesian theory, tools policy measures.

Unit – III: Post Keynesian Theories of Demand for Money (15 Hrs.)

Tobin's portfolio Approach to demand for money – Tobin's Liquidity preference function – Baumols Inventory approach to transactions demand for money – Friedman's theory of demand for money.

Unit – IV: Unemployment and Full Employment (15 Hrs.)

Types of unemployment, meaning of Full employment, measures to achieve and maintain full employment. Nature and causes of unemployment in developing countries

Unit – V: Keynes versus Classics (15 Hrs.)

Keyne's versus classical theory of aggregate demand – the classical and Keynesian theories of aggregate supply – saving – investment relation classics vs Keynes explanation about depression and inflation.

Reference Books:

1. Jhingan .M.L. - Macro Economic Theory.
2. Vaish .M.C. - Macro Economic Theory.
3 Sankaran .S - Macro Economics.
4. Brooman - Macro Economics.
5. Derberg and Mc. Dougal - Macro Economics.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
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Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

CORE PAPER VIII
MONEY AND BANKING- II

SUBJECT CODE: 19UECO311	**THEORY**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 75**

Objectives:

1. To make the students understand the functions of RBI.
2. To study the various concept of banking system

Unit – I: Introduction of Banking (15 Hrs.)

Meaning and Definition of Bank-Classification and types of banks- Evolution of banking – Branch banking of merits and demerits - Unit banking of merits and demerits – Banking operations systems- Sources of banking funds – Investment policy of the banks – Bank's investments profitable and non-profitable investments. Securities regarding bank loans – personal security and collateral security etc

Unit – II: Commercial Banking (15 Hrs.)

Meaning, structure and Functions of Commercial Bank – Credit Creation- Nationalization of commercial bank- Advantages and disadvantages of Nationalization of commercial Banks in India- Balance sheet of the commercial bank.

Unit – III: Central Banking (RBI) (15 Hrs.)

Definition, Nature and organization structure of RBI-Evolutions of RBI- Functions of RBI-Central Banking principles of RBI- comparison between RBI and Commercial banking-Role of RBI and Economic growth in India.

Unit – IV: Monetary Policy (15 Hrs.)

Meaning definition of monetary policy- Objectives of monetary policy – Methods of credit control – Quantitative and Qualitative credit control (selective credit control) -Objectives of credit control – Role of monetary policy in Economic Development- Limitations of monetary policy in India.

Unit – V: International Monetary Fund and World Bank (IBRD) (15 Hrs.)

Objectives, organization, IMF and gold standard, advantages and criticism of IMF India an IMF – special drawing rights (SDR) – World Bank objectives – organization – functions and limitations.

Reference Books:

1. Jhingan .M.L. : Monetary Economics.
2. Sankaran .S : Monetary Economics.

3. Seth M.L. : Money, Banking and International.
4. Vaish .M.C.: Monetary Theory.
5. Cauvery and Others : Monetary Economics.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
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		Theory	**Problems**
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	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

ALLIED – II

BASIC ECONOMETRIC METHODS

SUBJECT CODE: 19UECO312	**THEORY**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 5**	**TOTAL HOURS: 90**

Objectives:
On successful completion of the course the students should have understood the estimation techniques, learned the difficulties involved in the estimation process, evaluation of parameters and understand scientific decision-making process.

UNIT –I: Introduction to Econometrics: (18 Hrs.)
Meaning, Definition, Nature and Scope of Econometrics – Uses and Role of Econometrics – Goal of Econometrics – Types and Methodology of Econometrics – A review of basic statistics concepts: Summation Notation and its' Properties – Random Variables – Functions of Random Variables.

UNIT -II: Basic Ideas of Linear Regression Analysis: (18 Hrs.)
Meaning and Objectives of Regression Analysis – Meaning of Linear Regression – Linearity in the variables and Parameters – Population Regression Function (PRF) and Sample Regression Function (SRF) – Stochastic specification of the PRF – Nature of the Stochastic Error Term 'u' – Assumptions of Randomness of 'u' – Simple Linear Regression (Two Variable Linear Model) – Method of Ordinary Least Squares (OLS).

UNIT-III: Simple Linear Regression Model (Two Variables Linear Model): (18 Hrs.)
Meaning of Simple Linear Regression (SLR) – Assumptions of Classical Linear Regression Model (CLRM) – Assumptions and Properties of OLS Estimators (The Gauss-Markov Theorem) – Best Linear Unbiased Estimators (BLUE) – Estimation of Parameters of Simple linear regression: Variance and Standard Errors of OLS Estimates – Test of Significance of the Parameter Estimates (t – test and F – Test) – Measure of Goodness of Fit (The Coefficient of Determination, r^2).

UNIT – IV: Techniques and Applications in Regression Analysis: (18 Hrs.)
Functional Forms of Regression Models: Log-linear or constant elasticity model and cobb-Douglas production function – Semi-log Models of Growth Rate – Reciprocal Models – Polynomial Regression Models –Dummy Variables: Nature of Dummy Variables – The use of dummy variables in Regression models – Regression on a quantitative and qualitative variables

UNIT – V: Problems in Regression Analysis: (18 Hrs.)
Multicollinearity: the problem with remedial measures – Heteroscedasticity: Concept, consequences and detection of heteroscedasticity – Autocorrelation: Sources, consequences and solutions – Errors in Variables – Using Computer applications like SPSS, E-Views and STATA Packages.

References:

1. William H. Greene "Econometric Analysis," Pearson Education.
2. A.Koutsoyiannis, "Theory of Econometrics: An Introductory Exposition of Econometric Methods", Educational Low-Priced Books Scheme, McMillan Education Ltd., (1992).ls2
3. Damodar Gujarathi "Basic Econometrics", Tata MCGrawHill Ltd, 2004, 4th ed.

Question Paper Pattern:

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Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
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Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	1	1
	Unit – 2	2	1
	Unit – 3	1	1
	Unit – 4	2	1
	Unit – 5	1	1
Section B	Unit – 1	1	
	Unit – 2	1	1
	Unit – 3	1	1
	Unit – 4	1	1
	Unit – 5	1	
Section C	Unit – 1	0	
	Unit – 2	0	1
	Unit – 3	1	1
	Unit – 4	0	1
	Unit - 5	1	1

PART – IV
ENVIRONMENTAL STUDIES

SUBJECT CODE: 19UEVS401	**THEORY**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 2**	**TOTAL HOURS: 30**

Objectives:

1. To familiarize the students to understand the environmental policy pertaining to economics.

Unit – I **(6 Hrs.)**

Economics and Environment - Definition and role of Environmental Economics - Scope and Significance of Environmental economics - Ecology and Ecosystem - Relationship between the environment and the Economic system - Environment as a Resource - Environmental Quality.

Unit – II **(6 Hrs.)**

Resources - Concepts and definition - Classification of Resources - Renewable and non-renewable resources -Definition and meaning of Conservation of Resources - Material Substitution - Product Life Extension - Recycling - Rain Water Harvesting - Waste Reduction.

Unit – III **(6 Hrs.)**

Energy - Definition - Sources of Energy and their classification - Renewable and non-renewable sources of energy - Conventional and non-conventional energy resources - Direct and indirect energy - Atomic Energy - Energy Scenario in India.

Unit – IV **(6 Hrs.)**

Environmental Pollution - Meaning of pollution, types of pollution, Pollution control - Optimum Level - Moral suasion - Direct control - Regulation - Fiscal technique - Effluent Charges and subsidies compared.

Unit – V **(6 Hrs.)**

International Environmental Policy - Trans frontier Pollution - International Agreements - Stockholm Conference on Human Environment - Recommendations - United Nations Conference on Environment and Development at Rio-De Janeiro (Agenda 21, June, 1992) - An assessment.

Reference Books:

1. Pearce .G.W. - Environmental Economics.
2. Joseph .J. Sereca & Micheal K. Taussig - Environ- mental Economics.
3. Kneese, A.V. - Economics of Environment.
4. Krister Higalte, Karl Lidgren & Ingenar Stand - Envi- ronmental Policy and Welfare Economics.
5. Burrows Paul - The Economics Theory of Pollution Control.
6. Jayant Bandhopadhyay - India's Environmental Crisis and responses.

SEMESTER - V

CORE PAPER – IX
INDIAN ECONOMIC DEVELOPMENT – I

SUBJECT CODE: 19UECO313	**THEORY**	**MARKS: 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives:

1. To understand the nature and characteristic feature of Indian Economy.
2. To familiarize the students on sector wise development issues.

Unit – I Characteristic Features of Indian Economy (18 Hrs.)

Pre Independence Era: British Regime – Drain Theory – Underdeveloped Country – Post Independence Scenario: Socialistic Pattern of Society – Planning – Nationalization – Meaning of Development and Growth – Indicators of Development – Major issues of Development – Determinants of Development – Developing Economy: Reforms – Towards Development – Vision 2020.

Unit – II Population and Human Resource (18 Hrs.)

Size and Growth of Population in India – Demographic indicators – Population Policy in India – Occupational Structure – Work Participation Rate – Literacy – Higher Education – Health Infrastructure – HDI – India's Rank and Position.

Unit – III Natural Resources, Agriculture and Rural Development (18 Hrs.)

Natural Resources – Land – Minerals – Fresh Water – Fisheries – Role of Agricultural Sector in Indian Economy – Agricultural Growth since 1951 – Cropping Pattern – Productivity – Green Revolution – National Agriculture Policy – Infrastructure and Rural Development – PURA Model.

Unit – IV Infrastructure and Industrial Sector (18 Hrs.)

Infrastructure and Economic Development – Energy – Power – Transport – Science and Technology – Industrial Policy – 1948, 1956, 1991 – Role of Public Sector Undertakings – Shortcomings – Disinvestment – Its critique – SSIs – Ancillary Industries – Modern Sectors: Engineering, Electrical and IT Sectors.

Unit – V Emergence of Service Sector (18 Hrs.)

Service Sector – Performance and Growth – Banking – Insurance – Telecommunications – Reforms and Foreign Participation in Service Sector.

Reference Books:

1. Ruddar Dutt. and K.P.M. Sundaram, Indian Economy, Sultan Chand, New Delhi, 2000.
2. Dhingara I.C, The Indian Economy, Environment and Policy, Sultan Chand, New Delhi,1992.
3. Misra S.K. and V.R.Puri – Indian Economy: Its Development Experience, Himalaya Publications, Bombay, 1983.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
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Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

CORE PAPER X
FISCAL ECONOMICS - I

SUBJECT CODE: 19UECO314	**THEORY**	**MARKS: 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives

To enable the students to be acquainted with sources of revenue of Government and its method of Financial Management.

Unit – I: Nature and Scope of Public Finance (18 Hrs.)
Nature and Scope of Public Finance – Difference between Public and Private Finance – Principle of Maximum Social Advantage – Fiscal Functions – Allocation, Distribution and Stabilization.

Unit – II: Public Expenditure (18 Hrs.)
Meaning, Classification, Canons of Public Expenditure – Theories of Public Expenditure – Wagner's Law of State Activity – Pigou – Samuelson – Growth of Public Expenditure – Trends – Causes for Increasing Public Expenditure – Effects of Public Expenditure – Growth.

Unit – III: Taxation (18 Hrs.)
Public revenue sources – Distinction between tax revenue and non-tax revenue – Taxation – Meaning – Sources of taxation – Classification of taxes – Proportional, progressive, Regressive, Direct and Indirect taxes – Canon of taxation – Theories of taxation – Ability to pay and benefit principle - Impact and incidence of taxation – Effects of taxation.

Unit – IV: Individual Taxes (18 Hrs.)
Individual taxes - (with reference to India) Income Tax - Expenditure tax - Wealth tax - Property tax - Estate duty - Gift tax - Death duty - Customs duty - Excise duty - Sales tax - Value Added Tax - Service tax and entertainment tax.

Unit – V: Taxation Capacity (18 Hrs.)
Characteristics of a good tax system - Taxable capacity - Factors determining taxable capacity - Limits - Measurements of taxable capacity.

Reference Books

1. Dalton Hugh – Principles of Public Finance, Routledge and Keygan Paul, London, 1954.
2. K. Vasudevan – Public Finance
3. Rajah J. Chelliah – Fiscal Policy in Underdeveloped Countries, George Allen and Unwin, London, 1980.
4. Tripathy R.N. – Fiscal Policy in Underdeveloped Countries.
5. Tyagi, B.P. – Public Finance, Jai Prakash Nath & Co, Merrut, 2000.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
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Distribution of Questions:

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		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

CORE PAPER XI
INTERNATIONAL ECONOMICS – I

SUBJECT CODE: 19UECO315	**THEORY**	**MARKS: 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives:

1. To understand the nature and characteristic feature of international trade.

Unit – I Introduction to International Economics (18 Hrs.)

Meaning of International Trade- Internal and International Trade- Features of International Trade- Advantages of International Trade- Arguments against International Trade- Nature, Scope and Importance of theory of International Economics.

Unit – II Theories of International Trade (18 Hrs.)

a) Classical Theory of International Trade

1. Adam Smith: The Law of Absolute Cost Advantage, 2. Ricardo: The Doctrine of Comparative Costs, 3. Critical Evaluation of the Classical Theory

b) Neo- Classical Theory Haberler's theory of Opportunity Cost- International Trade Equilibrium Under Constant Cost Conditions, Increasing Cost Condition and Decreasing Cost Condition

c) Modern Theory of International Trade:Heckscher - Ohlin Theorem - Assumptions of Heckscher - Ohlin Theorem – Critical Evaluation of Heckscher-Ohlin Theorem.

Unit – III Terms of Trade (18 Hrs.)

Meaning, Features of Terms of Trade- Different Concepts of Terms of Trade: Commodity Terms of Trade- Gross Barter Terms of Trade- Income Terms of Trade- Single Factorial terms of Trade- Double Factorial Terms of Trade- Terms of Trade and Gains from Trade- Equilibrium Terms of Trade: Real cost Terms of Trade- Utility Terms of Trade. Determinants of the Terms of Trade.

Unit – IV Gains from International Trade and Policy (18 Hrs.)

a) Free Trade: Meaning, Case for and against Free Trade. b) Protection: Meaning, Case for and against Free Trade. c) Tariff: Meaning and Types of Tariffs- Effects of Tariffs. d) Quotas: Meaning and Types of Quotas- Effects of Quotas. Dumping and Anti- Dumping Measures.

Unit – V Balance of Payments (18 Hrs.)

Meaning - Importance of Balance of Payment – Distinction between Balance of Payment and Balance of Trade – Disequilibrium- Short Run and Long Run Disequilibrium of Balance of Payments – Causes- Measures for removal of disequilibrium in Balance of Payments.

Reference Books

1. H.G.Mannur, International Economics, Vikas Publishing House (P) Ltd.
2. D.M.Mithani, International Economics, Himalaya Publishing House.
3. H.L.Bhatia, International Economics, Vikas Publishing House (P) Ltd.
4. Radha, International Economics, Prasanna Publishers.
5. M.L. Jhingan, International Economics, Vrindha Publications.

Question Paper Pattern:

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Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
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Distribution of Questions:

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		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

CORE PAPER XII
DEVELOPMENT OF ECONOMICS DOCTIRINE

SUBJECT CODE: 19UECO316	**THEORY**	**MARKS: 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 90**

Objective:
Economic ideas did not evolve in isolation. A student graduating in Economics should get familiarized with at least the significant contributions made by great Economists from time to time, so that she/he is able to understand and appreciate the controversial questions in the development of the subject. The course is also essential for a student who aspires for an advanced study in the field of Economics.

UNIT – I Evolution of Early Economic Ideas (18 Hrs.)
Nature and significance of the subject – Mercantilism – Physiocracy - Adam Smith: Division of Labour – Theory of value-capital accumulation – Distribution – Views on Government – Economic progress - David Ricardo – Value – Theory of rent – Distribution – Ideas on Economic Development – International Trade - Thomas Robert Malthus – Theory of Population – Theory of Gluts - J.S.Mill – Stationary State – Value – Production – Distribution.

Unit – II Alternative to Classical Economics (18 Hrs.)
Karl Marx – Marxian Philosophy – Surplus theory of value - Nationalist School – Fredrick List - Institutional School – Thorstein Veblen.

Unit – III The Marginal Revolution (18 Hrs.)
Marginalist School – Features - Economic Doctrines of Gossen, Menger and Jevons - Pigou's Welfare Economics - Schumpeter – Role of Entrepreneur and Innovations.

Unit – IV Modern Developments in Economics (18 Hrs.)
Neo-Classical Economics – Theory of Rational Expectations – Market clearing mechanism – Supply side economics – Neo-Keynesian Economics – Features – Micro foundations to Macro Economics – Alternative approach to market clearing mechanism – Applied welfare economics – Amartya Sen

Unit – V Indian Economic Thought (18 Hrs.)
Evolution – Ancient Texts – Arthasasthra – Thirukural – Naoroji – Ranade – Gokhale - Economic ideas of Gandhiji – Village and Swadeshi – Place of Machinery and Labour – Cottage Industries – Trusteeship – Approaches to planning (Nehru and Mahalanobis): Gajendra Gadgil – Co-operation as a strategy of development – V.K.R.V. Rao and National Income Analysis -J.K.Mehta: Ideal on the ideal of wastelessness – J.C. Kumarappa – Economy of Permanance – C.N. Vakil – B.R. Bramananda: Wage Goods Model.

Reference Books:

1. Blackhouse, R (1985), A history of Modern Economic Analysis, Basil Blackwell, Oxford
2. Ganguli, B.D.(1977), Indian Economic Thought; A 19th Century Perspective, Tata Mc Graw Hill, New Delhi.
3. Gide, A. and A.E. Thomson (1980), The Development of Economic doctrine, (2nd

edition), Longman Group, London.
4. Gandhi, M.K. (1947), India of my dream, Navajivan publishing house, Ahmedabad
5. Schumpeter, J.A. (1957), Ten Great Economists, Oxford University Press, New York.
6. Roll, Erick, History of Economic Thought, Faber & Faber, London, 1973.
7. Balasubramanyam, V.N, Conversation with Indian Economists, Macmillan, Delhi, 2001.

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		Theory	**Problems**
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	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

IDE Paper in Department of Economics

ELECTIVE – I: Principles of Insurance and Risk Management

SUBJECT CODE: 19UIDE301	**THEORY**	**MARKS: 100**
SEMESTER: V	**CREDITS: 5**	**TOTAL HOURS: 75**

Objectives:

1. To understand the nature and feature of insurance to the other department students as Interdisciplinary paper.

UNIT- I: BASIC PRINCIPLES OF INSURANCE (15 Hrs.)

Introduction to Insurance- Life Insurance Industry-Life Insurance Corporation of India (LIC) - Non-Life Insurance Industry- Insurance Forms-Types of Insurance- Principles of Insurance- Underwriting- Importance of Insurance: An Overview- Profile of Insurance Companies.

UNIT- II: INSURANCE PRODUCTS (15 Hrs.)

Health Insurance- Social Health Insurance-Fire Insurance- Marine Insurance- Motor Insurance- Rural Insurance Schemes- Agricultural Insurance- Miscellaneous Insurance.

UNIT- III: INSURANCE LAW AND REGULATION (15 Hrs.)

Insurance Sector Reforms- Insurance Regulatory Development Authority-Registration of a Insurance Company- Insurance Regulatory Frame work- Insurance Intermediaries- Insurance Contract Design-Reinsurance- Bancassurance in India- Micro Insurance- Role of Insurance in Economics Development.

UNIT- IV: INSURANCE LEGISLATION (15 Hrs.)

General Contract (1872) Life Insurance Act (1956) General Insurance Corporation Act 1972- The Insurance Act 1938- IRDA Act 1999- Agency law- Consumer protection Act 1986.

UNIT- V: RISK MANAGEMENT (15 Hrs.)

Introduction to Risk: An overview- Importance of Risk Management- The Risk Management Process- Measuring Severity and Frequency of Loss- Risk Management in Life Insurance- Risk Management and Solvency Assessment of Life Insurance Companies- Environmental Risk and Insurance- Enterprises Risk Management-Risk Management and Financial Derivatives- Interest Rate Swaps-Optimal Risk Management using Options- Case Studies in Risk Management.

Reference Books

1. Dr. C. Murthy, *Principles of Insurance and Risk Management,* Vrinda Publications, New Delhi
2. E. Dharmaraj, (2008) Financial Services, S. Chand & Co, New Delhi.
3. Gupta. P. K, (2005), *Insurance and risk Management,* Himalaya Publisher, New Delhi.

4. M. N. Mishra, (2001) Insurance Principles and practice, by S. Chand & Co, New Delhi.
5. Singh B.P & Chhabra T.N.,(2004), *Business Organization and Management,* Dhanpat Rai & Co., New Delhi.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

SEMESTER - VI

CORE: XIII
INDIAN ECONOMIC DEVELOPMENT - II

SUBJECT CODE: 19UECO317	**THEORY**	**MARKS: 100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives:

1. To familiarize the students with the models in economic development.
2. To provide the knowledge of various issues in economic development.
3. To impart the knowledge regarding planning techniques and role of Government.

Unit – I: Economic Development and Growth – Concepts and factors (18 Hrs.)

Meaning of Economic Development and Economic Growth – Difference between growth and development – Indicators of development: economic indicators (GNP, GNP per capita and welfare) and social indicators – obstacles of development – Concept of underdevelopment, General characteristics of an underdeveloped country – Characteristics of modern economic growth – Gross National Happiness (GNH).

Unit – II: Strategies of Economic Development (18 Hrs.)

The Classical theory – The Marxian theory – Rostow's stages of Economic Growth – Nurkse Theory – The Doctrines of Balanced Growth and Unbalanced growth.

Unit – III: Growth Models (18 Hrs.)

The Harrod-Domar Models – Joan Robinson's Model of Capital Accumulation – Meade's Growth Model – The Mahalanobis Model.

Unit – IV: Role of State in Economic Development (18 Hrs.)

Role of Public Sector – Self-Sufficiency and Self-reliance – Importance of infrastructure in economic development – Types and role of foreign capital in economic development – Role of Price Policy in economic development – Role of Technology in economic development – Growth Vs. Equity: \[POIDSXCGTYH2536+98/

Unit – V: Economic Planning (18 Hrs.)

Meaning and Objectives of Economic Planning – Types of Economic Planning – Planning techniques – Input-Output ratio – Investment Criteria and Choice of techniques – Role of Five years Planning in India.

Text Book:

1.M.L. Jhingan – The Economics of Development and Planning, Konark Publishers, New Delhi, 2003.

Reference Books:

1. A.N. Agarwal – Indian Economy – Problems of Development and Planning New Age International (P) Ltd, Chennai 2000.
2. Ruddar Dutt and K.P.M. Sundaram – Indian Economy, S.Chand and Sons, New Delhi, 2004.
3. Ishwar C. Dhingra – Indian Economy, Sultan Chand and Sons, New Delhi 2003.
4. S.K. Misra and V.K.Puri – Indian Economy, Himalaya Publishing House, Mumbai, 2004.
5. K.K. Dewett and Satish Madhawan – Economics of Growth and Development.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

CORE PAPER XIV
FISCAL ECONOMICS – II

SUBJECT CODE: 19UECO318	**THEORY**	**MARKS: 100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives

To enable the students to be acquainted with sources of revenue and budget expenditure of Government and its method of Financial Management.

Unit – I: Public Debt (18 Hrs.)

Public Debt - Sources Public debt - Types of Public debt - Effects of public debt - Repayment of Public debt - Man- agreement of public debt – Need for public debt

Unit – II: Public Budget (18 Hrs.)

Budget techniques – canons – Types of budget effect of budget – balanced, unbalanced, zero based budgeting - Budget in India - Deficit financing - Meaning - Objectives - Role of deficit financing in India - Effects on prices, production and distribution.

Unit – III: Federal Finance (18 Hrs.)

Federal finance - Principles - Analysis of division of revenue, expenditure and other powers between union, State and Local Governments - Finance Commissions - Analysis of latest finance commission recommendation.

Unit – IV: Fiscal Policy (18 Hrs.)

Fiscal policy - Objectives and instruments of fiscal policy - Role of Fiscal Policy in a developing economy with reference to India.

Unit – V: Local Finance (18 Hrs.)

Local bodies - Types and functions - Sources of finance to local bodies - Village Panchayat - Municipalities - Corporation - Problems of Local Finance.

Reference Books:

1. Tyagi .B.P. : Public Finance.
2. Sankaran .S : Fiscal Economics.
3. Sundaram .K.P.M. : Fiscal Economics.
4. Cauvery & Others : Fiscal Economics.
5. Bhargava R.N. : Indian Public Finance.
6. Mithani .D.M. : Public Finance.
7. Bhatia : Public Finance.
8. Chellaiah .R : Fiscal policy in under developed countries.
9. Dalton .H : Principles of Public Finance.

10. U.R. Hicks : Public Finance.
11. Richard A. Musgrave & Peggy A. Musgrave : Public Finance.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

CORE PAPER XV
INTERNATIONAL ECONOMICS – II

SUBJECT CODE: 19UECO319	**THEORY**	**MARKS: 100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives

To understand the concepts related to foreign exchange

Unit – I Foreign Exchange Rate (18 Hrs.)

Meaning of the Term Foreign Exchange, Foreign Exchange and its Instruments: Foreign Bills of Exchange, Bank Drafts and Telegraphic Transfers, Bank Letters of Credit and Traveller's Cheques - Exchange Rate Adjustment Policies: 1) Fixed Exchange Rate: a) Case for Fixed Exchange Rates, b) Case against Fixed Exchange Rate. 2) Flexible Exchange Rate: a) Case for Flexible Exchange Rate, b) Case against Flexible exchange Rate. Causes of fluctuations in the Rate of Foreign Exchange.

Unit – II Theories of Determination of Foreign Excahnge Rate (18 Hrs.)

1) The Mint Parity Theory: Determination Under Gold Standard – Assumptions – Criticisms
2)The Purchasing Power Parity Theory: a) Absolute Version, b) Relative Version – Criticisms
3) The Balance of Payments Theory: Merits and Demerits of BOP Theory

Unit – III Foreign Capital in Economic Development (18 Hrs.)

Issues and Problems in Foreign Capital in Economic Development- Issues in Foreign Direct Investments (FDI) and Foreign International Investments (FII) – Multi National Corporations (MNC) – Joint Ventures.

Unit – IV Foreign Aid (18 Hrs.)

International Monetary Fund(IMF) – The Nature of IMF – Objectives – Functions – Organization and Structure of the IMF – Short Comings of IMF – Suggestions to Reform IMF – Special Drawing Rights (SDR) – Role of Gold in the IMF.

Unit – V Trade and Development (18 Hrs.)

Economic Integration, Meaning and Types
1) World Bank (IBRD) – Functions, Membership, Organization, Capital Structure, Working of the World Bank, Critical Appraisal of World Bank.
2) World Trade Organization(WTO) – Structure, Objectives, Functions and Working, Criticisms

Reference Books:

1. H.G.Mannur, International Economics, Vikas Publishing House (P) Ltd.
2. D.M.Mithani, International Economics, Himalaya Publishing House.
3. H.L.Bhatia, International Economics, Vikas Publishing House (P) Ltd.
4. Radha, International Economics, Prasanna Publishers.
5. M.L. Jhingan, International Economics, Vrindha Publications.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

ELECTIVE – II
AGRICULTURAL ECONOMICS

SUBJECT CODE: 19UECO320	**THEORY**	**MARKS: 100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives:

1. To enrich the knowledge of the students.
2. To give knowledge about the impact of WTO and Globalisation on Indian Agriculture
3. To enable the students to succeed in the competitive examinations.

Unit I: Theories of Agriculture (18 Hrs.)

Supply of Agriculture Products: Factors influencing supply – Measures to increase supply – Elasticity of supply – Supply response – Factors limiting the supply. Demand for Agricultural Products: Market demand – Elasticity of demand – Demand for agricultural goods. Theory of Production: Law of variable proportion – Factors – Factor relationship – Product – Product relationship.

Unit II: Farm size and Profitability (18 Hrs.)

The size of operating unit – Advantages of large farms – Advantages of small farms – Variations in the optimum size – Technological hindrance to expansion – The meaning of economic holding – Factors determining farm size – Farm size and profitability – Problems of subdivision and fragmentation.

Unit III: Food Security (18 Hrs.)

Concept of food security – Food self sufficiency and food security in India – Food Policy of India, Growth of food products in India – PDS – Sustainable agriculture and food security in India.

Unit IV: Liberalisation and WTO (18 Hrs.)

Implications for agriculture – Genesis of GATT & WTO – Major departures in WTO – Subsidy discipline – Patenting of seeds – Imports – Food subsidy – New Economic Policy – Limitations under liberalization/WTO – Protecting Indian Products – Effective steps to ensure quality of farm products – EXIM Policy and Agricultural development.

Unit V: Agricultural Finance and Marketing (18 Hrs.)

Institutional finance for agriculture – Commercial Banks Co-operatives, RRB's, NABARD, LDB's - Importance of Agricultural Marketing – Marketing of Agricultural Products – Marketable surplus and Marketed surplus – Factors influencing marketable surplus – Recommendations of National Commission on Agriculture – Regulated markets and co¬operative marketing, Storage & Warehousing in India – Buffer stock operation.

Reference Books

1. R.E. Benjamin, S.V. Hariharan, M. Karunagaran - The Economics of Agriculture.
2. R.L. Cohen - The Economics of Agriculture.

3. Dutt & Sundaram - Indian Economy.
4. K. Venkata Reddy - Agriculture & Rural Development.
5. I.C. Dhingra - Indian Economy.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

ELECTIVE – III
LABOUR ECONOMICS

SUBJECT CODE: 19UECO321	**THEORY**	**MARKS: 100**
SEMESTER: VI	**CREDITS: 5**	**TOTAL HOURS: 90**

Objectives:

1. To understand about the nature and scope of labour market in India

Unit I: Introduction of Labour Economics (18 Hrs.)

Meaning, Scope and Importance of Labour Economics – Characteristics of Labour - Labour as a unique factor of production – Labour Force – Labour market – Equilibrium between supply and demand for labour.

Unit II: Problems of Employment (18 Hrs.)

Meaning of Employment and Unemployment – Types of Unemployment – Causes of Unemployment - Problems of unemployment and under employment – Role of Employment Exchanges – Vocational Training – Skill Development Measures - Manpower planning.

Unit III: Wage Structure (18 Hrs.)

Employees remuneration – Wage structure in India – Wage differentials – Theories of wages - Wages Act, 1936 – Minimum Wage Act 1948 – Bonus and fringe benefits Payments of Bonus Act 1965 and amendments – Recent Developments of Wage Act.

Unit IV: Social Security Measures (18 Hrs.)

Meaning of Social Security – Social security measures in India – Types of Social Security – ILO and security – Employees State Insurance Act 1948 – Employees Provident Funds Act 1952 and Public Provident Funds Act 1968 – Recent developments – Social security in Tamil Nadu.

Unit V: Trade Unions (18 Hrs.)

Meaning and evolution of Trade Unionism – Development of Trade Unions in India and their present position - Industrial relations – Industrial conflicts – Preventive and remedial measures – Industrial Act 1947 and amendments – Workers' participation in Management – Collective bargaining – adjudication and arbitration – Status of industrial relation in India.

Reference Books

1. Helfgott, LabourEconomics, (New York: Random House 1974)
2. Kamik, V.B., Indian Trade Union: A Surve y (Mumbai: Allied Publishers Pvt. Ltd. 1966) .

3. McCOnnell, Capbell R., and Stanley.L.Brue, Contemporary Labour Economics (Singapore, McGrew-Hill Book Co 1989).
4. Reynolds, Lloyd., Labour Economics and Labour Welfare (New Delhi:
5. Prentice – Hall of Inida Pvt. LTd. 1978) .
6. Sepsfore, David and Zafiris Tzannatos., Current Issues in Labour Economics (Hong Kong, Macmilan 1990).
7. Singh, V.B and Saran, A.K., Industrial Labour in India (Mubai: Asia Publishing House 1960) .

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A- Grade' by NAAC
(Affiliated to the University of Madras)

BACHELOR OF COMPUTER APPLICATIONS

BCA

Regulations and Syllabus

(For the Candidates admitted in 2019 -2020 and thereafter)

COURSE STRUCTURE: (2019 - 2022)

Sem. No.	Part No.	Course Component	Subject Name	Cdt	Hrs	CIA	ESE	Total
I	I	Language	Language – I	3	6	50	50	100
	II	English	English- I	3	4	50	50	100
	III	Core I	Programming in C & C++	4	6	50	50	100
		Core II	Practical – C & C++ Programming Lab	4	4	50	50	100
		Allied I	Mathematics I	5	6	50	50	100
	IV	1. NME/ Basic Tamil / Adv. Tamil	Practical - Computing Skills	2	2		100	100
		2. Soft Skill I	Essentials of Language and Communication Skills Level-I	3	2		100	100
								CREDIT TOTAL = 24
II	I	Language	Language – II	3	6	50	50	100
	II	English	English- II	3	4	50	50	100
	III	Core III	Programming in JAVA	4	5	50	50	100
		Core IV	Practical – JAVA Lab	4	5	50	50	100
		Allied II	Mathematics II	5	6	50	50	100
	IV	1. NME/ Basic Tamil / Adv. Tamil	Practical – HTML Lab	2	2		100	100
		2. Soft Skill II	Essentials of spoken and Presentation Skills Level-I	3	2		100	100
								CREDIT TOTAL = 24
III	III	Core V	Software Testing	4	5	50	50	100
		Core VI	Web Technology	4	6	50	50	100
		Core VII	Practical – Web Applications Lab	4	5	50	50	100
		Core VIII	Data Structures and Algorithms	4	6	50	50	100
		Allied III	Financial Accounting	5	6	50	50	100
	IV	Soft Skill III	Personality Enrichment	3	2		100	100
								CREDIT TOTAL = 24
IV	III	Core IX	Mobile Application Development	4	6	50	50	100
		Core X	Operations Research with Big Data	4	8	50	50	100
		Core XI	Practical – Mobile Application Development Lab	4	6	50	50	100
		Allied IV	Cost and Management Accounting	5	6	50	50	100
	IV	Soft Skill IV	Practical - PHP Lab	3	2		100	100
		EVS	Environmental Studies	2	2		100	100
								CREDIT TOTAL = 22
V	III	Core XII	Programming in Python	3	5	50	50	100
		Core XIII	Relational Database Management System	3	5	50	50	100
		Core XIV	Practical – Python Lab	3	4	50	50	100
		Core XV	Practical – RDBMS Lab	3	4	50	50	100
		Elective – I	Refer Annexure – I	5	6	50	50	100
		Elective – II	IDE – Practical - Introduction to Web Designing (HTML & CSS)	5	5	50	50	100
	IV	Value Education	Value Education	2	1		100	100
								CREDIT TOTAL = 24
VI	III	Core XVI	Operating System	4	6	50	50	100
		Core XVII	Practical - R-Programming Lab	4	6	50	50	100
		Core XVIII	Data Communication and Networking	4	6	50	50	100
		Core XIX	Mini Project	4	6	50	50	100
		Elective - III	Refer Annexure – I	5	6	50	50	100
	V	Extension Activity		1		-	-	-
								CREDIT TOTAL = 22
								OVERALL CREDIT TOTAL = 140

ANNEXURE - I

Course Component	Subject Name
Elective - I	1. Information Security 2. Computer Architecture 3. Data Mining
Elective - II	1. IDE – Introduction to Web Designing(HTML & CSS) 2. E-Commerce 3. Client/Server Computing
Elective - III	1. Cloud Computing 2. Unix Programming 3. R - Programming

- Examination will be held in the even semester.

CORE - I PROGRAMMING IN C & C++

SUBJECT CODE:	THEORY	MARKS :100

CREDIT: 4

SEMESTER: I **TOTAL HOURS: 90**

COURSE OBJECTIVES

- This course introduces the basic concepts of C & C++ programming.
- This course is designed to expand the knowledge of C & C++ programs by teaching some of the more advanced features of both the languages.
- The course material includes many examples. Since an understanding of the topics of this course is a basic need of every student who wants to excel in C & C++ programming, the course includes many opportunities for hands-on experience.

UNIT I (18hrs)

Introduction to Computer - Fundamental Character Set - Identifier and Keywords - Data Types - Constants - Variables - Declarations - Expressions - Statements - Arithmetic, Unary, Relational and Logical, Assignment and Conditional Operators - Library Functions-Storage Classes.

UNIT II (18hrs)

Data Input Output Functions - Simple C Programs - Flow of Control – If, If-Else, While, Do-While, For Loop - Nested Control Structures – Switch - Break and Continue - GOTO Statements - Comma Operator - Arrays - Defining and Processing - Passing Arrays to Functions – Multi-Dimensional Arrays - Arrays and String.

UNIT III (18hrs)

Principles of Object Oriented Programming-Classes and Objects- Declaring Objects – The Public Keyword – The Private Keyword – The Protected Keyword – Defining Member Functions – Inline Function-Static Member Variables and Functions – Friend Functions.

UNIT IV (18hrs)

Constructors and Destructors: Characteristics – Calling Constructor and Destructor – Function Overloading - Operator Overloading: Overloading Unary - Binary Operators - Overloading with Friend Function.

UNIT V (18hrs)

Inheritance: Types of Inheritances – Single Inheritance – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Multipath Inheritance – Virtual Base Classes - Polymorphism – Abstract Classes - Pointers: Pointer Declaration – Pointer to Class - Object – This Pointer – Pointer to Derived Classes-- Virtual Functions.

1. Recommended Texts

i. E. Balagurusamy, 1995, Programming in ANSI C, TMH Publishing Company Ltd.

ii. E. Balagurusamy, 1995, Object Oriented Programming with C++, Tata McGraw-Hill Publishing Company Ltd.

2. Reference Books

i. H. Schildt, 2004, The Complete Reference, 4th Edition, TMH Gottfried, B.S, 1996, Programming with C, Second Edition, TMH Pub. Co. Ltd., New Delhi.

ii. Robert Lafore, Object Oriented Programming in Microsoft C++, Galgotia publication.

iii. H. Schildt, C++, 1998, The Complete Reference-1998-TMH Edition, 1998.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	**Problems**
A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE – II PRACTICAL – C & C++ PROGRAMMING LAB

SUBJECT CODE:	PRACTICAL	MARKS :100

CREDIT: 4

SEMESTER: I **TOTAL HOURS: 60**

COURSE OBJECTIVES

- This course gives exposure to hands on training in C & C++ programming
- To familiarize the student with basic concepts of computer programming and developer tools.
- To present the syntax and semantics of the "C" & "C++" language as well as data types offered by the language
- To allow the student to write their own programs using standard language infrastructure regardless of the hardware or software platform

Matrix Manipulation:

1. Addition & Subtraction
2. Multiplication
3. Transpose of a Matrix

String Manipulation:

4. Counting the number of Vowels, Consonants, Words, White Spaces in a line of text and Array of lines
5. Reverse a String and check for Palindrome

Sorting and Searching:

6. Bubble Sort
7. Linear Search
8. Binary Search

Recursion:

9. Fibonacci Sequence
10. Towers of Hanoi

Classes and Object

11. Simple Program using Class
12. Constructor and Destructor
13. Function Overloading
14. Operator Overloading
15. Friend Function

Inheritance

16. Single Inheritance
17. Multiple Inheritance
18. Pointer to Object
19. Polymorphism
20. Command line argument

ALLIED I - MATHEMATICS – I

SUBJECT CODE:	THEORY & PROBLEMS	MARKS :100

CREDITS: 5

SEMESTER: I **TOTAL HOURS: 90**

COURSE OBJECTIVES:

- To improve basics in Mathematics and Analytical Skills

UNIT I (18 hrs)

Algebra: Summation of Series - Binomial, Exponential and Logarithmic Series (Without proof) and Simple Problems.
Chapter 2, Section 2.1.3, 2.2, 2.2.1, 2.3, 2.3.3

UNIT II (18 hrs)

Matrices**:** Eigen Values – Eigen Vectors - Cayley - Hamilton Theorem (without proof)
Chapter 4 Section 4.5, 4.5.2, 4.5.3

UNIT III (18 hrs)

Theory of Equations: Polynomial equations, irrational roots, complex roots, increasing and decreasing of roots, Reciprocal equations - Approximation of roots of a polynomial equation by Newton's Method.
Chapter 3, Section 3.1 to 3.4.1

UNIT IV (18 hrs)

Differential Calculus: n^{th} derivatives - Leibnitz Theorem - Jacobians - Radius of Curvature (Cartesian Coordinates only) – Maxima and Minima of functions of two variables.
Chapter 1, Section 1.1.1 to 1.3.1 and Section 1.4.3

UNIT V (18 hrs)

Trigonometry**:** Expansions of $\sin n\theta$, $\cos n\theta$, $\tan n\theta$ - Expansions of $\sin^n\theta$, $\cos^n\theta$- Hyperbolic and Inverse hyperbolic functions.
Chapter 6, Section 6.1 to 6.3.

Content and treatment as in

Allied Mathematics Volume I and II by P. Duraipandian and S. Udayabaskaran, S. Chand Publications, 2016 Edition.

1. Recommended Texts

i. Allied Mathematics, A. Singaravelu.
ii. Ancillary Mathematics, A. ManickavasagamPillai and Narayanan.

2. Reference Books

i. Allied Mathematics, S.G. Venkatachalapathy

ii. P. Kandasamy and K. Thilagavathi, Allied Mathematics Volume I and Volume II -- 2004, S. Chand and Co, New Delhi.

iii. Ancillary Mathematics Volume 1 and 2 by P. Balasubramanian &K.G. Subramanian.

Websites:

www.freetechbooks.com/mathematics-f38.html

www.e-booksdirectory.com

www.freebookcenre.net/SpecialCat/Free-Mathematics-Books-Download.html

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any **10** out of 12 questions	1 – 12	2	**20**
Section B	**Short Answer** Answer any **5** out of 7 questions	13–19	7	**35**
Section C	**Essay** Answer any **3** out of 5 questions	20– 24	15	**45**
				100

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1		2
	Unit – 2	1	2
	Unit – 3	1	1
	Unit – 4		2
	Unit – 5	1	2
Section B	Unit – 1		2
	Unit – 2		2
	Unit – 3		1
	Unit – 4		1
	Unit – 5		1
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit - 5		1

NME – PRACTICAL - COMPUTING SKILLS

SUBJECT CODE:	PRACTICAL	MARKS :100

CREDIT: 2

SEMESTER: I **TOTAL HOURS: 30**

COURSE OBJECTIVES

- The major objective in introducing the Computing Skills course is to impart training for students in Microsoft Office which has different components like Ms word, MS Excel, Ms Access, Power point etc., at two levels based on their knowledge and exposure.
- It provides essential skills for the user to get adapted to any work environment, as most of the systems in any workplace have Ms Office installed for their day to day activities. The course is highly practice oriented rather than regular class room teaching.

UNIT I (6hrs)

Introduction to Computers – Classification of Computers; Role of Computers in Society; Inside Computers – Hardware (Processing, Memory, I/O, Storage), Software (Systems, Application), CPU, OS (DOS, Windows, UNIX, Linux), Storage Devices - Programming – Overview - Need for Languages - Skills - Networking Basics – Virus – Hacking.

UNIT II (6hrs)

Word Processing – Open, Save and Close Word Document - Editing Text - Tools, Formatting, Bullets - Spell Checker - Navigating in Word – Keyboard, Mouse - Document Formatting - Paragraph Alignment, Indentation, Headers and Footers, Numbering – Printing - Preview Options.

UNIT III (6hrs)

File Management - Understanding the Importance of File Management, Backup of Files, Navigating through MyComputer and Windows Explorer - Files and Folders – Editing, Retrieving, Deleting, Renaming, Subfolders – Manipulate Windows – Maximize, Minimize - Power Point Basics – Terminology, Templates, Viewing.

UNIT IV: **(6hrs)**

Spreadsheets – MS Excel – Opening, Entering Text and Data, Formatting, Navigating- Formulas – Entering, Handling and Copying- Charts –Creating, Formatting and Printing, Header and Footer, Data Alignment, Printing.

UNIT V: **(6hrs)**

Networks – Internet Explorer- Components - WWW – Working, Browsing, Searching, Saving – Bookmark – Favorite, Create, Delete – Printing a Web Page – E-mail - Creating, Receiving, Reading and Sending Messages

Note: Unit II to Unit V needs exposure through practical

References Books:

i. Introduction to Computers – Peter Norton, Tata McGraw Hill

ii. Microsoft 2003 – Jennifer Ackerman Kettell, Guy Hat-Davis, Curt Simmons, Tata McGraw Hill

CORE - III PROGRAMMING IN JAVA

SUBJECT CODE:	THEORY	MARKS :100

CREDIT: 4

SEMESTER: II **TOTAL HOURS: 75**

COURSE OBJECTIVES

- This course introduces the concepts of Programming in JAVA.
- To understand Object Oriented Programming concepts like data abstraction, encapsulation, etc.
- To solve the real world scenarios using top down approach.
- To understand various JAVA programming concepts.

UNIT I (15hrs)

Introduction to Java - Features of Java - Basic Concepts of Object Oriented Programming - Java Tokens - Java Statements – Constants – Variables - Data Types - Type Casting – Operators – Expressions - Control Statements: Branching and Looping Statements.

UNIT II (20hrs)

Classes, Objects and Methods - Constructors - Methods Overloading – Inheritance - Overriding Methods - Finalizer and Abstract Methods - Visibility Control –Arrays - Strings and Vectors - String Buffer Class.

UNIT III (15hrs)

Interfaces – Packages - Creating Packages - Accessing a Package - Multithreaded Programming - Creating Threads - Stopping and Blocking a Thread - Life Cycle of a Thread - Using Thread Methods - Thread Priority – Synchronization - Implementing the Runnable Interface.

UNIT IV (10hrs)

Managing Errors and Exceptions - Syntax of Exception Handling Code - Using Finally Statement - Throwing Our Own Exceptions - Applet Programming - Applet Life Cycle-Graphics Programming.

UNIT V (15hrs)

Introducing the AWT: Working with Windows, Graphics and Text- AWT Classes-Working with Frames-Working with Graphics-Working with Color-Working with Fonts-Using AWT Controls, Layout Managers and Menus.

1. Recommended Books

i. E. Balagurusamy 2004, Programming with JAVA - 2nd Edition, Tata McGraw - Hill Publishing Co. Ltd, New Delhi.
ii. Herbert Schildt, The Complete Reference Java™ 2- 5th Edition, Tata McGraw-Hill Publishing Co. Ltd, New Delhi.

2. Reference Books

i. Y. Daniel Liang, 2003, An Introduction to JAVA Programming, Prentice – Hall of India Pvt. Ltd.
ii. Cay S. Horstmann and Gary Cornell, 2005, Core Java™2 Volume I, Fundamental 7th Edition, Pearson Education.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE - IV PRACTICAL - JAVA LAB

SUBJECT CODE:	PRACTICAL	MARKS :100

CREDIT: 4

SEMESTER: II **TOTAL HOURS:75**

COURSE OBJECTIVES

- This course gives hands on training in JAVA.

Application

1. To read student marks for five subjects and print the total and average.
2. Finding the largest among three numbers.
3. To implement the concept of method overloading.
4. To convert the given temperature in Fahrenheit to Celsius using the formula,
   C = F – 32/1.8.
5. To find the factorial of the given number.
6. To compute Simple and Compound Interest.
7. To check whether the given number is Prime or not.
8. To check whether the given number is Armstrong or not.
9. To print Fibonacci series.
10. To check whether the given string is Palindrome or not.
11. Substring Removal from a String. Use String Buffer Class.
12. Finding area and Perimeter of Triangle. Use Stream class.(Circle & Rectangle)
13. Determining the order of numbers generated randomly using Random class.
14. String Manipulation using Char Array.

Applets

15. Incorporating Graphics.
16. Working with Colors and Fonts.

ALLIED – II MATHEMATICS – II

SUBJECT CODE:	THEORY & PROBLEMS	MARKS :100

CREDITS: 5

SEMESTER: II **TOTAL HOURS:90**

COURSE OBJECTIVES:

- To improve basics in mathematics and analytical skills

UNIT I (18 hrs)

Integral Calculus: - Bernoulli's formula – Reduction formula for $\int \text{Sin}^n x\,dx$, $\int \text{Cos}^n x\,dx$ and $\int \text{Sin}^m x\,\text{Cos}^n x\,dx$.

Chapter 2, Sections 2.7 and 2.9

UNIT II (18 hrs)

Finite Differences: Operators E, differences tables, Newton's forward and backward interpolation formulae, Lagrange's Interpolation formulae.

Chapter 5, Section 5.1, 5.2

UNIT III (18 hrs)

Differential Equation: Second order Differential Equation with Constant Coefficients. Differential equation of the form $(aD^2+bD+C)y = e^{ax}\,ø\,(x)$ where a, b, c are constants, $ø\,(x) = \text{Sin } mx$ (or) $\text{Cos } mx$ (or) x^m. Partial Differential Equation: Eliminating Arbitrary constants and functions - Four Standard types.$f(p,q) = 0$; $f(x,p,q) = 0$, $f\,(y,p,q) = 0$, $f(z,p,q) = 0$.

Chapter 5, Section 5.2, 5.2.1

Chapter 6, Section 6.1 to 6.3

UNIT IV (18 hrs)

Laplace Transformation - Properties and Problems - $L\,[e^{at}f\,(t)]$, $L\,[t^n f\,(t)]$, $L\,[e^{at}\,t\,f\,(t)]$, $L\,[f\,(t)/t]$.

Chapter 7, Section 7.1.1 to 7.1.4

UNIT V(18 hrs)

Inverse Laplace Transformation: - Solving Differential Equation using Laplace Transformation (excluding simultaneous equations).

Chapter 7, Section 7.2 to 7.3

Content and treatment as in

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Reference Books:

i. Allied Mathematics, A. Singaravelu.
ii. Ancillary Mathematics, A. ManickavasagamPillai and Narayanan.
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iv. P. Kandasamy and K. Thilagavathi, Allied Mathematics Volume I and Volume II -- 2004, S. Chand and Co, New Delhi.
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www.freebookcenre.net/SpecialCat/Free-Mathematics-Books-Download.html

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
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Section B	**Short Answer** Answer any **5** out of 7 questions	13–19	7	**35**
Section C	**Essay** Answer any **3** out of 5 questions	20– 24	15	**45**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1		2
	Unit – 2	1	1
	Unit – 3		3
	Unit – 4		3
	Unit – 5		2
Section B	Unit – 1		1
	Unit – 2		2
	Unit – 3		1
	Unit – 4		2
	Unit – 5		1
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit - 5		1

NME – PRACTICAL – HTML LAB

SUBJECT CODE:	PRACTICAL	MARKS :100

CREDIT: 2

SEMESTER: II **TOTAL HOURS: 30**

COURSE OBJECTIVES:

- This course introduces the basic concepts of HTML

1. Write a script to create an array of 10 elements and display its contents.

2. Create a simple calculator using form fields. Have two fields for number entry and one field for the result. Allow the user to be able to use plus, minus, multiply and divide.

3. Create a document and add a link to it. When the user moves the mouse over the link, it should load the linked document on its own. (user is not required to click on the link)

4. Create a document which opens a new window without a toolbar, address bar or a status bar that unloads itself after one minute.

5. Design an HTML page that includes document structure tags, title, line break, multiple headings and link to e-mail address.

6. Create an HTML file which is the main page with an image and some text messages along with hyperlinks which is linked to various pages. The navigation should be such that the links take you to the appropriate page and then back to the main page.

7. Create a HTML page to demonstrate the usage of Frames. Choose the content of the page on your own.

8. Design an application for pay slip through HTML forms.

9. Make a page with a heading. Make the heading large, bold, italic and center it across the top of the page.

10. Design a Web Page for Student Information System.

CORE - V SOFTWARE TESTING

SUBJECT CODE:	THEORY	MARKS :100

CREDIT: 4

SEMESTER: III **TOTAL HOURS: 75**

Course Objectives:

- To study the fundamentals and principles of software testing.
- To learn few techniques of testing.
- To understand the significance of testing.
- To learn the essentials of testing.

UNIT I (15 hrs)

INTRODUCTION TO SOFTWARE TESTING:

Testing as an Engineering Activity - Role of Process in Software Quality - Testing as a Process - Basic Definitions - Software Testing Principles – The Tester's Role in a Software Development Organization - Origins of Defects - Defect Classes - The Defect Repository and Test Design – Defect.

UNIT II (20 hrs)

LEVELS OF TESTING:

The Need for Levels of Testing - Unit Testing - Unit Test Planning -Designing the Unit Tests- The Test Harness - Running the Unit tests and Recording results - Integration tests - Designing Integration Tests - Integration Test Planning - Scenario testing - Defect Bash Elimination - System Testing - Types of System Testing - Acceptance Testing - Performance testing - Regression Testing - Internationalization Testing - Ad-hoc Testing - Alpha - Beta Tests - Usability and Accessibility testing.

UNIT III (15 hrs)

TEST CASE DESIGN:

Test Case Design Strategies – Using Black Box Approach To Test Case Design – Random Testing – Requirements Based Testing – Boundary Value Analysis – Equivalence Class Partitioning – State based Testing – Cause and Effect Graphing – Compatibility Testing – User Documentation Testing – Domain Testing – Using White Box Approach To Test Design – Test Adequacy Criteria – Static Testing Vs. Structural Testing – Code Functional Testing – Coverage And Control Flow Graphs – Covering Code Logic – Paths – Code Complexity Testing.

UNIT IV (10 hrs)

TEST MANAGEMENT:

People and Organizational Issues in Testing - Organization Structures for Testing Teams - Testing Services - Test Planning - Test Plan Components - Test Plan Attachments - Locating Test Items - Test Management - Test Process - Reporting Test Results.

UNIT V (15 hrs)

CONTROLLING, MONITORING & REPORTING:

Software Test Automation - Skills Needed for Automation - Scope of Automation - Design and Architecture for Automation - Requirements for a Test Tool - Challenges in Automation - Test Metrics and Measurements - Project, Progress and Productivity Metrics Case study: How to write Test Scenario? How to write Test Case?

1. Recommended Texts:

i. Ilene Burnstein, "Practical Software Testing", Springer International Edition, 2003.

ii. Srinivasan Desikan and Gopalaswamy Ramesh, Software Testing ' Principles and Practices', Pearson education, 2007.

iii. Ron Patton, "Software Testing", Second Edition, Sams Publishing, Pearson Education, 2007

2. Reference Books:

i. Edward Kit," Software Testing In The Real World – Improving The Process", Pearson Education, 1995.

ii. Boris Beizer," Software Testing Techniques" – 2nd Edition, Van Nostrand Reinhold, New York, 1990.

iii. Aditya P. Mathur, "Foundations Of Software Testing _ Fundamental Algorithms And Techniques", Dorling Kindersley (India) Pvt. Ltd., Pearson Education, 2008.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE - VI WEB TECHNOLOGY

SUBJECT CODE:	THEORY	MARKS :100

CREDIT: 4

SEMESTER: III **TOTAL HOURS: 90**

COURSE OBJECTIVE

- This course introduces the concepts of ASP, VB Script, Java Script

UNIT I (18hrs)

Introduction to VBScript - Adding VBScript Code to an HTML Page - VB Script Basics - VBScript Data Types - VBScript Variables - VBScript Constants -VBScript Operators: Mathematical - Comparison - Logical - Using Conditional Statements - Looping Through Code - VBScript Procedures – Type Casting Variables - Math Functions – Date Functions – String Functions – Other Functions - VBScript Coding Conventions - Dictionary Object in VBScript - Err Object.

UNIT II (18hrs)

Introduction to Java Script – Advantages of Java Script – Java Script syntax - Data Type – Variable - Array – Operator & Expression – Looping – Control Structures - Constructor Function – User Defined Function Dialog Box .

UNIT III (18hrs)

Java Script Document Object Model – Introduction – Object in HTML – Event Handling – Window Object – Document Object – Browser Object – Form Object – Navigator Object – Screen Object – Build in Object – User Defined Object – Cookies.

UNIT IV (18hrs)

ASP.NET Language Structure – Page Structure – Page Event, Properties & Compiler Directives - HTML Server Controls – Anchor, Tables, Forms, Files. Basic Web server Controls – Label, Text Box, Button, Image Links, Check & Radio Button, Hyperlink, Data List Web Server Controls – Check Box List. Radio Button List, Drop Down List, List Box, Data Grid, Repeater.

UNIT V (18hrs)

Request and Response Objects, Cookies, Working with Data – OLEDB Connection Class, Command Class, Transaction Class, Data Adaptor Class, Data Set Class. Advanced Issues – E-mail, Application Issues, Working with IIS and Page Directives, Error Handling.

Security – Authentication, IP Address, Secure by SSL & Client Certificates

1. Recommended Texts

i. I. Bayross, 2000, Web Enable Commercial Application Development Using HTML, DHTML, Javascript, Perl CGI, BPB Publications.

ii. A. Russell Jones, Mastering Active Server Pages 3, BPB Publications.

2. Reference Books

i. Hathleen Kalata, Internet Programming with VBScript and JavaScript, Thomson Learning
ii. Mike McGrath, XML Harness the Power of XML in easy steps, Dreamtech Publications
iii. T.A. Powell, 2002, Complete Reference HTML, TMH.
iv. J. Jaworski, 1999, Mastering Javascript, BPB Publications.
v. Powell, Thomas; Schneider, Fritz, JavaScript: The Complete Reference, 2nd edition 2004, TMH

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE - VII PRACTICAL - WEB APPLICATIONS LAB

SUBJECT CODE:	PRACTICAL	MARKS :100

CREDIT: 4

SEMESTER: III **TOTAL HOURS: 75**

COURSE OBJECTIVES

- This course gives training in Web Designing and Applications.

VB SCRIPT & JAVASCRIPT

1. Write a program outputs the squares, roots, cubes and complements of integers between 1 and 100.
2. Create a calculator.
3. Write a script to Sort numbers and strings.
4. Create a program to generate a hit counter.
5. Create a program to verify whether email address provided by user is valid or invalid.
6. Write a program to scroll the text on status bar.
7. The form consists of two multiple choice list and one single choice list
    a. The first multiple choice list displays the major dishes available.
    b. The second multiple choice list displays the stocks available.
    c. The single choice list display the miscellaneous (Milkshakes, soft drinks, softy available etc.)
8. Write a script to create a digital clock.
9. Create a web page using two image file which switch black and white one another as the mouse pointer moves over the image. Use the OnMouseover and OnMouse event, onDblclick handler.
10. Build a WWW page with an image and 3 buttons, Pick three favorite graphics, Label the buttons and make each one swap in the graphic you have chosen.
11. Create a frameset that has two frames, side by side. Make the left-hand frame contain a form with 3 radio buttons. The buttons should be for three search engines:
    - Yahoo (http://www.yahoo.com)
    - Altavista (http://www.altavista.com)
    - Infoseek (http://www.infoseek.com)

    When the user clicks on of the option buttons, the frame on the right hand side should be loaded with the right search engine.
12. Write a program to implement Employee database with all validation

ASP

1. Create a login form, to expire, if the user does not type the password within 100 seconds.
2. Create an employee database and manipulate the records using command object in ASP.
3. Develop an application to illustrate the usage of Request and Response Objects in ASP.
4. Write an ASP program using Request Object to give the exact list of headers sent by the browser to the Web server.
5. Create an Active Server Page to display the records one by one from a student database. The student database should contain roll no, name, marks & total.
7. Design an ASP application that describes books in the Online Bookshop. (Use AD Rotator Component, Content Rotator Component, Content Linking Component)
8. Create a document and add a link to it. When the user moves the mouse over the link it should load the linked document on its own (User is not required to click on the link).
9. Create a document, which opens a new window without a toolbar, address bar, or a status bar that unloads itself after one minute.
10. Create a document that accepts the user's name in a text field form and displays the same the next time when the user visits the site informing him that he has accessed the site for the second time, and so on.

CORE - VIII DATA STRUCTURES AND ALGORITHMS

SUBJECT CODE:	THEORY	MARKS :100

CREDITS: 4

SEMESTER: III **TOTAL HOURS: 90**

COURSE OBJECTIVES

- This course introduces fundamental data structures, algorithms, and abstract data types.
- Main topics includes arrays, linked lists, stacks, queues, graphs, and trees, and algorithms for list manipulation, graph, sorting, searching, and tree traversals.

UNIT I (18hrs)

Definition of a Data structure – Basic Terms - primitive and composite Data Types, Asymptotic notations-Big Oh, Omega, Theta notations. Arrays: Operations on Arrays: Insertion, Deletion and Traversal with algorithms - Order list: Definition, Operations.

UNIT II (18hrs)

Stacks – Operations on stack: PUSH, POP. Applications of Stack - Infix to Postfix Conversion, Recursion and Maze Problems - Queues - Operations on Queues: ENQUEUE AND DEQUEUE. Queue Applications, Circular Queue: Operations on Circular Queue.

UNIT III (18hrs)

Singly Linked List – Operations: Insertion, Deletion and Traversal- Application - Representation of a Polynomial, Polynomial Addition; Doubly Linked List – Representation – Operations: Insertion, Deletion, Insert Last, Insert After, Delete Last and Display operation - Applications Ordering of Books in Library (Alphabetical Ordering).

UNIT IV (18hrs)

Trees and Graphs: Binary Trees – Basic Terminologies in Trees - Representation - Conversion of Forest to Binary Tree, Operations - Tree Traversals; Graph - Definition, Basic Terms – Basic Operations - Types of Graphs, Hashing Tables and Hashing Functions, Traversal : BFS and DFS - Shortest Path: Dijkstra's Shortest Path Algorithm.

UNIT V (18hrs)

Algorithm - Definition - Examples - Complexity: Time Complexity, Space Complexity - Divide and Conquer - Binary Search - Maximum and Minimum with example - Merge Sort with example.

1. Recommended Texts

i. E.Horowitz and S. Shani Fundamentals of Data Structures in C++, Galgotia Pub. 1999.

ii. Horowitz, S. Sahni, and S. Rajasekaran, Computer Algorithms, Galgotia Pub. Pvt. Ltd.,1998.

2.Reference Books

i. R. Kruse C.L. Tondo and B. Leung, Data Structures and Program design in C, PHI, 1997.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

ALLIED- III FINANCIAL ACCOUNTING

SUBJECT CODE:	PROBLEM & PRACTICAL	MARKS :100

CREDIT: 5

SEMESTER: III **TOTAL HOURS: 90**

COURSE OBJECTIVES

- This course introduces the concepts of Financial Accounting.

UNIT I (20 Hrs)

Meaning and scope of Accounting – Basic accounting concepts and conventions – Objectives of Accounting – Accounting transactions – Double entry book keeping – Journal –Ledger –Preparation of Trail Balance.

UNIT II (16Hrs)

Preparation of final accounts and Adjustments to final accounts. (Simple problems only)

UNIT III (18 Hrs)

Depreciation – Meaning – causes – types- problems based on straight line and diminishing Balance methods only.

UNIT IV (18Hrs)

Single Entry Systems: Meaning – features – defects- statement of Affairs method and Introduction to conversion method. (Problems on statement of affairs method only)

UNIT V (18Hrs)

Introduction to Accounting Package: (Only Internal)

Accounting Package: Meaning – features – create a company – Alter – Display & Delete a company – Groups: Predefined groups – create new groups – display – Alter & Deleting a group.

Ledger: create a ledger – Display – Alter & Delete a ledger – Voucher: Meaning – Accounting vouchers - Create user defined voucher – Display – Alter & Deleting voucher. Accounting Ledgers & Voucher Creation – Trail Balance – Final accounts & Its Adjustment

1.**Recommended Texts & Reference**

i. Gupta R.L, Advanced Accountancy, S.Chand, Delhi.
ii. Agarwala A.N, Higher Science of Accountancy, Kitab Mahal,Allahabad.
iii. S.P. Jain and K.L. Narang, Financial Accounting
iv. M.C.Shukla and T.S.Grawel, Adavnced Accounts(Vol. I)
v. Gillespie Accounting system, Procedure & methods, Prentice Hall India Ltd, New Delhi.
vi. http://www.infinsys.com/v1/downloads/tally_erp_9_doc.pdf

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	2	**20**
B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	8	**40**
C	**Essay** Answer any 2 out of 4 questions (each in 600 words)	21-24	20	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	**Problems**
A	Unit – 1	3	1
	Unit – 2	2	1
	Unit – 3	3	
	Unit – 4	2	
B	Unit – 1	1	1
	Unit – 2		1
	Unit – 3	1	1
	Unit – 4	1	2
C	Unit – 1		1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1

SOFT SKILL III - PERSONALITY ENRICHMENT

SUBJECT CODE:	THEORY	MARKS :100

CREDIT: 3

SEMESTER: III **TOTAL HOURS: 30**

COURSE OBJECTIVES

- To make students understand the concepts and components of personality, thereby to apply the acquired knowledge to themselves and to march towards excellence for their respective academic careers.
- To enable students to keep themselves abreast of general knowledge and current information.
- To bring out creativity and other latent talents with proper goal setting so that self-esteem gets enhanced.
- To sharpen memory skills and other study skills which are vital for academic excellence.
- To give training for positive thinking which will keep the students in a good stead at the time of crisis.

UNIT I- Self Disclosure (6hrs)

Characteristics of self disclosure – Self disclosure benefits and appropriateness – Self disclosure and self awareness – Self disclosure and feedback.

Exercise:

1. Self Description– Reflect and answer the following questions on a sheet of paper about yourself: Who am I? What am I like? How do others perceive me? What are my strengths as a person? In what areas do I want to develop greater skills?
2. Adjective Checklist – the following exercise is aimed at providing an opportunity for participants to disclose their view of themselves to the other members of their group and to receive feedback on how the other group members perceive them.
3. Self Disclosure and Self Awareness – the purpose of this exercise is to allow participants to focus on the areas as described in the Johari Window.

UNIT II – Anger, Stress and Managing Feelings (6hrs)

The nature of stress- managing stress through social support systems – the nature of anger – guidelines for managing anger constructively – dealing with an angry person

Exercise:

1. Handling put downs techniques practiced through role plays.
2. changing your feelings discuss how people can make their assumptions more constructively.
3. defusing the Bomb exercise discuss how one can manage provocations.

UNIT III – Interpersonal Effectiveness (6hrs)

Managing anxiety and fear – Breathing – an antidote to stress – progressive muscle relaxation –understanding your shyness – building one' self esteem – avoiding self blame – taking risks, tolerating failure, persisting and celebrating success – self talk.

Exercise:
1. being positive about yourself
2. Understanding your shyness analyze the social situation of shyness and the causes of your shyness.
3. Systematic Muscle Relaxation train one in the procedure for systematic muscle relaxation.
4. Learning how to breathe deeply help one to relax systematically when one is anxious by controlling one's breathing.

UNIT IV: Study Skills (6hrs)
Importance of study environment – using VCR3 to increase memory power: visualizing, concentrating, relating, repeating, reviewing- memory hindrances – memory helpers – knowing vs memorizing – memory and studying – the SQ3R method; survey, write questions, read, recite , review – mnemonic devices – rhymes – acronyms – pegging – cooperative learning .
Exercise:
1. Using the techniques of memory enhancers to review your classroom and textbook notes

UNIT V: Goal Setting and Managing Time (6hrs)
The basis of effective goals – steps to be followed to obtain optimum results from goal setting – Identifying the reasons for procrastination – guidelines to overcome procrastination – priority management at home and college.
Exercise:
1. Steps to prepare one's short term goals and long term goals.
2. Role play activity through reelection of identifying how priority management affect one's ability to live a balanced life.

Reference:
1. Johnson, D.W. (1997). Reaching out – Interpersonal Effectiveness and Self Actualization. 6th ed. Boston: Allyn and Bacon.
2. Sherfield, R. M. ; Montgomery, R.J. and Moody, P, G. (2010). Developing Soft Skills. 4th ed. New Delhi: Pearson.
3. Robbins, S. P. and Hunsaker, Phillip, L. (2009). Training in Interpersonal skills. Tips for managing people at work. 5th ed. New Delhi: PHI Learning.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Essay** Answer any 5 out of 10 questions **(each in 1200 words)**	1-10	20	**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	

CORE - IX MOBILE APPLICATION DEVELOPMENT

SUBJECT CODE:	THEORY	MARKS :100

CREDIT: 4

SEMESTER: IV **TOTAL HOURS: 90**

COURSE OBJECTIVES

- To understand concepts of Mobile Devices, Mobile OS Architectures, Android Survival and Basic Apps.
- To understand Android useful Apps, Underneath the Frameworks and Advanced Topics.

UNIT I (18hrs)

Introduction to Mobile Devices: Mobile Devices vs. Desktop Devices - ARM and Intel Architectures - Power Management - Screen Resolution -Touch Interfaces.

UNIT II (18hrs)

Application Deployment - App Store, Google Play, Windows Store - Development Environments - Eclipse - Native vs. Web Applications.

UNIT III (18hrs)

Mobile OS Architecture: Android Overview: Features, Architecture - Underlying OS – Applications - Application Frameworks – Libraries – Runtime – Kernel- Android Ecosystem – Application Stores – Publishing.

UNIT IV (18hrs)

Android Development Tools: Android SDK - Android Emulator -Development on Hardware Devices.

UNIT V (18hrs)

Basic Android Development: Writing Android Applications, Activity Lifecycle, Multi-device Support, Fragments, Data Storage, Intents, Data Sharing, Audio Playback, Photo Capture.

1. Recommended Texts

i. Ed Burnette, Hello Android: Introducing Google's Mobile Development Platform, The Pragmatic Programmers, 3rd Edition, 2010.
ii. Reto Meier, Professional Android Application Development, Wrox Press, 2009.
iii. Himanshu Dwivedi, Chris Clark, David Thiel, Mobile Application Security, Tata McGraw Hill, 2010.
iv. David Mark, Jack Nutting, Jeff LaMarche, Fredrik Olsson, Beginning iOS 6 Development: Exploring the iOS SDK, Apress, 2013.
v. Craig Hockenberry, iPhone App Development: The Missing Manual, Pogue Press, 2010.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE - X OPERATIONS RESEARCH WITH BIG DATA

SUBJECT CODE:	THEORY	MARKS :100

CREDIT: 4

SEMESTER: IV **TOTAL HOURS: 120**

COURSE OBJECTIVES:

- To give an overall idea about the various Optimization techniques and their usages.
- To give basic idea about Big Data Platform.

UNIT I (25hrs)

Basics of Operations Research (OR): Characteristics of OR - Necessity of OR in Industry -OR and Decision making - Role of Computers in OR Linear Programming: Formulations and Graphical solution (of 2 variables) Canonical & Standard terms of Linear Programming Problem. Algebraic Solution: Simplex Method.
(Chapters: 1.1 to 1.4, 2.1 to 2.28, 3.1 to 3.54, 4.1 to 4.31)

UNIT II (25hrs)

Transportation Model: Definition - Formulation and Solution of Transportation Models - Row - Minima, Column - Minima, Matrix Minima and Vogel's Approximation Methods. Assignment Model: Definition of Assignment Model - Comparison with Transportation Model - Formulation and Solution of Assignment Model - Variations of Assignment Problem. (Chapters: 10.1 to 10.73, 11.1 to 11.60)

UNIT III (25hrs)

Sequencing Problem: Processing each of N Jobs through M Machines - Processing N Jobs through 2 Machines - Processing N Jobs through 3 Machines - Processing 2 Jobs through M Machines - Processing N Jobs through M Machines - Travelling Salesman Problem. Game Theory: Characteristics of Games - Maxmin, Minmax Criteria of Optimality - Dominance Property - Algebraic and Graphical Method of Solution of Solving 2 X 2 Games. (Chapters: 12.1 to 12.66, 15.1 to 15.52)

UNIT IV (20hrs)

PERT – CPM: Project Network Diagram – Critical Path (Crashing excluded) – PERT Computation. (Chapters: 14.1 to 14.78)

UNIT V (25hrs)

Big Data: Introduction – Big Data Glossary: Batch Processing, Cluster Computing, Data Warehouse, Data Lake, Data Mining,Hadoop,In-memory Computing, Machine Learning, Map Reduce,NoSQL,Stream Processing- Characteristics of Big Data – Solution based approaches for data – Big data Environment Setup-HDFS-MapReduce.

1. Recommended Texts

i. V.Sundaresan, K.S.Ganapathy Subramanian, K.Ganesan – Resource Management Techniques (Operations Research).
ii. Introduction to Operations Research, P.R.Vittal Gupta P.K. and HiraD.S.Problems in Operations Research, S.Chand& Co.
iii. Big Data Architects Handbook,Syed Muhammad Fahad Akhta.

2. Reference Books

i. KantiSwaroop, Gupta P.K. and Manmohan – Problems in Operations Research, Sultan Chand & Sons.

ii. Ravidran A., Philips,D.T. and Solberg J.J.,Operations Research, John Wiley & sons.

iii. Taha H.A., Operations Research, Macmillian Publishing company, Newyork.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
A	Unit – 1	2	
	Unit – 2	2	1
	Unit – 3	2	
	Unit – 4	2	1
	Unit – 5	2	
B	Unit – 1	1	1
	Unit – 2	1	
	Unit – 3	1	1
	Unit – 4		1
	Unit – 5	1	
C	Unit – 1	1	
	Unit – 2	1	1
	Unit – 3		1
	Unit – 4		1
	Unit - 5	1	

CORE - XI PRACTICAL – MOBILE APPLICATION DEVELOPMENT LAB

SUBJECT CODE:	PRACTICAL	MARKS :100

CREDIT: 4

SEMESTER: IV **TOTAL HOURS: 90**

COURSE OBJECTIVES:

- Setup the Development Environment.
- Create a sample Android Application.
- Understand the various parts of an Android Project.
- Use the Android Emulator.
- Install and run the application on a physical device.
- Create a simple User Interface.

1. Create a Hello World App. Run the App on the Emulator and on the Physical Device.

2. Create an App to accept the user's name and to greet him/her.

3. Create a Book List App, an App that allows a user to view and edit a list of jokes.

4. Extend the Book List App to allow the user to give ratings to books, delete books, upload book names to a server, and download book names from a server.

5. Create a GPS recording App called Walkabout. The purpose of the application is to allow users to record their GPS location information as they travel. While the application records the user's GPS data, it displays it back to the user in the form of a path drawn on top of a Google Map. While recording data, the user can launch a camera activity that will capture and store pictures on an SD-Card. When finished recording, the application gives the user the option of storing the current GPS data as a private application file to be loaded and displayed at a later time.

6. Develop an App named AppRater that suggests other Applications for users to download and try. The purpose of the application is to share fun and interesting applications with other users. The users can then rate the applications.

7. Develop an Application that demonstrates the following features of the Mobile OS Framework:

a. How to send SMS text messages.

b. How to monitor motion of the device through the Accelerometer. When the application starts up, the user is presented with an Activity that allows them to choose which feature they would like to demo by pressing one of two buttons, either SMS or Accelerometer monitoring. When the user hits one of the buttons, it launches the Activity for the selected demo.

ALLIED – IV COST AND MANAGEMENT ACCOUNTING

SUBJECT CODE:	PROBLEM	MARKS :100

CREDIT: 5

SEMESTER: IV **TOTAL HOURS: 90**

COURSE OBJECTIVES

- This course introduces the concepts of Cost and Management Accounting

UNIT I (15hrs)

Cost Accounting: Definition, Meaning and objectives - Distinction between Cost and Financial Accounting - Elements of cost and preparation of cost sheets - Management Accounting – Definition and objectives – Distinction between management and financial accounting.

UNIT II (18hrs)

Stores Records - Purchase Order - Goods Received Note - Bin Card - Stores Ledger - Purchase, Receipt and Inspection - Inventory Control - Economic Ordering Quantity - Methods of Pricing Issued. (FIFO-LIFO-Weighted Average Method Only)

UNIT III (18hrs)

Labour Cost: Meaning – Types of Labour – objectives – Labour Turnover - Time Rate System – Piece Wage system – Taylor's differential Piece Rate System – Premium and Bonus Plans – The Halsey Premium Plan – Rowan Plan. (Simple problems only)

UNIT IV (21hrs)

Budgetary Control: Meaning – Definition – Advantages and Limitations – Essentials of a good budgetary control system - Classification of Budgets – Problems on sales Budget , Production Budget, Cash budget, Fixed budget and Flexible Budget only.

UNIT V (18hrs)

Marginal Costing: The Concept - Break Even Analysis - Break - Even Chart - Importance and assumptions - Application of Profit Volumes Ratio - Different types of simple problems only.

1.Recommended Texts & Reference

1. Wheldon A.J., Cost Accounting and Costing Methods.
2. Iyengar S.P., Cost Accounting : Principles and Practice.
3. Bhar B.K., Cost Accounting : Methods and problems.
4. Bigg W.W., Cost Accounts.
5. Prasad N.K, Cost Accounting : Principles and Problems.
6. Jain S.P. and Narang K.L., Advanced Cost Accounting.
7. Agarwal M., Theory and Practices of Cost Accounting
8. Robert Anthony : Management Accounting : Text and cases.
9. Maheswari S.N., Principles of Management Accounting.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	2	**20**
B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	8	**40**
C	**Essay** Answer any 2 out of 4 questions (each in 600 words)	21-24	20	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	**Problems**
A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	1
	Unit – 5	2	1
B	Unit – 1	2	
	Unit – 2		1
	Unit – 3		1
	Unit – 4	1	1
	Unit – 5		2
C	Unit – 1		1
	Unit – 2	-	-
	Unit – 3		1
	Unit – 4		1
	Unit – 5		1

SOFT SKILL IV – PRACTICAL - PHP LAB

SUBJECT CODE:	PRACTICAL	MARKS :100

CREDIT: 3

SEMESTER: IV **TOTAL HOURS: 30**

COURSE OBJECTIVES

- This course introduces the basic concepts of PHP Scripting Language.
- To develop Web Applications using basic PHP elements such as delimiters, control structures, operators, variables, arrays, and functions.
- To debug and improve code for better reusability and scalability.

Exercise:

1. Create a simple HTML form and accept the user name and display the name through PHP echo statement.

2. Write a PHP script to count number of lines in a file.

3. Write a PHP function to test whether a number is greater than 30, 20 or 10 using Ternary operator.

4. Write a PHP program to convert word to digit.

5. Write a PHP program to remove duplicates from a sorted list.

6. Write a PHP program to compute the sum of the digits of a number.

7. Write a function to calculate the factorial of a number (a non-negative integer). The function accepts the number as an argument.

8. Write a PHP function that checks whether a passed string is a palindrome or not?

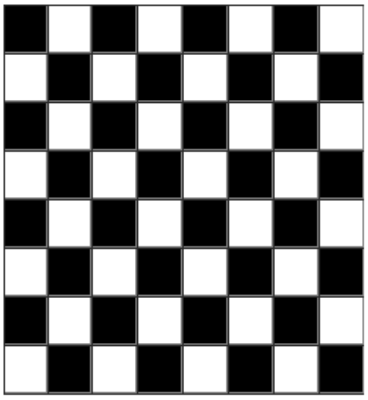
9. Write a PHP function to change the following array's all values to upper or lower case.

10. Write a PHP function to generate a random password (contains uppercase, lowercase, numeric and other) using shuffle () function.

11. Create a script to construct the following pattern, using a nested for loop.

```
*
* *
* * *
* * * *
* * * * *
* * * * *
* * * *
* * *
* *
*
```

12. Write a PHP script using nested for loop that creates a chess board as shown below. Use table width="270px" and take 30px as cell height and width.



13. Write a PHP program to check if an integer is the power of another integer.

Input: 16, 2

Example: For x = 16 and y = 2 the answer is "true", and for x = 12 and y = 2 "false"

14. Write the PHP script to get the Client IP Address.

15. Write a PHP script to calculate weeks between two dates.

EVS - ENVIRONMENTAL STUDIES

SUBJECT CODE:	THEORY	MARKS :100

CREDIT: 2

SEMESTER: IV **TOTAL HOURS: 30**

COURSE OBJECTIVES

- This course introduces the concepts of Environmental Studies

UNIT-I: (6hrs)
Multidisciplinary nature of environmental studies: Definition, scope and importance.

UNIT-II: **(6hrs)**
Natural Resources: Renewable and non-renewable Resources:
Natural Resources and associated problems - Forest Resources: Use and over-exploitation, deforestation, case studies. -Timber extraction, mining, dams and their effects on forest and tribal people. - Water resources: Use and over-utilization of surface and ground water - floods, drought, conflicts over water, dams-benefits and problems. - Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies. - Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. Energy resources: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies. Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

UNIT-III: (6hrs)
Ecosystems - Concept of an ecosystem -Structure and function of an ecosystem - Producers, consumers and decomposers - Energy flow in the ecosystem - Ecological succession. - Food chains, food webs and ecological pyramids. - Introduction, types, characteristic features, structure and function of the following ecosystem: - Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

UNIT-IV: (6hrs)
Biodiversity and its conservation:
• Introduction – Definition: genetic, species and ecosystem diversity. - Biogeographical classification of India - Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic- and option values - Biodiversity at global, National and local levels. - India as a mega-diversity nation - Hot-sports of biodiversity.
• Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts.
• Endangered and endemic species of India
• Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

UNIT-V: **(6hrs)**
Environmental Pollution:
Definition
• Cause, effects and control measures of:-
a. Air pollution
b. Water pollution
c. Soil pollution

d. Marine pollution
e. Noise pollution
f. Thermal pollution
g. Nuclear hazards
• Solid waste Management: Causes, effects and control measures of urban and Industrial wastes.
• Role of an individual in prevention of pollution.
• Pollution case studies.
• Disaster Management: floods, earthquake, cyclone and landslides.

Recommended Texts:

Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.

Reference Books:

Cunningham, W.P.Cooper, T.H. Gorhani, E & Hepworth, M.T.2001, Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	3	
B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE – XII PROGRAMMING IN PYTHON

SUBJECT CODE:	THEORY	MARKS :100

CREDIT: 3

SEMESTER: V **TOTAL HOURS: 75**

COURSE OBJECTIVES

- To learn how to install Python, Start the Python shell.
- To learn to perform basic calculations, print text on the screen and create lists, and perform simple control flow operations using if statements and for loops.
- To learn how to reuse code with functions.

UNIT I (15 hrs)

Introduction: Introduction to Python, Python Variables, Expressions, Statements: Variables, Keywords, Operators & Operands, Expressions, Statements, Order of Operations, String Operations, Comments, Keyboard Input. Functions: Type Conversion function, Math functions, Composition of Functions, Defining own function, Parameters, Arguments, Importing Functions.

UNIT II (15 hrs)

Conditions & Iterations: Conditions, Modulus Operator, Boolean Expression, Logical Operators, if, if-else, if-elif-else, nested conditions. Iteration while, for, break, continue, Nested loop.

UNIT III (15 hrs)

Recursion: Python recursion, Recursion error. Strings: Accessing values in String, Updating String, Slicing String, String Methods – upper(), find(), lower(), capitalize(), count(), join(), len(), isalnum(), isalpha(), isdigit(), islower(), isnumeric(), isspace(), isupper() max(), min(), replace(), split().

UNIT IV (15 hrs)

Structures & Functions: List: Introduction, Traversal, Operations, Slice, Methods, Delete element, Difference between Lists and Strings. Dictionaries: Introduction, Brief idea of Dictionaries & Lists. Tuples: Introduction, Brief idea of Lists & Tuples, Brief idea of Dictionaries & Tuples. Date & Time, Modules, Defining Functions, Exit function, Default arguments.

UNIT V (15 hrs)

Classes & Objects: Creating class, Instance objects, Accessing attributes, Built in class attributes, destroying objects, Inheritance, Method overriding, Overloading methods, Overloading operators, Data hiding. Exceptions in Python, Detecting and Handling Exceptions, Exceptions as Strings, Raising Exceptions, Assertions, Standard Exceptions.

1. Recommended Texts

i. Allen Downey, Jeffrey Elkner, Chris Meyers, ―How to Think Like a Computer Scientist - Learning with Python, Green Tea Press,2002.

2. References

i. John V. Guttag, ―Introduction to Computation and Programming using Python‖, Prentice Hall of India, 2014.
ii. Mark Lutz, ―Learning Python: Powerful Object-Oriented Programming‖, Fifth Edition, O'Reilly, Shroff Publishers and Distributors, 2013.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE – XIII RELATIONAL DATABASE MANAGEMENT SYSTEM

SUBJECT CODE:	THEORY	MARKS :100

CREDIT: 3

SEMESTER: V **TOTAL HOURS: 75**

COURSE OBJECTIVES

To gain knowledge about the DML, DDL operations and to develop a Database with enhanced models and Techniques and to understand about RDBMS, Object oriented Databases and issues using MySQL and PL/SQL.

UNIT I (15 hrs)
DBMS Definition – Characteristics of DBMS – Application and advantages of DBMS– Instances – Schemas and Database States – Three Levels of Architecture – Data Independence – DBMS languages– Data Dictionary– Database Users– Data Administrators.

UNIT II (15 hrs)
Data Models– Types and their comparison– Entity Relationship Model– Entity Types– Entity Sets– Attributes and its types– Keys– E-R Diagram– Data Integrity– RDBMS : Concept– Components and Codd's rules.

UNIT III (15 hrs)
Relational Algebra (Selection, Projection, Union, Intersection, Cartesian product, Different types of join like Theta join–Equi-join, Natural join, Outer join, Normalization: 1NF, 2NF, 3NF, BCNF, 4NF 5NF.

UNIT IV (15 hrs)
Introduction to SQL, DDL, DML, and DCL statements– Creating Tables– Adding Constraints– Altering Tables, Update, Insert, Delete Tables & various form of SELECT-Simple, Using Special Operators for Data Access– Aggregate functions– Joining Multiple Tables (Equi Joins) – Joining a Table to itself (self Joins) Functions.

UNIT V (15 hrs)
Introduction to PL/SQL (blocks of PL/SQL, Variables, constants) – Control Structure – Introduction to Stored Procedures–Functions–Cursor and Triggers.

1. Recommended Texts:

i. Elmasri & Navathe, Fundamentals of Database systems, Addison & Weisely, New Delhi.

2. References:

i. H. F. Korth & A. Silverschatz, Database Concepts, Tata McGraw Hill, New Delhi 2. C. J. Date, Database Systems, Prentice Hall of India, New Delhi. 3. Ivan Bayross, SQL, PL/SQL, The programming language of Oracle.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	**Problems**
A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE – XIV PRACTICAL – PYTHON LAB

SUBJECT CODE:	PRACTICAL	MARKS : 100

CREDIT: 3

SEMESTER: V **TOTAL HOURS: 60**

COURSE OBJECTIVES

- To understand why Python is a useful scripting language for developers.
- To learn how to read and write files in Python.
- To learn how to design and program Python applications.
- Design programs using Python object types.

1. Compute the GCD of two numbers.

2. Find the square root of a number (Newton's method).

3. Exponentiation (power of a number).

4. Find the maximum of a list of numbers.

5. Linear search and Binary search.

6. Selection sort, Insertion sort.

7. Merge sort.

8. First n prime numbers.

9. Multiply matrices.

10. Programs that take command line arguments (word count).

11. Find the most frequent words in a text read from a file.

CORE – XV PRACTICAL - RDBMS LAB

SUBJECT CODE:	PRACTICAL	MARKS : 100

CREDIT: 3

SEMESTER: V **TOTAL HOURS: 60**

COURSE OBJECTIVES

- This course gives hands on training in RDBMS.
- Creating database objects, modifying database objects, manipulating the data, retrieving the data from the database server
- Performing database operations in a procedural manner using PL/SQL
- Performing database operations (create, update, modify, retrieve, etc.,) using front-end tools like D2K.
- Design and Develop applications like banking, payroll system, etc.,

Create database and performing the operations given below using a menu driven Program: (a) Insertion, (b) Deletion, (c) Modification, (d) Generating a reports (Simple) for the following systems using Visual Basic as frontend and Oracle 8.0 as Backend.

1. Payroll.
2. Marksheet Processing.
3. Savings Bank account for banking.
4. Inventory System.
5. Invoice System.
6. Library Information System.
7. Student Information System.
8. Income Tax processing system.
9. Electricity Bill preparation system.
10. Telephone Directory maintenance.

ELECTIVE – I

REFER ANNEXURE - I

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

ELECTIVE – II

1. IDE – PRACTICAL - INTRODUCTION TO WEB DESIGNING (HTML & CSS)

SUBJECT CODE:	PRACTICAL	MARKS : 100

CREDIT: 5

SEMESTER: V **TOTAL HOURS:75**

COURSE OBJECTIVE:

- The student will be able to define the principle of Web page design, define the basics in web design, visualize the basic concept of HTML, recognize the elements of HTML
- Introduce basic concepts of CSS.

UNIT-I (15hrs)

Web Design Principles - Basic principles involved in developing a web site - Planning process - Five Golden rules of web designing - Designing navigation bar - Page design - Home Page Layout - Design Concept - Basics in Web Design - Brief History of Internet - What is World Wide Web - Why create a web site - Web Standards - Audience requirement.

UNIT-II (15hrs)

Introduction to HTML - HTML Documents - Basic structure of an HTML document - Creating an HTML document - Mark up Tags - Heading-Paragraphs - Line Breaks - HTML Tags. Elements of HTML - Working with Text, Lists, Tables and Frames - Working with Hyperlinks, Images and Multimedia, Forms and controls. Concept of CSS - Creating Style Sheet - CSS Properties - CSS Styling (Background, Text Format, Controlling Fonts, links).

UNIT-III (15hrs)

1. Write an HTML code to display your education details in a tabular format.

2. Write an HTML code to display your CV on a web page.

3. Write an HTML code to create a Home page having three links: About Us, Our Services and Contact Us. Create separate web pages for the three links.

4. Write an HTML code to create a login form. On submitting the form, the user should get navigated to a profile page.

5. Write an HTML code to create your Institute website (Only Home page).

UNIT-IV (15hrs)

6. Write an HTML code to illustrate the usage of the following:

   Ordered List

   Unordered List

   Definition List

7. Write an HTML code to create a frameset having header, navigation and content sections.

8. Write an HTML code to demonstrate the usage of inline CSS.

9. Write an HTML code to demonstrate the usage of internal CSS.

UNIT-V (15hrs)

10. Write an HTML code to demonstrate the usage of external CSS.
11. Write an HTML code to create background image.
12. Write an HTML code to illustrate text formatting.
13. Write an HTML code to illustrate controlling fonts.
14. Write an HTML code to illustrate styling links.

1. Recommended Texts:

i. Developing Web Applications, Ralph Moseley and M. T. Savaliya, Wiley-India
ii. Web Technologies, Black Book, dreamtech Press
iii. HTML 5, Black Book, dreamtech Press
iv. Web Design, Joel Sklar, Cengage Learning

List of Open Source Software/learning website: - Browsers like IE, Mozila, FireFox etc - Server software XAMPP/WAMP/LAMP - www.apachefriends.org – www.w3.org - www.w3schools.com

VALUE EDUCATION

SUBJECT CODE:	THEORY	MARKS : 100

CREDIT: 2

SEMESTER: V **TOTAL HOURS:15**

COURSE OBJECTIVE:

- Values are socially accepted norms to evaluate objects, persons, and situations that form part and parcel of sociality.
- A value system is a set of consistent values and measures. Knowledge of the values is inculcated through education. It contributes in forming true human being, who is able to face life and make it meaningful. There are different kinds of values like, ethical or moral values, doctrinal or ideological values, social values and aesthetic values. Values can be defined as broad preferences concerning appropriate courses of action or outcomes. As such, values reflect a person's sense of right and wrong or what "ought" to be. There are representative values like, "Equal rights for all", "Excellence deserves admiration". "People should be treated with respect and dignity". Values tend to influence attitudes and behavior and help to solve common human problems. Values are related to the norms of a culture.

UNIT I(3hrs)

Value education- Its purpose and significance in the present world – Value system – The role of culture and civilization-Holistic living – Balancing the Outer and Inner – Body, Mind and Intellectual level- Duties and Responsibilities.

UNIT II (3hrs)

Salient values for life- Truth, commitment, honesty and integrity, forgiveness and love, empathy and ability to sacrifice, care, unity , and inclusiveness, Self esteem and self confidence, punctuality – Time, task and resource management – Problem solving and decision making skills- Interpersonal and Intra personal relationship – Team work – Positive and creative thinking

UNIT III (3hrs)

Human Rights – Universal Declaration of Human Rights – Human Rights violations – National Integration – Peace and non-Violence – Dr. A P J Kalam's ten points for enlightened citizenship – Social Values and Welfare of the citizen – The role of media in value building.

UNIT IV(3hrs)

Environment and Ecological balance – interdependence of all beings – living and non-living. The binding of man and nature – Environment conservation and enrichment.

UNIT V(3hrs)

Social Evils – Corruption, Cyber crime, Terrorism – Alcoholism, Drug addiction – Dowry – Domestic violence – untouchability – female infanticide – atrocities against women- How to tackle them

1.Books for Reference:

i. M.G.Chitakra: Education and Human Values,
A.P.H.Publishing Corporation, New Delhi, 2003

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Essay** Answer any 5 out of 10 questions **(each in 1200 words)**	1-10	20	**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	**Problems**
A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	

CORE – XVI OPERATING SYSTEM

SUBJECT CODE:	THEORY	MARKS : 100

CREDIT: 4

SEMESTER: VI **TOTAL HOURS: 90**

COURSE OBJECTIVES

- To provide core knowledge of Operating System features, functions and techniques. Each and every Operating System function is discussed in detail. This course also provides an attempt to throw some light on the advanced topics in OS like Multiprocessor systems and Distributed OS. Case studies of WINDOWS and LINUX are organized at the end of this course so as to provide the support whatever they had pursued theoretically.
- To gain knowledge about Operating System, Memory Management and Scheduling concepts and to study about the basics of OS, Process Management, Synchronization, Memory Management and File Management.

UNIT I (18hrs)

Introduction: Views –Goals –Types of System – OS Structure –Components – Services - System Structures – Layered Approach -Virtual Machines - System Design and Implementation - Process Management: Process - Process Scheduling – Cooperating Process – Threads – Interprocess Communication - CPU Scheduling: CPU Schedulers – Scheduling criteria – Scheduling Algorithms.

UNIT II (20hrs)

Process Synchronization: Critical-Section problem - Synchronization Hardware – Semaphores – Classic Problems of Synchronization – Critical Region – Monitors - Deadlock: Characterization – Methods for handling Deadlocks – Prevention, Avoidance, and Detection of Deadlock - Recovery from Deadlock.

UNIT III (16hrs)

Memory Management: Address Binding – Dynamic Loading and Linking – Overlays – Logical and Physical Address Space - Contiguous Allocation – Internal & External Fragmentation - Non Contiguous Allocation: Paging and Segmentation Schemes – Implementation – Hardware Protection – Sharing – Fragmentation.

UNIT IV (18hrs)

Virtual Memory: Demand Paging – Page Replacement - Page Replacement Algorithms – Thrashing – File System: Concepts – Access Methods – Directory Structure – Protection Consistency Semantics – File System Structures – Allocation Methods – Free Space Management.

UNIT V (18hrs)

I/O Systems: Overview - I/O Hardware – Application I/O Interface – Kernel I/O Subsystem – Transforming I/O Requests to Hardware Operations – Performance - Secondary Storage Structures: Protection – Goals - Domain Access Matrix – The Security problem – Authentication – Threats – Threat Monitoring – Encryption.

1. Recommended Texts

Silberschatz A., Galvin P.B., Gange., 2002, Operating System Principles ,Sixth Edition, John Wiley & Sons.

2. Reference Books

i. H.M. Deitel, 1990, An Introduction to Operating System - Second Edition, Addison Wesley.

ii. Andrew S. Tanenbaum, Modern Operating System, Pearson Education, II Ed.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE – XVII PRACTICAL- R – PROGRAMMING LAB

SUBJECT CODE:	PRACTICAL	MARKS : 100

CREDIT: 4

SEMESTER: VI **TOTAL HOURS: 90**

COURSE OBJECTIVES

- This course gives practical exposure to R – Programming.

1. R Program to print "Hello World".
2. R Program to Add Two Vectors.
3. Find Sum, Mean and Product of Vector in R Programming.
4. R Program to Take Input from User.
5. R Program to Generate Random Number from Standard Distributions.
6. R Program to Sample from a Population.
7. R Program to Find Minimum and Maximum.
8. R Program to Sort a Vector.
9. R Program to Find the Factorial of a Number.
10. R Multiplication Table.
11. R Program to Check Prime Number.
12. R Program to Check Armstrong Number.
13. R Program to Print the Fibonacci sequence.
14. R Program to Check for Leap Year.
15. Check if a Number is Odd or Even in R Programming.

CORE – XVIII DATA COMMUNICATION AND NETWORKING

SUBJECT CODE:	THEORY	MARKS : 100

CREDIT: 4

SEMESTER: VI **TOTAL HOURS: 90**

COURSE OBJECTIVES

- This course introduces the basic concepts of Data Communication and Networking.
- To be familiar with various types of Computer Networks.
- To be exposed to all the Network Protocols.
- To be familiar with Routing Algorithm, and Network Devices.

UNIT I (15hrs)

Introduction to Data Communication, Network, Protocols & Standards - Standards Organizations - Line Configuration - Topology - Transmission Mode - Classification of Network - OSI Model - Layers of OSI Model.

UNIT II (15hrs)

Parallel and Serial Transmission - DTE/DCE such as EIA-449, EIA-530, EIA-202 and X.21 Interface - Interface Standards - Modems - Guided Media - Unguided Media - Performance - Types of Error - Error Detection - Error Correction.

UNIT III (20hrs)

Multiplexing - Types of Multiplexing - Multiplexing Application - Telephone System - Project 802 - Ethernet - Token Bus - Token Ring - FDDI - IEEE 802.6 - SMDS - Circuit Switching - Packet Switching - Message switching - Connection Oriented and Connectionless Services.

UNIT IV (20hrs)

History of Analog and Digital Network - Access to ISDN - ISDN Layers - Broadband ISDN - X.25 Layers - Packet Layer Protocol - ATM - ATM Topology - ATM Protocol.

UNIT V (20hrs)

Repeaters - Bridges - Routers - Gateway - Routing algorithms - TCP/IP Network, Transport and Application Layers of TCP/IP - World Wide Web.

1. Recommended Texts

Behrouz and Forouzan, 2001, Introduction to Data Communication and Networking, 2nd Edition,TMH.

2. Reference Books

i. Jean Walrand 1998, Communication Networks (A first Course), Second Edition, WCB/McGraw Hill.

ii. Behrouz and Forouzan, 2006, Data Communication and Networking, 3nd Edition, TMH.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE - XIX MINI PROJECT

SUBJECT CODE:	MINI PROJECT	MARKS : 100

CREDIT: 4

SEMESTER: VI **TOTAL HOURS: 90**

COURSE OBJECTIVES

- This course gives procedure and training about project development by using recent trends in Computer Applications.
- Each student will develop and implement an Application Software based on any emerging technologies.
- Students acquire practical knowledge within the chosen area of technology for project development.
- Students will identify, analyze, formulate and handle programming projects with a comprehensive and systematic approach.
- Students will work as an individual in development of technical projects.
- Students develop effective communication skills for presentation of project related activities.
- It helps the students to know about modern tools.
- It helps to write effective procedural code to solve small to medium sized projects.
- Project helps to make them Industry ready.
- It helps to know the current scenario happens in Software Company.

ELECTIVE – III

REFER ANNEXURE - I

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

ANNEXURE - I
ELECTIVE – I
1. INFORMATION SECURITY

SUBJECT CODE:	THEORY	MARKS : 100

CREDIT: 5

SEMESTER: V **TOTAL HOURS: 90**

COURSE OBJECTIVES:

- Understand different areas where data is processed and analyzing security aspects.
- After completion one can work in fields where huge volume of data is to be handled.

UNIT I (18hrs)

Introduction: Security – Attacks - Computer Criminals - Method of Defense Program Security: Secure Programs - Non-Malicious Program Errors- Viruses and other Malicious Code - Targeted Malicious Code - Controls against Program Threats.

UNIT II (18hrs)

Operating System Security: Protected Objects and Methods of Protection Memory Address Protection- Control of access to general Objects - File Protection Mechanism Authentication: Authentication basics- Password - Challenge – Response - Biometrics.

UNIT III (18hrs)

Database Security: Security Requirements- Reliability and Integrity- Sensitive Data Interface - Multilevel Database- Proposals for Multilevel Security.

UNIT IV (18hrs)

Security in Networks: Threats in Networks - Network Security Control- Firewalls Intrusion Detection Systems - Secure E-Mail - Networks and Cryptography - Example Protocols: PEMSSL- IPsec.

UNIT V (18hrs)

Administrating Security: Security Planning - Risk Analysis - Organizational Security Policies - Physical Security – Legal – Privacy - Ethical Issues in Computer Security - Protecting Programs and Data - Information and Law- Rights of Employees and Employers Software Failures- Computer Crime- Privacy-Ethical Issues in Computer Society - Case Studies of Ethics.

1. Reference Texts:

i. C.P.Pfleeger, and S.L.Pfleeger, Security in Computing, Pearson Education,4th Edition, 2003

ii. Matt Bishop, Computer Security: Art and Science, Pearson Education, 2003.

2. Recommended Books:

i. Stallings, Cryptography & N/w Security: Principles and practice, 4th Edition, 2006.

ii. Kaufman, Perlman, Spincer, Network Security, Prentice Hall, 2nd Edition, 2003

iii. Eric Maiwald, Network Security : A Beginners Guide, TMH, 1999

iv. Macro Pistoia, Java Network Security, Pearson Education, 2nd Edition, 1999

v. Whitman, Mattord, Principles of Information Security, Thomson, 2nd Edition, 2005

ELECTIVE - I
2. COMPUTER ARCHITECTURE

SUBJECT CODE:	THEORY	MARKS : 100

CREDIT: 5

SEMESTER: V **TOTAL HOURS: 90**

COURSE OBJECTIVES

- This course introduce the basic components of Computer and explain their function.
- To conceptualize the basics of organizational and architectural issues of a Digital Computer.
- To analyze performance issues in Processor and Memory design of a Digital Computer.
- To understand various Data Transfer Techniques in Digital Computer.
- To analyze Processor performance improvement using Instruction Level Parallelism.

UNIT I (18hrs)

Digital Logic Circuits: Digital Computers – Logic Gates – Boolean Algebra – Combinational Circuits – Half Adder, Full Adder, Half Subtractor, Full Subtractor and Flip Flops –Types of Flip Flops : JK, RS, T, D Flip Flops Sequential Circuits.

UNIT II (18hrs)

Digital Components: Integrated Circuits – Scale of Integration, IC logics – Decoders – Types of Decoders : 2 to 4 Decoder & 3 to 8 Decoder – Encoder - Multiplexers & Types of Multiplexers – Demultiplexers – Registers and Counters – Memory Unit (RAM & ROM).

UNIT III (18hrs)

Data representation: Data Types – Number Systems – Complements: r's Complements and (r-1)'s Complements – Uses - Fixed Point & Floating Point Representation – Binary Codes: ASCII, BCD, GRAY, Excess – 3 Code, Excess – 3 Gray Code – Uses - Error Detection Codes.

UNIT IV (18hrs)

Register Transfer Language – Bus (Constructed by using Multiplexer and Tri- state Buffer) and Memory Transfer – Arithmetic, Logic & Shift Micro operations – Types of Arithmetic circuits : 4 Bit binary adder, 4 Bit binary adder subtractor, 4 Bit arithmetic circuit – 4 Bit logic circuit – 4 Bit shifter - Arithmetic Logic Shift Unit.

UNIT V (18hrs)

Central Processing Unit: General Register Organization – Stack organization : Register and Memory stack – Instruction formats : Instruction classification depends upon size & function – Addressing Modes – Instruction Classification depends upon Addressing Mode –Program Control : Conditional and Unconditional - Reduced Instruction Set Computing (RISC).

1. Recommended Texts

i. Computer System Architecture: M.Morris Mano , ThirdEdition, Prentice Hall of India.

2. Reference Book:

i. Computer Organization and Programming – C.W. Gean

ELECTIVE – I
3. DATA MINING

SUBJECT CODE:	THEORY	MARKS : 100

CREDIT: 5

SEMESTER: V **TOTAL HOURS: 90**

COURSE OBJECTIVES

- This course introduces the fundamental concepts of Data Mining.

UNIT I (16hrs)
Introduction: Data mining – Functionalities – Classification – Introduction to Data Warehousing – Data Preprocessing: Preprocessing the Data – Data cleaning – Data Integration and Transformation – Data Reduction

UNIT II (20hrs)
Data Mining, Primitives, Languages and System Architecture: Data Mining – Primitives – Data Mining Query Language -Architectures of Data mining Systems. Concept Description, Characterization and Comparison: Concept Description- Data Generalization and Summarization-Analytical Characterization- Mining Class Comparison – Statistical Measures.

UNIT III (18hrs)
Mining Association Rules: Basics Concepts – Single Dimensional Boolean Association Rules from Transaction Databases-Multilevel Association Rules from transaction databases – Multi dimension Association Rules from Relational Database- Data Warehouses.

UNIT-IV (18hrs)
Classification and Prediction: Introduction – Issues – Decision Tree Induction – Bayesian Classification – Classification of Back Propagation. Classification based on Concepts from Association Rule Mining – Other Methods - Prediction – Introduction – Classifier Accuracy.

UNIT-V (18hrs)
Cluster Analysis: Introduction – Types of Data in Cluster Analysis-Petitioning Methods – Hierarchical Methods-Density Based Methods – GRID Based Method – Model based Clustering Method.

1. Recommended Texts
i.J.Han and M. Kamber,2001,Data Mining Concepts and Techniques,Harcourt India Pvt. Ltd - New Delhi.

2. Reference Books
i. K.P. Soman , Shyam Diwakar, V.Ajay ,2006, Insight into Data Mining Theory and Practice, Prentice Hall of India Pvt. Ltd - New Delhi.

ELECTIVE – II
1. IDE – PRACTICAL - INTRODUCTION TO WEB DESIGNING (HTML & CSS)

SUBJECT CODE:	PRACTICAL	MARKS : 100

CREDIT: 5

SEMESTER: V **TOTAL HOURS: 75**

COURSE OBJECTIVE :

- The Student will be able to define the principle of Web page Design, define the basics in Web Design, visualize the basic concept of HTML, recognize the elements of HTML.
- Introduce basic concepts of CSS.

UNIT-I (15hrs)

Web Design Principles - Basic principles involved in developing a Web site - Planning process - Five Golden rules of web designing - Designing Navigation bar - Page Design - Home Page Layout - Design Concept - Basics in Web Design - Brief History of Internet - What is World Wide Web - Why create a web site - Web Standards - Audience requirement.

UNIT-II (15hrs)

Introduction to HTML - HTML Documents - Basic structure of an HTML document - Creating an HTML document - Markup Tags - Heading-Paragraphs - Line Breaks - HTML Tags. Elements of HTML - Working with Text, Lists, Tables and Frames - Working with Hyperlinks, Images and Multimedia, Forms and controls. Concept of CSS - Creating Style Sheet - CSS Properties - CSS Styling(Background, Text Format, Controlling Fonts, links).

UNIT-III (15hrs)

1. Write an HTML code to display your education details in a Tabular format.

2. Write an HTML code to display your CV on a web page.

3. Write an HTML code to create a Home page having three links: About Us, Our Services and Contact Us. Create separate web pages for the three links.

4. Write an HTML code to create a login form. On submitting the form, the user should get navigated to a profile page.

5. Write an HTML code to create your Institute website(Only Home page).

UNIT-IV (15hrs)

6. Write an HTML code to illustrate the usage of the following:

   Ordered List

   Unordered List

   Definition List

7. Write an HTML code to create a frameset having Header, Navigation and Content sections.

8. Write an HTML code to demonstrate the usage of Inline CSS.

9. Write an HTML code to demonstrate the usage of Internal CSS.

UNIT-V (15hrs)

10. Write an HTML code to demonstrate the usage of External CSS.
11. Write an HTML code to create Background Image.
12. Write an HTML code to illustrate Text Formatting.
13. Write an HTML code to illustrate Controlling Fonts.
14. Write an HTML code to illustrate Styling Links.

Recommended Texts:

1. Developing Web Applications, Ralph Moseley and M. T. Savaliya, Wiley-India
2. Web Technologies, Black Book, Dreamtech Press
3. HTML 5, Black Book, Dreamtech Press
4. Web Design, Joel Sklar, Cengage Learning

List of Open Source Software/learning website: - Browsers like IE, Mozila, FireFox etc - Server software XAMPP/WAMP/LAMP - www.apachefriends.org - www.w3.org - www.w3schools.com

ELECTIVE – II
2. E-COMMERCE

SUBJECT CODE:	THEORY	MARKS : 100

CREDIT: 5

SEMESTER: V **TOTAL HOURS: 75**

COURSE OBJECTIVES

- This course gives an exposure to the Electronic Commerce

UNIT-I (15hrs)

Electronic Commerce and Opportunities: Background- The Electronic Commerce Environment – Electronic Marketplace Technologies – Modes of Electronic Commerce: Overview: Electronic Data Interchange.

UNIT-II (15hrs)

Approaches to Safe Electronic Commerce: Overview – Secure Transport Protocols – Secure Transaction – Secure Electronic Payment Protocol (SEPP) – Secure Electronic Transaction (SET)

UNIT-III (15hrs)

Certificates for Authentication – Security on Web Servers – Payment Schemes: Internet Monetary Payment and Security Requirements- Payment and purchase order process – Online electronic cash.

UNIT-IV (15hrs)

Internet / Intranet Security Issues and Solutions: The Need for Computer Security – Specific Intruder Approaches – Security Strategies-Security Tools – Encryption – Enterprise Networking and Access to the Internet Antivirus Programs- Security Teams.

UNIT-V (15hrs)

MasterCard/Visa Secure Electronic Transaction: Introduction –Business Requirements – Concepts – Payment Processing - E-Mail and Secure E-Mail Technologies for Electronic Commerce: Introduction - The Means of Distribution – A Model for Message Handling- MIME, S/MIME, MOSS, MIME and Related Facilities for EDI over the Internet.

Recommended Texts:

i. Daniel Minoli & Emma Minoli, “Web Commerce Technology Handbook”. Tata McGraw Hill – 1999.

Reference Books:

i. K.Bajaj & D Nag , “E-Commerce”, Tata McGraw Hill – 1999.
ii. Mamta Bhusry – “E-Commerce”.

ELECTIVE – II
3. CLIENT / SERVER COMPUTING

SUBJECT CODE:	THEORY	MARKS : 100

CREDIT: 5

SEMESTER: V **TOTAL HOURS: 75**

COURSE OBJECTIVES

- This Subject deals with the C/S Computing, GUI.

UNIT-I (15hrs)

Introduction to Client/Server Computing – What is Client/Server Computing – Benefits of Client/Server Computing – Evolution of C/S Computing – Hardware Trends – Software Trends - Evolution of Operating Systems – N/W Trends – Business Considerations.

UNIT-II (15hrs)

Overview of C/S Applications: Components of C/S Applications – Classes of C/S Applications – Categories of C/S Applications Understanding C/S Computing : Dispelling the Myths – Obstacles – Upfront & Hidden – Open Systems & Standards – Standards – Setting Organizations – Factors of Success.

UNIT-III (15hrs)

The Client Hardware & Software : Client Component – Client Operating Systems – What is GUI – Database Access – Client Software Products : GUI Environments – Converting 3270/5250 Screens – Database Tools – Client Requirements : GUI Design Standards – Open GUI Standards – Interface Independence – Testing Interfaces .

UNIT-IV (15hrs)

The Server : Categories of Servers – Features of Server Machines – Classes of Server Machines – Server Environment : N/W Management Environment – N/W Computing Environment – Extensions – Network Operating System – Loadable Module.

UNIT-V (15hrs)

Server Operating System : OS/2 2.0 – Windows New Technology – Unix Based OS – Server Requirements : Platform Independence – Transaction Processing – Connectivity – Intelligent Database – Stored Procedure – Triggers – Load Leveling – Optimizer – Testing and Diagnostic Tools – Backup & Recovery Mechanisms.

Recommended Texts

i. Dawna Travis Devire, “Client/Server Computing”. TMH
ii. Patrick Smith & Steave Guengerich, “Client/Server Computing”. PHI

ELECTIVE – III
1. CLOUD COMPUTING

SUBJECT CODE:	THEORY	MARKS : 100

CREDIT: 5

SEMESTER: VI **TOTAL HOURS: 90**

COURSE OBJECTIVES

- To introduce the broad perceptive of Cloud Architecture and Model
- To understand the concept of Virtualization and Design of Cloud Services
- To be familiar with the lead players in cloud.
- To understand the features of Cloud simulator
- To apply different cloud programming model as per need.
- To learn to design the trusted cloud Computing system

UNIT I (18hrs)
CLOUD ARCHITECTURE AND MODEL
Technologies for Network-Based System – System Models for Distributed and Cloud Computing – NIST Cloud Computing Reference Architecture. Cloud Models:- Characteristics – Cloud Services – Cloud models (IaaS, PaaS, SaaS) – Public vs Private Cloud –Cloud Solutions - Cloud ecosystem – Service management – Computing on demand.

UNIT II (18hrs)
VIRTUALIZATION
Basics of Virtualization - Types of Virtualization - Implementation Levels of Virtualization - Virtualization Structures - Tools and Mechanisms - Virtualization of CPU, Memory, I/O Devices - Virtual Clusters and Resource management – Virtualization for Data-center Automation.

UNIT III (16hrs)
CLOUD INFRASTRUCTURE
Architectural Design of Compute and Storage Clouds – Layered Cloud Architecture Development – Design Challenges - Inter Cloud Resource Management – Resource Provisioning and Platform Deployment – Global Exchange of Cloud Resources.

UNIT IV (20hrs)
PROGRAMMING MODEL
Parallel and Distributed Programming Paradigms – MapReduce , Twister and Iterative MapReduce – Hadoop Library from Apache – Mapping Applications - Programming Support - Google App Engine, Amazon AWS - Cloud Software Environments - Eucalyptus, Open Nebula, OpenStack, Aneka, CloudSim.

UNIT V (18hrs)

SECURITY IN THE CLOUD

Security Overview – Cloud Security Challenges and Risks – Software-as-a-Service Security – Security Governance – Risk Management – Security Monitoring – Security Architecture Design – Data Security – Application Security – Virtual Machine Security - Identity Management and Access Control – Autonomic Security.

1.Recommended Texts

i. John W.Rittinghouse and James F.Ransome, “Cloud Computing: Implementation, Management, and Security”, CRC Press, 2010.

ii. Toby Velte, Anthony Velte, Robert Elsenpeter, “Cloud Computing, A Practical Approach”, TMH, 2009. 3. Kumar Saurabh, “Cloud Computing – insights into New-Era Infrastructure”, Wiley India,2011.

2. Reference Books

i. George Reese, “Cloud Application Architectures: Building Applications and Infrastructure in the Cloud” O'Reilly

ii. Rajkumar Buyya, Christian Vecchiola, S.Thamarai Selvi, ‘Mastering Cloud Computing”, TMGH,2013.

ELECTIVE – III
2. UNIX PROGRAMMING

SUBJECT CODE:	THEORY	MARKS : 100

CREDIT: 5

SEMESTER: VI **TOTAL HOURS: 90**

COURSE OBJECTIVES

- This course introduces fundamentals & programming of Unix basic concepts

UNIT-I (18hrs)

INTRODUCTION: File and common commands - Shell - More about files - Directories- Unix System - Basics of File Directories and Filenames - Permissions - Modes - Directory hierarchy - Devices - The Grep Family - other Filters - the Stream Editor sed - the awk pattern scanning and processing language - Files and good filters.

UNIT-II (20hrs)

CONCEPTS OF SHELL: Command line structure – Meta characters - Creating new commands - Command arguments and parameters - program output as arguments - Shell variables - More on I/O redirection - loop in shell programs - Bundle - Setting shell attributes, Shift command line parameters - Exiting a command or the shell, evaluating arguments - Executing command without invoking a new process - Trapping exit codes -- Conditional expressions.

UNIT-III (16hrs)

SHELL PROGRAMMING: Customizing the call command, Functions of command, While and Until loops - Traps - Catching Interrupts - Replacing a File - Overwrite - Zap - Pick Command - News Command - Get and Put tracking File changes.

UNIT-IV (16hrs)

FEATURES IN UNIX: Standard Input and Output - Program Arguments - File Access - A screen at a time printer - On bugs and debugging - Examples - Zap - Pick - Interactive File comparison program - Accessing the Environment - Unix System calls - Low Level I/O, File System Directories and Modes, Processors, Signal and Interrupts

Unit-V (20hrs)

PROGRAM DEVELOPMENT AND DOCUMENT PREPARATION: Program development - Four Function Calculator - Variables and Error Recovery - Arbitrary Variable Names, Built-in Functions, Compilation into a Machine, Control Flow and Relational Operators, Functions and Procedures - Performance Evaluation - Ms Macro Package - Troff Level - Tbl and eqn Preprocessors - Manual Page - Other Document preparation.

1.Recommended Texts

i. Brian W. Kernighan, Rob Pike - The UNIX Programming Environment - Prentice Hall of India(1984).

2. Reference Books

i. Steven Earhart - The UNIX System for MSDOS Users - Galgotia book source P. Ltd.(1990).

ii. Stefen Prata - Advanced UNIX - A Programmer Guide.

ELECTIVE – III
3. R - PROGRAMMING

SUBJECT CODE:	THEORY	MARKS : 100

CREDIT: 5

SEMESTER: VI **TOTAL HOURS: 90**

COURSE OBJECTIVES

- In this course you will learn how to program in R and how to use R for effective data analysis.

UNIT-I (18hrs)

Introduction - How to run R - R Sessions and Functions - Basic Math – Variables - Data Types – Vectors – Conclusion - Advanced Data Structures - Data Frames – Lists – Matrices – Arrays - Classes.

UNITII (18hrs)

R Programming Structures - Control Statements – Loops – Looping Over Non-vector Sets – IfElse - Arithmetic and Boolean Operators and values - Default Values for Argument - Return Values - Deciding Whether to explicitly call return Returning Complex Objects - Functions are Objective - No Pointers in R – Recursion - A Quicksort Implementation Extended - Example: A Binary Search Tree.

UNITIII (18hrs)

Doing Math and Simulation in R - Math Function - Extended Example Calculating Probability Cumulative Sums and Products Minima and Maxima Calculus - Functions Fir Statistical Distribution – Sorting - Linear Algebra Operation on Vectors and Matrices - Extended Example: Vector cross Product Extended Example: Finding Stationary Distribution of Markov Chains - Set Operation - Input /Output - Accessing the Keyboard and Monitor - Reading and writer Files.

UNITIV (18hrs)

Graphics - Creating Graphs - The Workhorse of R Base Graphics - the plot() Function – Customizing Graphs - Saving Graphs to Files.

UNITV (18hrs)

Probability Distributions - Normal Distribution Binomial Distribution Poisson Distributions other Distribution - Basic Statistics - Correlation and Covariance – Ttests – ANOVA - Linear Models - Simple Linear Regression - Multiple Regression Generalized Linear Models - Logistic Regression – Poisson Regression other Generalized Linear Models Survival Analysis, Nonlinear Models, Splines Decision Random Forests,

1. Recommended Texts

i. The Art of R Programming, Norman Matloff, Cengage Learning
ii. R for Everyone, Lander, Pearson
iii. Siegel, S. (1956), Nonparametric Statistics for the Behavioral Sciences, McGrawHill International, Auckland.
iv. R Cookbook, PaulTeetor, Oreilly.

2. Reference Books

i. R in Action, Rob Kabacoff, Manning
ii. Venables, W. N. and Ripley, B. D. (2000), S Programming, SpringerVerlag, New York.
iii. Venables, W. N. and Ripley, B. D. (2002), Modern Applied Statistics with S, 4th ed., SpringerVerlag, New York.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	**Problems**
A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A- Grade' by NAAC
(Affiliated to the University of Madras)

BACHELOR OF COMMERCE
(B.COM-ACCOUNTING & FINANCE)

Regulations and Syllabus

(For the Candidates admitted in 2019 -2020 and thereafter)

BACHELOR OF COMMERCE (ACCOUNTING & FINANCE)

I SEMESTER	CREDITS	HOURS	MARKS		
			CIA	ESE	TOTAL
Language	3	6	50	50	100
English (Incl. Skill based subject)	3	6	50	50	100
Core Subject 1 – Financial Accounting (Common to BBA, B.Com (A&F), B.Com(BM), B.Com(MM),B.Com(ISM))	4	5	50	50	100
Core Subject 2 – Principles of Management (Common to BBA, B.Com (A&F), B.Com(BM), B.Com(MM),B.Com(ISM))	4	5	50	50	100
Allied 1 – Business Maths & Statistics	5	6	50	50	100
Skill based subject	3	-		100	100
Non-Tamil Students : Tamil (VI Std) Non-Hindi Students : Hindi (VI Std) Non – Major Elective* (Common to BBA, B.Com (A&F),B.Com(BM), B.Com(MM),B.Com(ISM),B.Com(HON))	2	2		100	100
	24	30			

II SEMESTER	CREDITS	HOURS	MARKS		
			CIA	ESE	TOTAL
Language	3	6	50	50	100
English (Incl. Skill based subject)	3	6	50	50	100
Core Subject 3 – Business Communication (Common to B.Com (A&F), B.Com(ISM))	4	5	50	50	100
Core Subject 4 – Advanced Financial Accounting(Common to B.Com (A&F), B.Com(BM))	4	5	50	50	100
Allied 2 – Business Maths & Operations Research	5	6	50	50	100
Skill based subject	3	-		100	100
Non-Tamil Students : Tamil (VI Std) Non-Hindi Students : Hindi (VI Std) Non – Major Elective* (Common to BBA, B.Com (A&F), B.Com(BM), B.Com(MM),B.Com(ISM))	2	2		100	100
	24	30			

BACHELOR OF COMMERCE (ACCOUNTING & FINANCE)

III SEMESTER	CREDITS	HOURS	MARKS		
			CIA	ESE	TOTAL
Core Subject 5 –Banking(Common to B.Com (A&F), B.Com(MM))	4	5	50	50	100
Core Subject 6 - Corporate Accounting(Common to B.Com (A&F), B.Com(BM), B.Com(MM))	4	6	50	50	100
Core Subject 7 – Business and Corporate Laws (Common to BBA, B.Com (A&F), B.Com(BM), B.Com(MM))	4	5	50	50	100
Core Subject 8 – Practical Auditing(Common to B.Com (A&F), B.Com(BM))	4	6	50	50	100
Allied 3 – Security Analysis and Portfolio Management	5	6	50	50	100
Soft skill	3	2		100	100
	24	**30**			

IV SEMESTER	CREDITS	HOURS	MARKS		
			CIA	ESE	TOTAL
Core 9 – Entrepreneurial Development (Common to BBA, B.Com (A&F), B.Com(BM), B.Com(MM),B.Com(ISM))	4	5	50	50	100
Core 10 - Financial Services(Common to BBA, B.Com (A&F), B.Com(BM), B.Com(MM))	4	5	50	50	100
Core 11– Business Taxation(Common to BBA, B.Com (A&F), B.Com(BM))	4	5	50	50	100
Core 12 – Advanced Corporate Accounting	4	5	50	50	100
Allied 4 – Business and International Economics	5	6	50	50	100
Soft Skill	3	2		100	100
Environmental Studies	2	2	50	50	100
	26	30			

BACHELOR OF COMMERCE (ACCOUNTING & FINANCE)

V SEMESTER	CREDITS	HOURS	MARKS		
			CIA	ESE	TOTAL
Core 13 –Professional Cost Accounting	4	6	50	50	100
Core 14 – Management Accounting(Common to BBA, B.Com (A&F), B.Com(BM), B.Com(MM),B.Com(ISM))	4	6	50	50	100
Core 15 - Income Tax Law & Practice-I (Common to B.Com (A&F), B.Com(BM))	4	6	50	50	100
Core 16 – Marketing Management (Common to BBA, B.Com (A&F),B.Com(MM),B.Com(ISM))	4	5	50	50	100
Inter Disciplinary Elective 1 – Indian Constitution and Human Rights	5	6	50	50	100
Value Education	2	1		100	100
	23	**30**			

VI SEMESTER	CREDITS	HOURS	MARKS		
			CIA	ESE	TOTAL
Core 17 - Advanced Financial Management	4	6	50	50	100
Core 18 - Income Tax Law & Practice – II (Common to B.Com (A&F), B.Com(BM))	4	6	50	50	100
Core 19 – Working Capital Management	4	6	50	50	100
Elective 2 - Project Viva Voce	5	6	50	50	100
Elective 3- Management of Human Resources **(**Common toB.Com (A&F), B.Com (BM))	5	6	50	50	100
Extension activities – Community Service	1	-			
	23	**30**			
TOTAL	**144**	**180**			

SEMESTER - I

GURU NANAK COLLEGE (AUTONOMOUS), CHENNAI – 600 042
(Effective for the batch of candidates admitted from 2019 onwards)
DEPARTMENT OF COMMERCE(ACCOUNTING & FINANCE)

CORE I - FINANCIAL ACCOUNTING

SUBJECT CODE :	**THEORY & PROBLEM**	**MARKS : 100**
SEMESTER : I	**CREDITS : 4**	**NO. OF HOURS PER WEEK : 5**

(Common to BBA, B.Com (A&F), B.Com (BM), B.Com (MM), B.Com(ISM))

COURSE OBJECTIVES:

- To build the conceptual understanding developed in simple financial accounting.
- To get the basic skills in financial accounting for the beginners.

UNIT I:

Meaning and scope of Accounting, Basic Accounting Concepts and Conventions – Objectives of Accounting – Accounting Transactions – Double Entry Book Keeping – Journal, Ledger, Preparation of Trial Balance. **(15 hours)**

UNIT II:

Preparation of Cash Book , Preparation of Final Accounts of a Sole Trading Concern – Adjustments entries – Closing Stock, Outstanding Expenses, Prepaid Expenses, Depreciation, Accrued Income, Income received in Advance, Bad Debts, Provision for Bad and doubtful debts, Interest on Capital and Interest on Drawings (simple problems) **(15 hours)**

UNIT III:

Classification of errors – Rectification of errors – Preparation of Suspense Account, Insurance claims – Average Clause (Loss of stock only) **(15 hours)**

UNIT IV:

Depreciation – Meaning, Causes, Types – Straight Line Method – Written Down Value Method (simple problems). **(15 hours)**

UNIT V:

Single Entry – Meaning, Features, Defects, Difference between Single Entry and Double Entry System – Statement of Affairs Method – Conversion Method (simple problems).

(15 hours)

Prescribed Texts

1. T.S. Reddy &A.Murthy, Financial Accounting - Margham Publications Chennai – 5/e
2. Financial Accounting – Dr. S. Manikandan and R.Rakesh Shankar –3rd Edition- SCITECH Publisher
3. Dalston L. Cecil and Jenitra L. Merwin, Financial Accounting, Learn Tech press, Trichy, 1st Edition 2015.

Reference Books

1. Jain &Narang, Financial Accounting - Kalyani Publishers. New Delhi. 2014
2. R.L.Gupta&V.K.Gupta Advanced Accounting - Sultan Chand & Sons. New Delhi.

3. Shukla Grewal Advanced Accounting – S Chand New Delhi 18th Edition.
4. P.C. Tulsian – Financial Accounting Forth Impression, 2009.
5. S.Parthasarathy and A.Jaffarulla, Financial Accounting - Kalyani Publishers –New Delhi.

Web References

1. http://www.accountingcoach.com
2. http://www.learnaccountingforfree.com

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer ANY 10 out of 12 questions (Each in 50 words)	1-12	2	**20**
B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	8	**40**
C	**Essay** Answer any 2 out of 4 questions (each in 1200 words)	21-24	20	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	**Problems**
A	Unit – 1	2	1
	Unit – 2	1	2
	Unit – 3	1	1
	Unit – 4	1	1
	Unit – 5	1	1
B	Unit – 1	1	1
	Unit – 2		1
	Unit – 3		2
	Unit – 4	1	1
	Unit – 5		1
C	Unit – 1		1
	Unit – 2		1
	Unit – 3		
	Unit – 4		1
	Unit – 5		1

CORE II - PRINCIPLES OF MANAGEMENT

SUBJECT CODE:	THEORY	100 MARKS
SEMESTER: I	CREDITS: 4	NO. OF HOURS PER WEEK: 5

(Common to BBA, B.Com (A&F), B.Com (BM), B.Com (MM), B.Com(ISM))

COURSE OBJECTIVES:

- To enable the students to acquire knowledge on principles, concepts and functions of management and inherit the importance of decision making.

UNIT I

Management: Importance – Definition – Is Management art or science or –Is Management a profession –Functions of Management: POLC framework - Role and Functions of Managers - Managerial skills – Levels of Management – Application of management in various functional areas – Production, Accounting, Finance, Marketing and Personnel Management. Administrative Management by Henri Fayol - Scientific Management by F.W.Taylor - Bureaucratic Management by Max Weber - Human Relations Management by Elton Mayo - Modern Management by Peter Drucker Approaches to Management - Systems Approach & Contingency Approach

(25 Hours)

UNIT II

Planning- Definition, Objectives of planning - Importance of planning-Types of plans - Decisionmaking: Nature and significance-Process of Decision making-Types of Decisions.

(**10 Hours)**

UNIT III

Organizing – Meaning and definition of Organizing, Importance of Organizing, and Principles of Organizing. Delegation and Decentralization-Span of control:Meaning,Factors affecting span of control-Types of organizational structure-Line organizational structure –Staff organizational structure- line and staff – Departmentation -Bases of Departmentation - Departmentation by functions, Departmentation by products, Departmentation by territories, Departmentation by customers, Departmentation by process, Departmentation by numbers and Combined Base Departmentation.

(20 Hours)

UNIT IV

Staffing & Recruitment –Meaning, Directing-Meaning-Importance of Directing-Leadership-Styles of leadership - Authoritative leadership (Autocratic), Participative leadership (Democratic) - Delegative leadership (Laissez-faire)

(10 Hours)

UNIT V-

Co-ordination: What is co-ordination, Need for co-ordination, Types of co-ordination, Essential requisites for excellent co-ordination-Controlling: Meaning and Importance, Functions of controlling, Process of control and types of Control.**(10 Hours)**

Prescribed Texts:

1. C.B.Gupta, Management Theory & Practice - Sultan Chand & Sons - New Delhi, 16TH Edition.
2. L.M.Prasad, Principles & Practice of Management - Sultan Chand & Sons - New Delhi, 8th Edition.

Recommended Texts:

1. P.C. Tripathi& P.N Reddy, Principles of Managements - Tata Mc.Graw Hill - New Delhi, 5th Edition
2. Weihrich and Koontz, Management – A Global Perspective, 8th Edition.
3. N.Premavathy, Principles of Management - Sri Vishnu Publication – Chennai8th Edition
4. J.Jayashankar, Business Management – Margham Publications - Chennai

Web References:

1. **http://www.12manage.com**
2. **http://www.businessballs.com**
3. https://www.tutorialspoint.com/management_principles/management_principles_tutorial.pdf

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	2	**20**
Section B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	8	**40**
Section C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	3	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

ALLIED: I -BUSINESS MATHS & STATISTICS

SUBJECT CODE :	**THEORY& PROBLEMS**	**MARKS : 100**
SEMESTER : I	**CREDITS : 5**	**No. OF HOURS PER WEEK : 6**

COURSE OBJECTIVES:

- To understand the concepts of ratio, proportion and progression.
- To understand the concept and application of Simple and Compound interest in business.
- To introduce basic concepts of Statistics and understand the Statistical techniques used for business data analysis.

UNIT I: **(18 hours)**

Algebra – Ratio, Proportion, Arithmetic Progression and Geometric Progression.
Chapter – 2
Chapter – 7 (Pages 118 to 172)

UNIT II: **(18 hours)**

Discount on bills- Annuities- Annuity certain, Annuity due, Immediate Annuity, Annuity Contingent, Perpetual Annuity, Deferred Annuity and Present Value.
Chapters – 11 and 19.

UNIT –III: **(18 hours)**

Introduction to Statistics –Definition, Measures of Central tendency – Mean, median and mode – Dispersion - Quartile Deviation, Mean Deviation and Standard Deviation.
Chapters – 1 and 4
Chapter - 5 (Pages 125 to 145)

UNIT – IV: **(18 hours)**

Correlation – Karl Pearson's Coefficient of Correlation, Spearman's Rank Correlation – Regression Lines and Coefficients.
Chapter –7 (Pages: 199, 205-208, 215-219, 224-228, and 230-232)
Chapter – 8 (Pages: 238-247, 251-264)

UNIT – V: **(18 hours)**

Time Series Analysis: Graphic or free hand method, Method of semi average, Moving average and Method of least squares to fit a straight line-Seasonal variation: Method of simple average only.IndexNumbers: Simple aggregative, simple average of price relative method, weighted average of price relative method and weighted aggregative method

Chapter – 9 (Pages 272, 278-289, 305 - 316)

Chapter – 10 (Pages 330, 337-347, 355-356, 372-377)

Content and treatment as in :

1. Business Mathematics – Dr. P.R Vittal, Margham Publications, 2016 Edition (Unit I and Unit II)

2. Business Statistics –S.P.Gupta and M.P.Gupta, Sultan Chand &Sons, Sixteenth Edition (Unit III, IV and V)

REFERENCE BOOKS

1. Sanchetti&Kapoor, Business Mathematics, K G Saur, 1979
2. Draper and Klingman, Mathematical Analysis, Harper & Row, 1986
3. Copper, Business Research methods, R D Irwin, 1985
4. Fundamental of Mathematical Statistics - S.C. Gupta & V.K. Kapoor - Sultan Chand
5. Wilks, S.S.: Elementary Statistical Analysis - Oxford and IBH Mode, E.B.: Elements of Statistics - Prentice Hall
6.Snedecor, G.W., & Cochran, W.G. (1967): Statistical Methods, Oxford and IBH
7 Soni R.S. - Business Mathematics – Pitamber Publishing house.
8. Kapoor V.K. - Business Mathematics, Sultan Chand & Sons, Delhi

Web Reference

1. **https://www.easycalculation.com/tutorial.php**
2. **http://people.brunel.ac.uk/~mastjjb/jeb/or/contents.html**

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any **10** out of 12 questions	1-12	2	**20**
B	**Short Answer** Answer any **5** out of 8 questions	13-20	7	**35**
C	**Essay** Answer any **3** out of 5 questions	21-25	15	**45**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
A	Unit – 1	1	1
	Unit – 2	1	1
	Unit – 3	1	2
	Unit – 4	1	1
	Unit – 5	2	1
B	Unit – 1		1
	Unit – 2		1
	Unit – 3		2
	Unit – 4		2
	Unit – 5		2
C	Unit – 1		1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit - 5		1

NON MAJOR ELECTIVE - 1

ANALYTICAL AND LOGICAL REASONING

SUBJECT CODE :	**THEORY**	**MARKS : 100 (50 CIA + 50 ESE)**
SEMESTER : I	**CREDITS : 2**	**No. OF HOURS PER WEEK : 2**

(Common to BBA, B.Com (A&F), B.Com (BM), B.Com (MM), B.Com(ISM), B.Com (HON))

Course Objective:

- To enable students to learn to describe the problem-solving process
- To make the students identify various problem-solving techniques and apply these in solving business problems
- To Understand thinking models and practice exercises to help in thinking outside-the-box and generate a larger solution space
- To Understand creativity and blocks to creativity
- To Arrive at objective, well-reasoned decisions in a reasonable time

UNIT-I - **(6 Hrs.)**

Logical reasoning Introduction- Number Series

UNIT-II - **(6 Hrs.)**

Statement and assumptions – Statement and conclusion

UNIT-III- **(6 Hrs.)**

Verbal reasoning – Coding and Decoding (with alpha numeric characters) - Reasoning Blood Relationship

UNIT-IV - **(6 Hrs.)**

Direction Sense Test – Data Interpretation from bar chart, pie chart.

UNIT-V - **(6 Hrs.)**

Venn Diagrams – Image Series

Reference Books

1. Logical and Analytical Reasoning – A.K. Gupta – Ramesh publishing house – 2016 Paper Back edition
2. A Modern Approach to verbal and non-verbal reasoning – Revised edition by R.S.Agarwal – Publisher – S.Chand and Company Pvt. Ltd.

Web References:

1. http://www.careerguide.co.in/search/label/Reasoning
2. http://www.indiabix.com/logical-reasoning

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	Multiple choice Questions	1-50	1	**50**
TOTAL MARKS				**50**

Distribution of Questions:

Sections	Units	No. of Problems
Section A	Unit – 1	10
	Unit – 2	10
	Unit – 3	10
	Unit – 4	10
	Unit – 5	10

SEMESTER - II

CORE III – BUSINESS COMMUNICATION

SUBJECT CODE :	THEORY	MARKS : 100
SEMESTER : II	CREDITS : 4	No. OF HOURS PER WEEK : 5

(Common to B.Com (A&F), B.Com(ISM))

COURSE OBJECTIVES:

- To enable the students to acquire knowledge about the importance of communication in today's competitive business environment

UNIT I

Concept of Communication – Meaning, Definition, Process, Need, Feedback, Principles of effective Communication – Barriers to Communication: Physical, Semantic/Language, Socio-Cultural and Psychological Barriers - Ways to overcome these Barriers. Types of Communication: Verbal, Non-verbal – Characteristics of Verbal communication and Non-verbal communication Merits and Demerits of Verbal and Non-verbal communication.

(20 Hours)

UNIT II

Channels of Communication: Formal and Informal—Vertical, Horizontal, Diagonal, Grapevine.

Business Letters and Layout: Parts, Structure, Layouts— Full Block, Modified Block, Semi – lock, Principles of Effective Letter Writing. Report Writing – Agenda, Minutes of Meeting – Memorandum– Circular Notes. **(25 Hours)**

UNIT III

Personal Correspondence-Job Application Letter and Resume Letter of Acceptance of Job Offer, Inter-Office-Memo, Letter of Resignation **(10Hours)**

UNIT IV

Business Correspondence: Trade Letters –Inquiry, Order, Credit and Status Enquiry, Complaints, Claims, Sales Letters, promotional leaflets and fliers. **(10 Hours)**

UNIT V

Modern Forms of Communication: Fax – E-mail – Video Conferencing – Benefits and Perils of communication through social media: Website and Apps. **(10 Hours)**

Prescribed Texts:

1. N.S. Raghunthan, B. Santhanam – Margham Publications,Chennai,3rd Edition
2. C.B. Gupta, Business communication, Organization and Management, 2014.

Reference Books:

1. Rajendra Pal & J.S. Korlahalli, Essentials of Business Communication - Sultan Chand & Sons - New Delhi.
2. Shirley Taylor, Communication for Business - Pearson Publications - New Delhi.
3. Bovee, Thill, Schatzman, Business Communication Today - Pearson Education Private Ltd. - New Delhi.
4. Penrose, Rasbery, Myers, Advanced Business Communication - Bangalore.
5. Mary Ellen Guffey, Business Communication – Process and Product - International Thomson Publishing - Ohio.

Web References:

1. http://www.businesscommunication.org
2. http://www.iabc.com
3. http://www.etiquettetrainer.com

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	2	**20**
Section B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	8	**40**
Section C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	3	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

CORE IV–ADVANCED FINANCIAL ACCOUNTING

SUBJECT CODE :	**THEORY& PROBLEMS**	**MARKS : 100**
SEMESTER : II	**CREDITS : 4**	**No. OF HOURS PER WEEK : 5**

(Common to B.Com (A&F) and B.Com (BM))

COURSE OBJECTIVES:

- To build the conceptual understanding developed in simple financial accounting.
- To understand the accounting procedure for different kinds of businesses Branch, Hire Purchase, Departments.
- To familiarize students with methods of preparing Partnership Accounts.

UNIT I

Branch Accounts-Dependent branches-stock & debtor system-Objects of branch accounts, types of Branches, Goods sent to branch at invoice price are included. **(15 hours)**

UNIT II

Departmental Accounts-Basis for allocation of expenses-Inter departmental transfer at cost or selling price-Need for departmental accounting and Advantages of departmental accounting are included. **(12 hours)**

UNIT III

Hire purchase and Instalment-Default & Repossession- Hire purchase trading account- Instalment purchase system- Features of hire purchase system, Hire purchase vs Instalment purchase system, accounting treatment of Instalment system, Journal entries and Interest calculation. **(13 hours)**

UNIT IV

Admission of Partner- Retirement of Partner-Death of Partner- Accounting aspects of admission of Partners, Accounting treatment of Goodwill, Revaluation of assets and liabilities, Adjustments on retirement- Amount payable to the retiring partner and Accounting treatment at the time of death of a partner. **(20 hours)**

UNIT V

Dissolution of a partnership – Insolvency of a partner (Application of Indian Partnership Act 1932) – Insolvency of all partners – Gradual realization of assets and piecemeal distribution-modes ofdissolution **(15 hours)**

RECOMMENDED BOOKS

1. T.S. Reddy &A.Murthy, Financial Accounting - Margham Publications -Chennai.

REFERENCE BOOKS

1. R.L.Gupta&V.K.Gupta Advanced Accounting - Sultan Chand & Sons - New Delhi.
2. Jain &Narang, Financial Accounting - Kalyani Publishers - New Delhi.
3. Shukla Grewal Advanced Accounting – S Chand - New Delhi.

4. P.C. Tulsian, Financial Accounting
5. S.Parthasarathy and A.Jaffarulla, Financial Accounting - Kalyani Publishers - New Delhi.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (Each in 50 words)	1-12	2	**20**
Section B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	8	**40**
Section C	**Essay** Answer any 2 out of 4 questions (each in 1200 words)	21-24	20	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	2	1
	Unit – 3	2	
	Unit – 4	1	2
	Unit – 5	2	
Section B	Unit – 1	1	1
	Unit – 2		1
	Unit – 3		2
	Unit – 4		1
	Unit – 5	1	1
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		
	Unit – 4		1
	Unit - 5		1

ALLIED II–BUSINESS MATHS & OPERATIONS RESEARCH

SUBJECT CODE :	THEORY& PROBLEMS	MARKS : 100
SEMESTER : II	CREDITS : 5	No. OF HOURS PER WEEK : 6

COURSE OBJECTIVES:

- To understand the set theory.
- To use the concept of permutation and combination in day to day life.
- To give an insight into Operations research techniques used in business for critical decision making.

UNIT - I: **(18 hours)**

Set theory – Definition, Elements and types of sets, Operations on sets, Relations and functions of sets.

Chapter – 1

UNIT - II: **(18 hours)**

Permutation and combination, Binomial Theorem, Exponential series.

Chapters – 8 and 9

Chapter – 10 (Only Exponential Series)

UNIT – III: **(18 hours)**

Introduction to OR – Linear Programming Problem – Formulations, Graphical method, Simplex method (≤) Type.

Chapters - 1 and 2

Chapter - 3 (Section 3.1)

UNIT - IV: **(18 hours)**

Assignment Problems: Minimization, Maximization case in assignment problem. Unbalanced assignment problem.

Transportation Problems: North West Corner Method (NWCM) – Lowest Cost Entry Method (LCM), Vogel's Approximation Method (VAM) and MODI Method.

Chapter 7: (Section -7.1, 7.2, 7.4 and 7.5) Chapter 8: (Section-8.1 to 8.7)

UNIT - V: **(18 hours)**

Network analysis: CPM: Project Network Diagram – Critical Path (Crashing excluded) – PERT computation Chapter 15: (Section - 15.1 to 15.7)

Content and treatment as in

1. Business Mathematics – Dr. P.R Vittal, Margham Publications, 2016 Edition (Unit I and Unit II)
2. Resource Management Techniques- Prof V.Sundaresan, K.S.Ganapathy Subramanian, K.Ganesan, A.RPublications, Ninth Edition. (Unit III, IV and V)

REFERENCE BOOKS

1. Sanchetti&Kapoor, Business Mathematics, K G Saur, 1979
2. Draper and Klingman, Mathematical Analysis, Harper & Row, 1986

3. Copper, Business Research methods, R D Irwin, 1985
4. Operations Research – Hira and Gupta, S. Chand.
5. Operations Research – Handy and A. Taha, Macmillan Publishers.

Web Reference

1. **https://www.easycalculation.com/tutorial.php**
2. **http://people.brunel.ac.uk/~mastjjb/jeb/or/contents.html**

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any **10** out of 12 questions	1-12	2	**20**
Section B	**Short Answer** Answer any **5** out of 8 questions	13-20	7	**35**
Section C	**Essay** Answer any **3** out of 5 questions	21-25	15	**45**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	1	2
	Unit – 2	1	1
	Unit – 3	2	
	Unit – 4	2	1
	Unit – 5	1	1
Section B	Unit – 1		2
	Unit – 2		1
	Unit – 3		1
	Unit – 4		2
	Unit – 5		2
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit - 5		1

NON MAJOR ELECTIVE – II

IMPORTANCE OF EMOTIONAL INTELLIGENCE

SUBJECT CODE :	**THEORY**	**MARKS : 100 (50 CIA + 50 ESE)**
SEMESTER : II	**CREDITS : 2**	**No. OF HOURS PER WEEK : 2**

(Common to BBA, B.Com (A&F), B.Com (BM), B.Com (MM), B.Com(ISM))

COURSE OBJECTIVES:

- To evoke knowledge amongst students on Emotional Intelligence
- To make students understand the importance of self-awareness and self-development

UNIT I- **(6 Hrs.)**

Introduction -Emotional Intelligence –Meaning, Benefits, Importance of emotions - Self-awareness and Competencies Psychological Needs. EQ vs IQ.

UNIT II - **(6 Hrs.)**

Personality Analysis -Distinct Personality Type-Hand writing Analysis, Colour preference, listening, Profile, Self Esteem, Will power, Confidence

UNIT III- **(6 Hrs.)**

Negative Traits - Anger Management -Negative Syndrome and Attitude-Negative thinking-Guilt Quotient Stress and Emotion, Adapting to Loneliness

UNIT IV- **(6 Hrs.)**

Positive Traits-Humor and Happiness- Empathetic ability-Sensitivity profile-Empowered personality, Self-Empowerment

UNIT V- **(6 Hrs.)**

Self-analysis: Psychological growth and adjustment- Personal Development plan-Successful negotiator Personal SWOT Analysis, Celebrating Life

Prescribed Text

1. What's Your Emotional IQ, Dr.AparnaChattopadhyay, PustakMahal, May 2004.
2. Emotional Intelligence ina Week, JillDann, Hodder& Stoughton, 10Editions, 2007.

Reference Books

1. Emotional Intelligence: Why It Can Matter More Than IQ Paperback – September 27, 2005by Daniel Goleman

Web Reference:

1. www.psychology.ccsu.edu/engwall/Emotional%20Intelligence.ppt
2. www.personality_project.org
3. www.donblake.com/module5/resources/emotionalintelligence.doc
4. www.visionrealization.com/Resources/.../Emotional_intelligence_handout.pdf

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	Descriptive Questions Answer any 5 out of 8	1-8	10	**50**
TOTAL MARKS				**50**

Distribution of Questions:

Sections	Units	No. of Theory
Section A	Unit – 1	1
	Unit – 2	2
	Unit – 3	2
	Unit – 4	2
	Unit – 5	1

SEMESTER - III

CORE V–BANKING

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER : III	**CREDITS : 4**	**No. OF HOURS PER WEEK : 5**

(Common toB.Com (A&F), B.Com (MM))

COURSE OBJECTIVES:

- To expose the students to various concepts in the Banking system.
- To make the students understand the working of the banks and the banking instruments used in the system.

UNIT -I

Banking Regulation Act, 1949 (Definition of Banking, Licensing, opening of branches, Functions of Banks, Inspection) – Role of RBI and their functions. **(15 hours)**

UNIT –II

Relationship between Banker and Customer – KYC norms - Opening of an Account – Types of Deposit Account – Types of Customers (individuals, firms, Trusts, and Companies) – Closure of an account.

(15 hours)

UNIT -III

Commercial Banks – Functions – Accepting Deposits – Lending of Funds, E-Banking, ATM Cards , Debit Cards, Personal Identification Number – Online Enquiry and update facility- Electronic Fund Transfer- Electronic Clearing System.

(15 hours)

UNIT-IV

CRM – Meaning - Importance of customer relations – Customer grievances and redressal – Ombudsman – Functions, Powers & Duties. **(15 hours)**

UNIT-V

Negotiable Instruments: Promissory Notes – Bills of Exchange, Cheque, Draft – Definitions, Features – Crossing – Endorsement – Material Alteration – Paying Banker – Rights and Duties – Statutory Protection – Dishonour of Cheques - Role of Collecting Banker. **(15 hours)**

Prescribed Texts:

1. **Varshney and Sundaram,** Banking and financial system of India, Sultan Chand Publishers, 2000
2. **Sekar**, Banking theory & practice, Vikas Publishing House, 1999

REFERENCE BOOKS:

1. **Vasant Desai**, Indian banking, Book well Publishers, New Delhi, 1997
2. **Mathur**, Indian Banking, Performance, Problems and Challenges, Book well Publishers, New Delhi, 2000
3. Banking and Financial Systems – B. Santhanam (Margham Publishers)
4. Banking Law, Theory and Practice- S.N. Maheswari, Kalyani Publications.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (Each in 50 words)	1-12	2	**20**
Section B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	8	**40**
Section C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	3	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

CORE VI - CORPORATE ACCOUNTING

SUBJECT CODE :	**THEORY& PROBLEMS**	**MARKS : 100**
SEMESTER : III	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common to B.Com (A&F), B.COM (BM) and B.COM (MM))

COURSE OBJECTIVES:

- To familiarize students with the accounting treatment adopted for raising funds and redeeming them.
  To enable students to prepare final accounts of Joint Stock Companies.
- To understand the procedure for valuing goodwill and shares of a company

UNIT I

Issue of Shares – Various Kinds: Issued at par and a premium – Forfeiture – Re issue – Underwriting of Shares: Determining the liability of underwriters: complete, partial, firm underwriting. **(18 hours)**

UNIT II

Redemption of Preference Shares: Redemption at par and at premium out of profits, Redemption at par out of fresh issue, Redemption at a premium, partly out of profit and partly out of fresh issue – Profits Prior to Incorporation. **(17 hours)**

UNIT III

Preparation of Company final accounts – Company balance sheet. (As per revised schedule) **(Simple problems only)** **(20 hours)**

UNIT IV

Valuation of Shares: Net assets method, Yield method and Valuation of Goodwill: Average profit method, super profit method and Capitalization method. **(Simple Problems only)**

(15 hours)

UNIT V

Alteration of Share Capital, Internal Reconstruction and Reduction of Capital. **(20 hours)**

Prescribed Texts:

1. T.S. Reddy A. Murthy Corporate Accounting, Margham Publication, Chennai.
2. Shukla, Grewal and Gupta Advanced Accounts, S.Chand New Delhi.

Reference Books:

1. R.L. Gupta and M. Radhaswamy Advanced Accounts New Delhi, Sultan Chand.
2. S.P. Jain and N.L. Narang Advanced Accounting Kalyani Publication.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (Each in 50 words)	1-12	2	**20**
Section B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	8	**40**
Section C	**Essay** Answer any 2 out of 4 questions (each in 1200 words)	21-24	20	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	1	2
	Unit – 2	1	1
	Unit – 3	1	1
	Unit – 4	1	2
	Unit – 5	1	1
Section B	Unit – 1	1	1
	Unit – 2		2
	Unit – 3		1
	Unit – 4	1	1
	Unit – 5		1
Section C	Unit – 1		1
	Unit – 2		
	Unit – 3		1
	Unit – 4		1
	Unit - 5		1

CORE VII – BUSINESS AND CORPORATE LAWS

SUBJECT CODE:	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS: 4**	**NO. OF HOURS PER WEEK : 5**

(Common to BBA, B.Com (A&F), B.Com (BM), B.Com (MM))

COURSE OBJECTIVES:

- Inherit the knowledge about the legal methodology involved in business by the students

UNIT I

Law of Contract –Essential elements of a valid contract- Classification of Contracts - Offer and Acceptance – Capacity of parties to Contract – Free Consent – Consideration – Legality of Object – Agreements Declared Void – Contingent Contracts.

(12 Hours)

UNIT II

Performance of Contract – Discharge of Contract – Remedies for breach of contract – Quasi Contracts (General Contract – Sections 1 to 75) - Contract of Indemnity & Guarantee -Bailment: Meaning, Essential features of Bailment - Duties and Rights of bailor and bailee - Termination of bailment- Pledge - Meaning, Essentials of a valid pledge - Rights and Duties of pawnor and pawnee. **(21 Hours)**

UNIT III

Contract of Agency - Definition of Agent and Principal - Essentials and legal rules of a valid agency - Creation of Agency - Termination of Agency

Sale of Goods Act - Definition of Sale and Agreement to Sell – Distinction between Sale and Agreement to Sell ,Condition and Warranties - Distinction between Conditions and Warranties - Rights and Duties of an unpaid seller.

(18 Hours)

UNIT IV

Company – Meaning-Characteristics - Kinds of Companies - Memorandum of Association – Contents - Articles of Association - Contents – Distinction between Memorandum and Articles - Prospectus-Meaning-Contents-Types-Misstatements in prospectus.

(12 Hours)

UNIT V

Shares –Meaning- Kinds- Debentures –Meaning-Kinds- Distinction between Shares and Debentures- Annual General Meeting-Meaning-Extra-ordinary General Meeting- Meaning- Board Meeting- Meaning-Procedure for the conduct of the meetings (Meaning of Notice, Agenda, Quorum, Voting, Proxy, Minutes- Resolution- Meaning and Types

(12 Hours)

Prescribed Texts:

1. Business Laws – N.D. Kapoor, Sultan Chand Publications, 15th Edition
2. Legal Systems in Business – P. Saravanavel, S. Sumathi, Himalaya Publishing House, 2011.

Reference Books:

1. P.C.Tulsian, Business Laws, Tata Mc Graw Hill, 2nd Edition.
2. M.R. Sreenivasan, Business Laws – Margham Publications , Chennai
3. S.S. Gulshan and G.K. Kapoor, Business Law including Company Law, 12th Edition, New Age International (P) Ltd. Publishers.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	2	**20**
Section B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	8	**40**
Section C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	3	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	2	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE VIII - PRACTICAL AUDITING

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER : III	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common toB.Com (A&F), B.COM (BM))

COURSE OBJECTIVES:

- To appreciate the role of auditing in business.
- To understand the steps involved in the audit of account.
- To familiarize with provisions of the companies act relating to the appointment, conduct and liabilities of an audit.
- To understand the new EDP audit in tune with the latest adoption of technology in businesses.

UNIT I

Meaning and definition of auditing – Distinction between auditing and accounting – objectives – Advantages and limitations of audit – scope of audit – classifications of audits – Audit planning, meaning – Audit programme, meaning, objectives and contents – audit note book, contents, usefulness of audit note book – Audit working papers, meaning. Ownership and custody – Test checking and Routine checking, meaning- Internal control, meaning , definition, objectives, Technique for evaluation of internal control system – Internal check, meaning, objectives, difference between internal control, Internal check and internal audit.

(20 hours)

UNIT II

Vouching, meaning and definitions, objectives – Trading transactions – audit of ledger- Scrutinizing of ledgers - vouching of cash receipts and payments. Vouching of outstanding assets and liability – verification, meaning objectives and process – valuation of assets and liabilities- Distinction between verification and valuation.

(20 hours)

UNIT III

Appointment of auditors – appointment of first auditor – appointment by central government – filling of casual vacancy – Appointment by special resolution – Re-appointment and compulsory re-appointment – ceiling on the number of Auditor ship - Removal of auditor – Remuneration - auditors lien – qualification and disqualification

(20 hours)

UNIT IV

Duties of the company auditor – Rights and powers of auditors – different classes of auditors – Audit Report – Preparation and Presentation.

(15 hours)

UNIT V

EDP audit – meaning -Division of auditing in EDP environment – Impact of computerization on audit approach – online computer system audit – Types of online computer systems – audit around with the computers – procedure of audit under EDP system. **(15 hours)**

RECOMMENDED BOOKS

1. Practical Auditing – B.N. Tandon Sultan Chand and Co.,
2. Practical Auditing – Dr. Radha, Prasanna Publications.

REFERENCE BOOKS

1. Auditing – D.P. Jain KonarkPublishersPvt. Ltd.
2. Auditing, Principles and practice – Ravinder Kumar and virender Sharma, Eastern economy edition.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	2	**20**
Section B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	8	**40**
Section C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

ALLIED 3 - SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

SUBJECT CODE :	THEORY	MARKS : 100
SEMESTER : III	CREDITS : 4	No. OF HOURS PER WEEK : 6

COURSE OBJECTIVES:

- The aim is introduce the subject of Security Analysis and Portfolio Management to the students and make them aware of the different investment opportunities available in Stock market.
- To equip the students with advanced tools and techniques for making profitable investment decisions and to prepare their own portfolio of investment.

UNIT – I

Investment; Importance-investment Vs speculation and gambling investment process risk-systematic risk-steps in investment process. Investment avenues – types – Marketable assets from Primary and Secondary Market – Equity shares, Preference, Shares and Debentures. Trading Mechanism. Mutual Funds, Definition, Types.

(18 hours)

UNIT II

Investment environment – Sources of Investment Information – Approaches of Security analysis - Market Indicators – Security price movements – Fundamental analysis technical analysis – Dow Theory - Random walk theory – efficient market hypothesis**.** **(17 hours)**

UNIT III

Company analysis – Components of company analysis - Financial analysis – Financial Statement – Ratio analysis - EPS, DPS – dividend yield ratio – ROI, ROCE, Risk – return – Measurementof risk**.** **(20 hours)**

UNIT IV

Portfolio management – portfolio theory – objectives – Traditional and modern portfolio theory – portfolio management process – portfolio planning – portfolio selection Evaluation – Portfolio revision - Portfolio analysis – Morkowitz's Approach**.** **(15 hours)**

UNIT V

Capital Market Theory – Assumptions – Capital Asset Pricing Model (CAPM) – Estimating Betas Securities market line arbitrage pricing theory – Derivatives options – Futures – Swaps.

(20 hours)

RECOMMENDED BOOKS

1. V.K. Bhalla "Investment Management"
2. Fisher and Jordon – Security analysis and Portfolio management
3. Investment Management by L.Natarajan, Margham publications,2007
4. Investment Management by Hiriappa, New age international publications, 2008.
5. Punithavathy Pandian - Security analysis and portfolio management

REFERENCE BOOKS

1. V. A. Avadhani "Studies in Indian Financial System"
2. M. Gorden "The Investment financing and valuation of corporation"
3. PreetiSingh "Investment Management".

Web References

www.halifax.co.uk./investments/pdfs/sw51813.pdf
http://www.nseindia.com/education/content/nse_rapid_series.htm
www.occ.gov/publications/publications-by-type/comptrollers-handbook/invmgt.pdf

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	2	**20**
Section B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	8	**40**
Section C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	3	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

SEMESTER - IV

CORE IX - ENTREPRENEURIAL DEVELOPMENT

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 4**	**No. OF HOURS PER WEEK : 5**

(COMMON TO B.B.A, B.Com (A&F), B.COM (BM), B.COM (MM), B.COM (ISM))

COURSE OBJECTIVE:

- To create awareness among students about entrepreneurship and its importance.
- To keep the students informed about various financial institutions that promoteED.
- To encourage students to become entrepreneurs.

UNIT I

Concept of Entrepreneurship - Entrepreneurship – Meaning – Types – Qualities of an Entrepreneur – Classification of Entrepreneurs – Factors influencing Entrepreneurship – Functions of Entrepreneurs.

(13Hours)

UNIT II

Entrepreneurial Development Agencies. - Commercial Banks – District Industries Centre – National Small Industries Corporation – Small Industries Development Organization – Small Industries Service Institute. All India Financial Institutions – IDBI – IFCI – ICICI – IRDBI

(20 Hours)

UNIT III

Project Management - Business idea generation techniques – Identification of Business opportunities – Feasibility study – Marketing, Finance, and Technology& Legal Formalities - Preparation of Project Report – Tools of Appraisal.

(15Hours)

UNIT IV

Entrepreneurial Development Programmes (EDP) – Role, relevance and achievements – Role of Government in organizing EDPs – Critical evaluation. **(12 Hours)**

UNIT V

Economic development and entrepreneurial growth - Role of entrepreneur in economic growth – Strategic approaches in the changing Economic scenario for small scale Entrepreneurs – Networking, Niche play, Geographic Concentration, Franchising / Dealership – Development of Women Entrepreneurship. **(15 Hours)**

Prescribed Text:

1. Jayashree Suresh – Entrepreneurial development, Margam Publication.
2. Dr. C.B. Gupta & Dr. S.S. Khanka – Entrepreneurship and Small Business.

Reference Books:

1. Srinivasan N.P. – Entrepreneurial Development
2. Saravanavel – Entrepreneurial Development
3. Vasant Desai – Project management

4. Holt – Entrepreneurship – New Venture Creation
5. J.S. Saini& S.I. Dhameja – Entrepreneurship and small business.
6. P.C. Jain – Handbook for New Entrepreneurs

Web Reference:

1. **www.inderscience.com/jibed**
2. **http://www.slideshare.net/balajisetty/entrepreneurship-development-8886110**

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	2	**20**
B	**Short Answer** Answer any 5 out of 8 questions(each in 300 words)	13-20	8	**40**
C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	3	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit –5	1	

CORE X– FINANCIAL SERVICES

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 4**	**No. OF HOURS PER WEEK : 5**

(Common toB.B.A,B.Com (A&F), B.Com (BM), B.Com (MM))

COURSE OBJECTIVES:

- To impart knowledge about the various financial services.
- To have a knowledge of venture capital and mutual funds.

UNIT – I

Meaning and importance of **Financial Services** – Types of financial services – Financial services and economic environment – Players in Financial Services Sector.

(15 Hours)

UNIT- II

Merchant Banking: Meaning, Functions – **Issue management:** Pre Issue management and Post issue activities – Managing of new issues – **Underwriting:** meaning, types of underwriting – **Capital market:** Meaning, Definition, Capital market instruments: equity shares, Preference shares and Debentures. Types of capital market: Primary market and Secondary market – **Stock Exchange:** Meaning and definition, Characteristics of stock exchange, Operators at stock exchange, BSE, NSE and OTCEI – Listing: Meaning, objectives and advantages – Types of speculators - Role of SEBI.

(20 Hours)

UNIT-III:

Leasing: Meaning, types of lease, features of lease agreement - **Hire purchase -** Concepts and features – Distinguishing features between hire purchase and leasing. **Factoring -** Definition and meaning, Functions of Factor, types of factoring. **(10 Hours)**

UNIT-IV: Venture Capital: Meaning, Features, Functions, Modes or Forms of venture capital – **Credit Rating:** Meaning, Advantages and disadvantages, CRISIL, ICRA, and and CARE Consumer Finance: Meaning and types of consumer finance.

(15 Hours)

UNIT – V: Mutual Funds: Meaning – Types: Based on Ownership, Operation, Objectives and Location – Advantages and Disadvantages of mutual fund – Institutions Involved – UTI.

(15 Hours)

Prescribed Texts:

1. Financial Services – M.Y.Khan, 3rdEdition, 2004, Tata McGraw Hill Publications.
2. Financial Services – B.Santhanam, Margham Publications.
3. Financial services – K.S. Dinesh Kumar, ShriSai Publishers' Distributors, 2014.

Reference books:

1. Law of Insurance – Dr.M.N. Mishra, 2014, Sultan Chand Publications.
2. Indian Financial System – H.r.Machiraju, 4thEdition, 2010, Vikas Publications.

3. A Review of current Banking Theory and Practice – S.K. Basu., 2nd Edition, MacMillan Publications, London.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (Each in 50 words)	1-12	2	**20**
Section B	**Short Answer** Answer any 5 out of 8 questions (Each in 300 words)	13-20	8	**40**
Section C	**Essay** Answer any 4 out of 6 questions (Each in 1200 words)	21-26	10	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	3	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	2	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE XI –BUSINESS TAXATION

SUBJECT CODE :	THEORY	MARKS : 100
SEMESTER : IV	CREDITS : 4	NO. OF HOURS PER WEEK : 5

(Common to BBA, B.Com (A&F), B.Com (BM))

COURSE OBJECTIVES:

- To familiarize students with the basic concepts of Indirect taxes & Customs Act
- To enable the students to understand the concept and procedure for computation of GST

UNIT- I: TAXATION AND TAX SYSTEM IN INDIA

History of Taxation – Elements of Tax – Objectives of Taxation – Canons of Taxation – Tax System in India – Classification of Taxes.

(10 Hours)

UNIT- II: CUSTOMS ACT 1962

Customs Act – Definition, Concepts and Scopes – Levy and Collection of Customs Duty – Classification of Goods – Assessment of Duty – Valuation of Goods under Customs Act – Prohibition on Importation & Exportation of Goods – Demand and Recovery of Customs Duty – Clearance of Goods – Baggage.

(15 Hours)

UNIT- III: INTRODUCTION TO GST

Introduction - Meaning – Need – Benefit – Types – GST Council – Applicability – Exclusions. ExemptionsGood exempted from GST – Services exempted from GST – Powers to grant Exemption from tax

(15 Hours)

UNIT- IV: TAXABLE EVENTS UNDER GST

Introduction – Concepts of Supply – Types of Supply – Composite Supply – Mixed Supply – Composite Levy-value and time of supply-Introduction – Time of Supply of Goods – Time of Supply of Service – Value of Supply and its Provisions **(15 Hours)**

UNIT- V: REGISTRATION AND REFUND PROCEDURES UNDER GST

Introduction –Time limit – Persons liable for Registration – Persons not liable for Registration – Compulsory Registration – Procedure – Cancellation and Revocation
GST Returns – Refunds under GST- Assessment and Tax Payment under GST - An overview of tax audit (GST Assessment) **(20 Hours)**

RECOMMENDED BOOKS:

1. Business Taxation – T.S.Reddy&Y.Hariprasad Reddy, Margham Publications, 2018.
2. ICAI – Indirect Tax Study Material, 2018.

REFERENCE BOOKS

1. Dr.Vinod K Singhania, Monica Singhania, Students Guide to Income Tax, TaxmannPublicationsPvt Ltd., New Delhi.
2. GirishAhiya, Dr. Ravi Gupta, Systematic Approach to Income Tax and CST, Bharat Law HousePvt. Ltd. New Delhi.

3. Dr.Sanjeev Kumar, Systematic Approach to Indirect Taxes with Practical problems and solutions,Bharat Law House Pvt. Ltd., New Delhi.

Web References:

http://www.idtc.icai.org/gst.html

http://idtc.icai.org/gst-topic-wise-study-material-list.html

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	Definition/Principle Answer any 10 out of 12 questions (each in 50 words)	1-12	2	20
Section B	Short Answer Answer any 5 out of 8 questions (each in 300 words)	13-20	8	40
Section C	Essay Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	40
	TOTAL			100

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	2	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

CORE XII – ADVANCED CORPORATE ACCOUNTING

SUBJECT CODE :	**THEORY& PROBLEMS**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 4**	**No. OF HOURS PER WEEK : 5**

COURSE OBJECTIVES:

- To prepare financial statements of special types of businesses viz. Banks, Insurance and Holding & Subsidiary Companies.
- To familiarize the accounting treatment for price level changes.
- To understand the accounting procedures for amalgamation of companies in the nature of merger or purchase and at the time of liquidation.

UNIT I

Amalgamation, Absorption and External reconstruction. **(20 hours)**

UNIT II

Consolidated final statement of Holding companies and subsidiary companies (Inter - company owing excluded) – treatment of dividend. **(16 hours)**

UNIT III

Final statements of Banking companies and Insurance companies (As per New provisions).

(18 hours)

UNIT IV

Liquidation - Statement of affairs (only theory) and Liquidator's Final statement of Account.

(16 hours)

UNIT V

Accounting Standards (1,2,3,6,10,14,17,20,21)- Only theory , problems & case studies excluded).

(05 hours)

RECOMMENDED BOOKS

1. T.S. Reddy and A. Murthy, Corporate Accounting, Margham publications, Chennai. M.C. Shukla and J.S. Grewal Advanced Accounts, New Delhi, S. Chand and Company.

REFERENCE BOOKS

1. R.L. Gupta and M. Radhaswamy Advanced Accounts New Delhi, sultan Chand.
2. S.P. Jain and K.L. Narang Advanced Accounts Lodi and Kalyani Publishers.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (Each in 50 words)	1-12	2	**20**
Section B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	8	**40**
Section C	**Essay** Answer any 2 out of 4 questions (each in 1200 words)	21-24	20	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	1	1
	Unit – 2	2	
	Unit – 3	2	1
	Unit – 4	1	2
	Unit – 5	2	
Section B	Unit – 1	1	1
	Unit – 2	1	1
	Unit – 3		2
	Unit – 4		1
	Unit – 5	1	
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit - 5		

ALLIED IV–BUSINESS AND INTERNATIONAL ECONOMICS

SUBJECT CODE:	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES:

- To develop basic understanding about the economic concepts, tools and techniques for their applications in business decisions.
- To impart the knowledge about international trade and Fixed and floating exchange rates.

UNIT I

Introduction to Economics – Wealth, Welfare and Scarcity Views on Economics - Scope and Importance of Business Economics -Concepts: Production Possibility Frontiers – Opportunity Cost – Accounting Profit and Economic Profit – Incremental and Marginal Concepts – Time and Discounting Principles. **(20 Hrs.)**

UNIT II

Demand and Supply Functions - Meaning of Demand – Determinants and Distinctions of demand – Law of Demand – Elasticity of Demand – Demand Forecasting – Supply concept and Equilibrium. **(20 Hrs.)**

UNIT III

Consumer Behavior: Law of Diminishing Marginal utility – Equi-marginal Utility – Indifference Curve – Definition, Properties and equilibrium- Production: Law of Variable Proportion – Laws of Returns to Scale – Producer's equilibrium. **(20 Hrs.)**

UNIT IV

International Trade – Importance of International Trade, Theories of Foreign Trade: - Theories of Adam Smith, Ricardo, Haberler's Hechsher-Ohlin. **(15 Hrs)**

UNIT V

Balance of Trade, Balance of Payment – Concepts – Causes of Disequilibrium, Methods to Correct Disequilibrium – Fixed and Floating Exchange Rates. **(15 Hrs)**

Prescribed Texts:

1. S.Shankaran, Business Economics - Margham Publications - Ch. -17
2. P.L. Mehta, Managerial Economics – Analysis, Problems & Cases - Sultan Chand & Sons – New Delhi – 02.

Reference Books:

1. Francis Cherunilam, Business Environment, Himalaya Publishing House -Mumbai – 04.
2. Peter Mitchelson and Andrew Mann, Economics for Business, Thomas Nelson Australia - Can -004603454.
3. Chaudhary, C.M Business Economics, RBSA Publishers, Jaipur - 03.
4. H.L. Ahuja, Business Economics – Micro & Macro, Sultan Chand & Sons, New Delhi
5. Francis Cherunilam, International Trade and Export Management - Himalaya Publishing House - Mumbai – 04.

6. Paul.R.Krugman and Maurice Obstfeld, International Economics (Theory and Policy) - Pearson Education Asia - Addison Wesley Longman (P) Ltd -Delhi – 92.
7. Robert J.Carbaugh, International Economics - Thomson Information Publishing Group - Wadsworth Publishing Company - California.
8. H.G. Mannur, International Economics – Vikas Publishing House (P) Ltd - New Delhi –

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (Each in 50 words)	1-12	2	**20**
Section B	**Short Answer** Answer any 5 out of 8 questions (Each in 300 words)	13-20	8	**40**
Section C	**Essay** Answer any 4 out of 6 questions (Each in 1200 words)	21-26	10	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

SEMESTER - V

CORE XIII– PROFESSIONAL COST ACCOUNTING

SUBJECT CODE :	**THEORY& PROBLEMS**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

COURSE OBJECTIVES:

- To enlighten the students on the importance of cost ascertainment reduction and control.
- To teach the method of arriving at cost and thereby reconciling the same with Financial accounts.
- To teach the students to calculate the element-wise and the total cost of product and services.

UNIT I

Nature and scope of Cost Accounting - Cost analysis - Concepts and Classifications. Installation of costing systems, cost centers and profit centers.

(10 hours)

UNIT II

Cost sheets, tenders and quotations- Reconciliation of cost and financial account - Material purchase control, Level, aspects, need and essentials of material control. Stores control – Stores Department, EOQ, Stores records - Material costing – Issue of materials – FIFO, LIFO, HIFO, SAM, and WAM **(25 hours)**

UNIT III

Labour cost – Computation and control. Time keeping Methods of wage payment – Time rate and Taylor's differential piece rate system – Halsey, Rowan, Merrick plan(Sundry Premiums Excluded) - Labour turnover – Replacement, Separation and Flux Method

(20 hours)

UNIT IV

Overheads – Classification, Allocation, Apportionment and Absorption of overheads – Manufacturing, Administration, Selling and Distribution (Primary and Secondary Distribution) - Machine Hour Rate. **(20 hours)**

UNIT V

Process (Normal, Abnormal Loss / Abnormal Gain only) – Contract Costing (Simple problems only) – Operating Costing (Transport only) **(15 hours)**

RECOMMENDED BOOKS

1. Jain S.P. and Narang K.L. – Cost Accounting.
2. T.S. Reddy and Y. Hari Prasad Reddy – Cost Accounting

REFERENCE BOOKS

1. Khanna B.S., Pandey I.M. Ahuja G.K. and Arora M.N. – Practical costing.
2. N.K. Prasad and V.K. Prasad – Cost Accounting.
3. Saxena and Vashist – Cost Accounting.
4. Hansen / Mowen – Cost Management Accounting and Control.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (Each in 50 words)	1-12	2	**20**
Section B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	8	**40**
Section C	**Essay** Answer any 2 out of 4 questions (each in 1200 words)	21-24	20	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	1	1
	Unit – 2	2	1
	Unit – 3	1	2
	Unit – 4	1	1
	Unit – 5	1	1
Section B	Unit – 1	1	1
	Unit – 2	1	1
	Unit – 3		1
	Unit – 4		1
	Unit – 5		2
Section C	Unit – 1	1	
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit - 5		

CORE XIV – MANAGEMENT ACCOUNTING

SUBJECT CODE :	**THEORY & PROBLEM**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common toB.B.A, B.Com (A&F), B.Com (BM), B.Com (MM), B.Com (ISM))

COURSE OBJECTIVES:

- To understand and analyze financial statement to help in managerial decision-making.
- To prepare statements like Cash Flow, Fund Flow, Budgets etc., so as to assist the managements to take meaningful and correct decisions.

UNIT I

Management accounting – Meaning, nature, scope, functions, need, importance and limitations–Management Accounting vs. Cost Accounting, Management Accounting vs. Financial Accounting. **(10 hours)**

UNIT II: Analysis and Interpretation of financial statements – Nature, objectives, essentials and tools, Methods – Comparative Statements, Common Size statement and Trend analysis. **(15 hours)**

UNIT III: Ratio Analysis – Interpretation, benefits and limitations. Classification of ratios-Liquidity, Profitability, Turnover Ratios, and Construction of Balance sheet (simple problems only). **(20 hours)**

UNIT IV: Funds flow Analysis – Meaning of Funds, Importance and uses of Funds Flow Statement – Preparation of Working capital Statement – Funds from operations – Fund Flow Statement (simple problems only). **(20 hours)**

UNIT V: Cash Flow Analysis – Meaning of Cash and Cash Equivalents – Preparation of Cash flow Statement as per AS-3, Fund Flow Analysis vs. Cash Flow Analysis. Budgets and Budgetary Control – Meaning, Importance, Merits and Demerits, Types of Budget – Production, Cash and Flexible Budget (simple problems only) **(25 hours)**

Recommended Texts

1. T. S. Reddy and Hari Prasad Reddy, Management Accounting, 2014-MarghamPulication.
2. SN Maheswari, Management Accounting - Sultan Chand &Sons.

Reference Books

1. RSN Pillai&Bagavati, Management Accounting - S Chand & Co Ltd – New Delhi.
2. HorngrenSunderu Stratton, Introduction to Management Accounting – Pearson Education
3. DalstonL. Cecil and Jenitra L. Merwin, Management Accounting, Learn Tech press, Trichy, 3rd Edition2015

Web References:

1. **http://pakaccountants.com/courses/managementaccounting/**
2. **http://www.elearnuk.co.uk/course/management-accounting**

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer ANY 10 out of 12 questions (each in 50words)	1-12	2	**20**
B	**Short Answer:** Answer any 5 out of 8 questions (each in 300 words)	13-20	8	**40**
C	**Essay** Answer any 2 out of 4 questions (each in 1200words)	21-24	20	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	1	1
	Unit – 3	1	2
	Unit – 4	1	1
	Unit – 5	1	2
Section B	Unit – 1	1	
	Unit – 2	1	1
	Unit – 3		1
	Unit – 4		2
	Unit – 5		2
Section C	Unit – 1		
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit –5		1

CORE XV – INCOME TAX LAW & PRACTICE – I

SUBJECT CODE :	**THEORY& PROBLEMS**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common toB.Com (A&F), B.Com (BM))

COURSE OBJECTIVES

- To familiarize students with the basic concepts of Income Tax.
- To enable the students to compute income under various heads of income.

UNIT I

Meaning and features of income –Important definitions under the Income Tax Act – Tax Rates of Individual Assesse – Residential status - Scope of total income – Capital and revenue –Incomes exempt from tax. **(15 hours)**

UNIT II

Heads of income - Salaries – Allowances – Perquisites and their valuations - Deductions from salary – Gratuity – Pension – Commutation of pension – Leave Salary – Profits-in-lieu of salary - Provident funds – Deductions under section 80C. **(25 hours)**

UNIT III

Income from House property – Definition of annual value – Deductions from annual value – Computation of income under different circumstances. **(20 hours)**

UNIT IV

Income from Business or Profession -Allowable and not allowable expenses –General deductions – Provisions relating to depreciation – deemed business profits – Undisclosed Income / Investments - compulsory maintenance of books of accounts – audit of accounts of certain persons - special provision for computing incomes on estimated basis – Computation of income from business or profession.

(15 hours)

UNIT V

Income Tax Authorities – Powers of the central Board of Direct Taxes (CBDT), Commissioners of Income Tax and Income Tax officers – Assessment Procedures – Self Assessment – Best Judgement Assessment – Income Escaping Assessment (Re assessment) - Advance payment of Tax – Meaning and Due dates – Deduction of Tax at source – Meaning - Filing of Return – Various Return Forms – Permanent Account Number (PAN) and its usage.

(15 hours)

RECOMMENDED BOOKS

1. Income Tax Theory, Law & Practice – T.S. Reddy and Y Hari Prasad Reddy Margham Publications.

REFERENCE BOOKS

1. Students Guide to Income Tax – Dr. Vinod K. Singhania, Taxman Publications Pvt. Ltd.
2. Income Tax Law & Accounts, Dr. Mehrotra&GoyalSahityaBhavan Publications.
3. Income Tax Law & Practice V.P. Gaur & D.B. Narang, Kalyani Publishers.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (Each in 50 words)	1-12	2	**20**
Section B	**Short Answer** Answer any 5 out of 8 questions (Each in 300 words)	13-20	8	**40**
Section C	**Essay** Answer any 2 out of 4 questions (Each in 1200 words)	21-24	20	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	1	1
	Unit – 2	1	1
	Unit – 3	2	1
	Unit – 4	2	1
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2		2
	Unit – 3		2
	Unit – 4	1	1
	Unit – 5	1	
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		
	Unit - 5	1	

CORE XVI–MARKETING MANAGEMENT

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**No. OF HOURS PER WEEK : 5**

(Common to B.B.A, B.Com (A&F), B.Com (MM), B.Com (ISM))

COURSE OBJECTIVES:

- To understand the role and importance of marketing.
- Identify the factors influencing consumer behavior and purchase decision
- To understand the facets of 4 P's in marketing
- To understand the modalities of sales distribution and control

UNIT I

Fundamentals of Marketing - Role of Marketing - Relationship of Marketing with other functional areas - concept of marketing mix-Marketing approaches - Various Environmental factors affecting the marketing functions. **(10 Hrs)**

UNIT II

Buyer Behavior - Consumer goods and Industrial goods - Buying motives - Factors influencing buyer Behavior, Market segmentation - Need and basis of Segmentation -Targeting - positioning. **(10 Hrs)**

UNIT III

The Product - Characteristics - benefits - classifications - consumer goods - industrial goods - New Product Development process - Product Life Cycle - Branding –Packaging& Labeling – Pricing-Meaning, Objectives and Types of Pricing. **(20 Hrs)**

UNIT IV

Promotion –Meaning, Objectives – Types - A brief overview of: Advertising - Publicity - Public Relations - personal Selling - Direct selling and Sales promotion. **(20 Hrs)**

UNIT V

Physical Distribution: Importance – Channels of Distribution: Distribution of consumer goods, Distribution of industrial goods and Distribution of Agriculture goods– Levels of channels: Zero level, one level, two levels and three level channel - Distribution issues. **(15 Hrs)**

Prescribed Texts:

1. Marketing Management by Sontakki C.N; Kalyani Publishers; 2009
2. R.S.N. Pillai and Bagavathi, Modern Marketing, S.Chand& Co, New Delhi.
3. Jayasankar, Marketing, Margham publications, Chennai.

Reference Books:

1. Philip Kotler, 2003, Marketing Management, 11th edition, Pearson Education (Singapore) Pvt. Ltd, New Delhi.

2. Crrain field, Marketing Management, Palgrave Macmillan

Web Reference:

1. http://www.marketing91.com/marketing-management/
2. https://www.managementstudyguide.com/marketing-management-articles.htm

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer ANY 10 out of 12 questions (Each in 50 words)	1-12	2	**20**
B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	8	**40**
C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	3	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

INTER DISCIPLINARY ELECTIVE – I
INDIAN CONSTITUTION AND HUMAN RIGHTS
(For the students admitted from the academic year 2019-20 onwards)

SUBJECT CODE :	THEORY	MARKS : 100
SEMESTER : V	CREDITS : 5	NO. OF HOURS PER WEEK : 6

COURSE OBJECTIVES:

- The basic aim of the course is to introduce the students to the fundamentals of our constitution.
- To provide an overview of basic human rights and the governing bodies

UNIT I - Definition of Constitution -Indian Constitutional Philosophy – Salient Features of the Constitution and Preamble - Fundamental Rights and Fundamental Duties - Directive Principles of State Policy **(15 hours)**

UNIT II - Union and State Executive, Legislature and Judiciary - Union Parliament and State Legislature: Powers and Functions - President, Prime Minister and Council of Ministers - State Governor, Chief Minister and Council of Ministers - The Supreme Court and High Court: Powers and Functions **(20 hours)**

UNIT III - Elections Meaning - Composition of Election Commission - Direct and Indirect election; General election - Local Self Government (I) Rural: Three-tier system of Panchayat Raj – Gram Panchayat, Panchayat Samiti, ZilaParishad – their meaning and functions. (ii) Urban: Municipal Committees and Municipal Corporations – meaning and functions **(20 hours)**

UNIT IV –

Human Rights – Meaning - Evolution of the Concept of Human Rights at International level - Magna Carta of 1215 – Geneva Convention of 1864 - Universal Declaration of Human Rights, 1948 – Articles 1 to 30 (Names only)

Classification of Human Rights – Natural, Moral and Legal Rights, Civil and Political Rights, Economic, Social and Cultural Rights; Collective / Solidarity Rights **(15 hours)**

UNIT V - Human Rights in India - Protection of Human Rights Act, 1993 – Objectives of the Act- Human Rights Commission – NHRC, SHRC – Headquarters, Structure, Functions & Powers - National Commission for Women (NCW) – Objectives - United Nations and Human Rights – UNHCR – Formation, Headquarters and Objectives of UNHCR .

Society and Human Rights (Promotion and Protection) - Role of NGOs - Role of Mass Media - Role of Educational Institutions - Role of Government - Human Rights Education **(20 hours)**

RECOMMENDED BOOKS

1. Indian Constitution and Human Rights (2018) by Vasanthi Reena Williams & Noreen AlexeenaDatta
2. Indian Constitution & Human Rights (2016) by Poornima, Suresh Kumar, Sapna Book House
3. V.N.Shukla, Constitution of India (Eastern Book Co)
4. Indian Constitution & Human Rights ,Ghai ,KALYANI PUBLISHERS

REFERENCE BOOKS

1. *Indian* Polity By M Laxmikant 5th 2017 Edition

2. Political *Science* for Civil Services Mains Examinations. 28 March 2016. by N D ... 22 August
3. SubashKashyap, Indian Constitution, National Book Trust
4. Human Rights in Constitutional Law, Prentice – Hall of India Pvt. Ltd... New Delhi
5. Durga Das Basu, Introduction to the Constitution of India, Prentice – Hall of India Pvt. Ltd... New Delhi

WEB REFERENCES

1. https://www.lawnotes.in/Human_Rights_and_the_Indian_Constitution
2. http://shodhganga.inflibnet.ac.in/bitstream/10603/102509/9/09_chapter%2003.pdf
3. https://www.google.com/

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	**2**	**20**
B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	**8**	**40**
C	**Essay** Answer any 4 out of 6 questions(each in 1200 words)	21-26	**10**	**40**
Total Marks				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	**Problem**
A	Unit 1	2	
	Unit 2	3	
	Unit 3	3	
	Unit 4	1	
	Unit 5	3	
B	Unit 1	1	
	Unit 2	2	
	Unit 3	2	
	Unit 4	1	
	Unit 5	2	
C	Unit 1	1	
	Unit 2	1	
	Unit 3	1	
	Unit 4	1	
	Unit 5	2	

SEMESTER - VI

CORE XVII –ADVANCED FINANCIAL MANAGEMENT

SUBJECT CODE :	**THEORY& PROBLEMS**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

COURSE OBJECTIVES:

- To appreciate the role of the finance in an organization.
- To identify sources from where funds can be raised keeping in mind the cost and risk involved.
- To familiarize the students the techniques to be employed for investing the funds taking into consideration the risk and the return.
- To understand the various Dividend policies and the management of working capital in businesses.

UNIT I

Meaning, objectives and Importance of Finance – Sources of finance – Functions of financial management – Role of financial manager in Financial Management. **(15 hours)**

UNIT II

Capital structure planning - Factors affecting capital structures – Determining Debt and equity proportion – Theories of capital structures - Net Income, Net Operating Income and MM approach (simple problems only) – Leverage – Definition- Kinds of Leverages (Simple problems only).

(20 hours)

UNIT III

Cost of capital – Cost of equity – cost of preference capital – Cost of debt – Cost of retained earnings – weighted Average (or) composite cost of capital (WACC). **(20 hours)**

UNIT IV

Dividend policies – Factors affecting dividend payment –Various Dividend Models - Walter, Gordon and M.M. Hypothesis

(15 hours)

UNIT V

Capital Budgeting- Definition, Importance and Objectives - Payback period, ARR and NPV method (theory and simple problems only) - Marginal Costing- Meaning, Features, Advantages and Limitations of Marginal Costing – CVP Analysis- Profit Volume Ratio, Break even analysis, Margin of safety (Excluding decision making) – Simple problems only. **(20 hours)**

RECOMMENDED BOOKS

1. Financial Management – Prasanna Chandra
2. Financial Management – S.N. Maheswari
3. Dalston L. Cecil, Financial Management, Learn Tech press, Trichy, 2nd Edition 2015.

REFERENCE BOOKS

1. Financial Management - I.M. Pandey
2. Financial Management – Y. Khan and Jain

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (Each in 50 words)	1-12	2	**20**
Section B	**Short Answer** Answer any 5 out of 8 questions (Each in 300 words)	13-20	8	**40**
Section C	**Essay** Answer any 2 out of 4 questions (Each in 1200 words)	21-24	20	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	2	1
	Unit – 3	1	1
	Unit – 4	1	1
	Unit – 5	2	1
Section B	Unit – 1	1	
	Unit – 2	1	1
	Unit – 3		2
	Unit – 4	1	1
	Unit – 5		1
Section C	Unit – 1	1	
	Unit – 2		1
	Unit – 3		
	Unit – 4		1
	Unit - 5		1

CORE XVIII–INCOME TAX LAW &PRACTICE – II

SUBJECT CODE :	**THEORY& PROBLEMS**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common toB.Com (A&F), B.Com (BM))

COURSE OBJECTIVES:

- To enable the students to compute income under various heads and also the total income subject to deductions.
- To familiarize students with the procedure of assessment and filing of return.

UNIT I

Income under capital gains – Short term, long term capital gains – certain transactions not included as transfer – cost of acquisition – cost of improvement – Indexation of cost- Capital gains under different circumstances- Exempted capital gains- computation of capital gains.

(25 hours)

UNIT II

Income from other sources – their computation – grossing up – deductions in computing income under the head and other related provisions. **(15 hours)**

UNIT III

Clubbing of Income – Deemed incomes – Provisions of the Act relating to clubbing of income – Set off - Carry forward and set off of losses. **(20 hours)**

UNIT IV

Permissible deductions from gross total income – Sec. 80C, 80CCC, 80CCCD, 80DD, 80DDB, 80E, 80G,80GG,80GGA, 80U. **(15 hours)**

UNIT V

Assessment of Individuals (Covering incomes under Salary, House Property, Business or Profession, Capital gains, Income from other sources including deductionsunderSec. 80C, 80CCC, 80CCCD, 80DD, 80DDB, 80E, 80G,80GG,80GGA, 80U) – Computation of Tax liability.

(15 hours)

RECOMMENDED BOOKS

1. Income Tax Theory, Law & Practice – T.S. Reddy and Y Hari Prasad Reddy Margham Publications.

REFERENCE BOOKS

1. Students Guide to Income Tax – Dr. Vinod K. Singhania, Taxman Publications Pvt. Ltd.
2. Income Tax Law & Accounts, Dr. Mehrotra&GoyalSahityaBhavan Publications.
3. Income Tax Law & Practice V.P. Gaur &D.B. Narang, Kalyani Publishers.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (Each in 50 words)	1-12	2	**20**
Section B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	8	**40**
Section C	**Essay** Answer any 2 out of 4 questions (each in 1200 words)	21-24	20	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	1	1
	Unit – 2	1	1
	Unit – 3	2	1
	Unit – 4	2	1
	Unit – 5	1	1
Section B	Unit – 1		2
	Unit – 2		2
	Unit – 3	1	
	Unit – 4		2
	Unit – 5		1
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		
	Unit – 4		1
	Unit - 5		1

CORE XIX–WORKING CAPITAL MANAGEMENT

SUBJECT CODE :	**THEORY& PROBLEMS**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

COURSE OBJECTIVES:

- To examine the various components of working capital, how they interact with one another, and how they affect firm liquidity, default risk and shareholder wealth.
- To apply the principles and concepts of financial theory to problems and decisions associated with short-term (working) capital.
- To use working capital optimally, and ultimately to maximize shareholder wealth.

UNIT I

Working capital meaning – Importance of working capital management- components of working capital – Factors Influencing working capital requirements – Estimating working capital management – working capital life cycle – Roles of finance manager in working capital.

(15 hours)

UNIT II

Financing current Assets: Different approach to financing current Assets – Conservative, aggressive and matching approach - Sources of finance - Committees on working capital finance.

(15 hours)

UNIT III

Cash Management: Importance – Factors influencing cash balance – Determining optimum cash balance – cash budgeting - controlling and monitoring collection and disbursements.

(20 hours)

UNIT IV

Receivables Management: Credit policy variables credit standards- credit period – cash discount and collection efforts – credit evaluation – control of receivables. **(20 hours)**

UNIT V

Inventory Management : Need for Inventories and Importance of its management – Techniques for managing Inventory – Economic order quantity (EOQ) – Stock levels – Analysis of Investment in inventory – Selective inventory control – ABC, VED, FSN Analysis.

(20 hours)

RECOMMENDED BOOKS

1. HrishikeshBattacharya Working capital Management strategies and Techniques prentice hall of India 2001.
2. Joshi R.N. Cash Management, New Age International Publishers 1999.

REFERENCE BOOKS

1. K.M. Chitnis, Working capital Management of large Industrial units, DastaneRamachandra and company Poona.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (Each in 50 words)	1-12	2	**20**
Section B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	8	**40**
Section C	**Essay** Answer any 2 out of 4 questions (each in 1200 words)	21-24	20	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	1
	Unit – 4	1	1
	Unit – 5	2	1
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3		1
	Unit – 4		2
	Unit – 5		2
Section C	Unit – 1	1	
	Unit – 2		
	Unit – 3		1
	Unit – 4		1
	Unit - 5		1

ELECTIVE II –PROJECT VIVA - VOCE

SUBJECT CODE :	**PROJECT**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 5**	**No. OF HOURS PER WEEK : 6**

The Project Work will be evaluated by External Examiner (drawn by the COE from the panel of Experts suggested by the Board of Studies) and internal examiner (drawn by the Chairman of BOS, from the panel of Guides/ Supervisors).

Project Work will be an individual work done by each and every student separately. It shall carry 50 marks and Viva – Voce examination 25 marks, in addition to Continuous Internal Assessment marks of 25. The CIA marks will be awarded by the Guide / Supervisor, who is nominated by the Department for each student.

For the Project work and Viva – Voce examination, the student must secure 40% to obtain a pass (i.e. 30 marks out of 75 in the end – semester examination).

The project work can be in any one of the following areas:

International Business/Foreign Exchange/Financial Management/Portfolio Analysis/Stock Market Analysis/Financial Statement Analysis/Cost Analysis any other related to Finance and Financial Services / Human Resource / Marketing.

The Project may be in the form of:

(a) Analysis based on Secondary data – e.g. Analysis of financial statements of two or more companies for at least 2 or more financial years, analysis of wage pattern of employees (not less than 50) in a factory.
(b) Analysis based on primary data – e.g. consumer behaviour in respect of a product or service, investment pattern or behaviour of a group of investors belonging to a particular category.
(c) Proposal of a small business.

ELECTIVE III–MANAGEMENT OF HUMAN RESOURCES

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 5**	**No. OF HOURS PER WEEK : 6**

(Common toB.Com (A&F), B.Com (BM))

COURSE OBJECTIVES:

- To understand the nature of human resources and its significance to the organization.
- To familiarize students with the various techniques in HRM that contributes to the overall effectiveness of an Organization.
- To bring to the attention of the students the latest trends in managing human resources in an organization.

UNIT I

Nature and scope of Human Resources Management – Differences between personnel management and HRM – Environment of HRM – Human resource planning – Recruitment – Sources of Recruitment –Selection – Methods of Selection – Process of Selection - Uses of various tests – Interview techniques in selection and placement.

(20 Hours)

UNIT II

Induction – Training – Methods – Techniques – Identification of the training needs – Training and Development – Effectiveness of Training- Performance Appraisal – Traditional and Modern Methods - Transfer – Promotion and termination of services – Career Development.

(20 Hours)

UNIT III

Remuneration – Components of remuneration – Incentives – Benefits – Motivation –Abraham Maslow's theory, Mc Gregor's "X" , "Y", William Ouchi's "Z" Theory - Herzberg's two factor theory and Vroom's valence expectancy theory – Mcclelland's Need Achievement theory

(20 Hours)

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UNIT IV

Labour Relation – Functions of Trade Unions – Forms of collective bargaining-Workers' participation in management – Types and effectiveness.

(15 Hours)

UNIT V

Industrial Disputes and Settlements (Laws Excluded) – Settling Industrial Disputes in India – Arbitration – Adjudication – Settlement. **(15 Hours)**

Prescribed Texts:

1. Essentials of Human Resource Management and Industrial Relations- P.Subba Rao – Himalaya Publishing House- 2010

2. Human Resource Management – L M Prasad- Third Edition Reprint 2014 – Sultan Chand & Sons.
3. Human Resource Management – Ashwathappa -5th Edition – McGraw Hill

Reference Books

1. Human Resource Management – Garry Deseler -11th Edition – Pearson International
2. Human Resource Management- By DrCharmine E.J. Härtel , Dr Yuka Fujimoto – 2nd Edition

Web Reference:

1. https://www.wiziq.com/tutorials/human-resource-management
2. https://www.sophia.org/tutorials/introductory-human-resource-concepts

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	2	**20**
B	**Short Answer:** Answer any 5 out of 8 questions (each in 300 words)	13-20	8	**40**
C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	3	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A - Grade' by NAAC
(Affiliated to the University of Madras)

BACHELOR OF COMMERCE
(BANK MANAGEMENT)

Regulations and Syllabus

(For the Candidates admitted in 2019-2020 and thereafter

CREDIT STRUCTURE

SEM	PART	SUBJECT NAME	HOURS	CREDITS
I	I	LANGUAGE-I	6	3
	II	ENGLISH-I	6	3
	III	CORE PAPER 1-FINANCIAL ACCOUNTING (COMMON TO A&F, MM, BM, ISM &BBA)	5	4
		CORE PAPER 2- PRINCIPLES OF MANAGEMENT (COMMON TO A&F, MM, BM, ISM &BBA)	5	4
		ALLIED 1 – CORPORATE COMMUNICATION(COMMON TO MM, BM, &BBA)	6	5
	IV	SKILL BASED SUBJECT	-	3
		NON-TAMIL STUDENTS : TAMIL (VI STD) TAMIL STUDENTS : NON – MAJOR ELECTIVE*(COMMON TO B.COM(ISM), B.COM(MM),B.COM(A&F), B.COM(BM), BBA &B.COM(HONS))	2	2
		TOTAL	30	24
II	I	LANGUAGE-II	6	3
	II	ENGLISH-II	6	3
	III	CORE PAPER 3-ADVANCED FINANCIAL ACCOUNTING (COMMON TO A&F & BM)	5	4
		CORE PAPER 4- THEORY OF MONEY AND BANKING	5	4
		ALLIED – 2- MONETARY ECONOMICS	6	5
	IV	SKILL BASED SUBJECT	-	3
		NON-TAMIL STUDENTS : TAMIL (VI STD) TAMIL STUDENTS : NON – MAJOR ELECTIVE*(COMMON TO B.COM (ISM), B.COM (A&F), B.COM(BM) B.COM(MM),BBA)	2	2
		TOTAL	30	24
III	III	CORE PAPER 5-CORPORATE ACCOUNTING (COMMON TO A&F, MM, BM)	6	4
		CORE PAPER 6- BUSINESS AND CORORATE LAWS (COMMON TO A&F,MM,BM,&BBA)	5	4
		CORE PAPER 7- FINANCIAL MANAGEMENT(COMMON TO ISM,MM,BM,BBA)	6	4
		CORE PAPER 8- ENTREPRENEURIAL DEVELOPMENT(COMMON TO ISM,MM,A&F, BBA)	5	4
		ALLIED – 3- BUSINESS STATISTICS AND OPERATIONS RESEARCH I (COMMON TO MM, BM, ISM&BBA)	6	5
	IV	SOFT SKIL- JOB ORIENTED SKILLS	2	2
		TOTAL	***30***	***23***

IV	III	CORE PAPER 9 – INTERNATIONAL ECONOMICS(COMMON TO BM AND BBA)	5	4
		CORE PAPER 10 - FINANCIAL SERVICES (COMMON TO A&F, BBA,MM, BM)	5	4
		CORE PAPER 11- ADVANCED CORPORATE ACCOUNTING (COMMON TO A&F AND BM)	5	4
		CORE PAPER 12 – BUSINESS TAXATION(COMMON TO A&F, BBA AND BM)	5	4
		ALLIED – 4- BUSINESS STATISTICS AND OPERATIONS II (COMMON TO MM, BM, ISM &BBA)	6	5
	IV	ENVIRONMENTAL STUDIES	2	2
		SPECIAL SKILL-COMPUTING SKILL	2	2
		TOTAL	***30***	***25***
V	III	CORE PAPER 13-COST ACCOUNTING	6	4
		CORE PAPER 14 -INCOME TAX LAW & PRACTICE-I (COMMON TO A&F & BM)	6	4
		CORE PAPER 15- BANKING LAW AND PRACTICE	5	4
		CORE PAPER 16- PRACTICAL AUDITING (COMMON TO A&F, BM)	6	4
		INTERDISCIPLINARY ELECTIVE-1-PERSONAL INVESTMENT PLANNING	6	5
	IV	VALUE EDUCATION	1	2
		INTERNSHIP		2
		TOTAL	***30***	***25***
VI	III	CORE PAPER 17-- INCOME TAX LAW & PRACTICE-II (COMMON TO A&F&BM)	6	4
		CORE PAPER 18 – MANAGEMENT ACCOUNTING(COMMON TO MM,ISM,BM,A&F, BBA)	6	4
		CORE PAPER 19- CREDIT AND RISK MANAGEMENT IN BANKING	6	4
		ELECTIVE 2- MANAGEMENT OF HUMAN RESOURCES(COMMON TO A&F& BM)	6	5
		ELECTIVE 3 PROJECT VIVA VOCE	6	5
	IV	COMMUNITY SERVICE		1
		TOTAL	***30***	***23***
		GRAND TOTAL	***180***	***144***

SEMESTER I

CORE 1 - FINANCIAL ACCOUNTING

SUBJECT CODE 19UCAF301	THEORY & PROBLEMS	MARKS : 100
SEMESTER : I	CREDITS : 4	No. OF HOURS PER WEEK : 5

(Common to B.Com (MM), B.Com (ISM), B.B.A and B.Com (A&F), B.Com (BM))

COURSE OBJECTIVES:

- To build the conceptual understanding developed in simple financial accounting.
- To get the basic skills in financial accounting for the beginners.

UNIT I: (15 Hours)

Meaning and scope of Accounting, Basic Accounting Concepts and Conventions – Objectives of Accounting – Accounting Transactions – Double Entry Book Keeping – Journal, Ledger, Preparation of Trial Balance.

UNIT II: (15 Hours)

Preparation of Cash Book , Preparation of Final Accounts of a Sole Trading Concern – Adjustments entries – Closing Stock, Outstanding Expenses, Prepaid Expenses, Depreciation, Accrued Income, Income received in Advance, Bad Debts, Provision for Bad and doubtful debts, Interest on Capital and Interest on Drawings (simple problems)

UNIT III: (15 Hours)

Classification of errors – Rectification of errors – Preparation of Suspense Account, Insurance claims – Average Clause (Loss of stock only)

UNIT IV: (15 Hours)

Depreciation – Meaning, Causes, Types – Straight Line Method – Written Down Value Method (simple problems).

UNIT V: (15 Hours)

Single Entry – Meaning, Features, Defects, Difference between Single Entry and Double Entry System – Statement of Affairs Method – Conversion Method (simple problems**).**

PRESCRIBED TEXTS

1. T.S. Reddy &A.Murthy, Financial Accounting - Margham Publications Chennai – 5/e
2. Financial Accounting – Dr. S. Manikandan and R.Rakesh Shankar –3rd Edition- SCITECH Publisher
3. Dalston L. Cecil and Jenitra L. Merwin, Financial Accounting, Learn Tech press, Trichy, 1st Edition 2015.

REFERENCE BOOKS

1. Jain &Narang, Financial Accounting - Kalyani Publishers. New Delhi. 2014
2. R.L.Gupta&V.K.Gupta, Advanced Accounting - Sultan Chand & Sons. New Delhi.
3. Shukla&Grewal, Advanced Accounting – S Chand New Delhi 18th Edition.
4. P.C. Tulsian – Financial Accounting Forth Impression,2009.
5. S.Parthasarathy and A.Jaffarulla, Financial Accounting - Kalyani Publishers –New Delhi.

Web References

1. **http://www.accountingcoach.com**
2. **http://www.learnaccountingforfree.com**

THEORY: 20% PROBLEMS: 80%

RECOMMENDED TEXTBOOKS

1. Gupta .R.L & Gupta .V.K, 2005, Financial Accounting, Sultan Chand & Sons, New Delhi, 6th edition.
2. Reddy T.S & Murthy.A, 2007, Financial Accounting, Margham Publications, Chennai, 5th edition.
3. Dr.S.Manikandan, Financial Accounting, Scitech Publications, Chennai.

REFERENCE BOOKS

1. Goel.D.K and Shelly Goel, 2018, Financial Accounting, Arya Publications, 2nd edition.
2. Jain .S.P & Narang .K, 1999, Financial Accounting, Kalyani Publishers, Ludhiana, 4th edition.
3. Rakesh Shankar. R & Manikandan.S, Financial Accounting, SCITECH, 3rd edition.
4. Shukla & Grewal, 2002, Advanced Accounting, Sultan Chand & Sons, New Delhi, 15th edition.
5. Tulsian P.C., 2006, Financial Accounting, Pearson Education.

E-L EARNING RESOURCES

1. https://www.accountingtools.com/articles/2017/5/15/basic-accounting-principles
2. https://en.wikipedia.org/wiki/Single-entry_bookkeeping_system
3. https://www.profitbooks.net/what-is-depreciation/
4. https://books.google.co.in/books?isbn=8126909935
5. https://books.google.co.in/books?isbn=9966254455
6. https://books.google.co.in/books?isbn=0470635290

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	**PROBLEM**	**THEORY**	**PROBLEM**	**THEORY**	**PROBLEM**
I	2	1	1	1	-	1
II	1	2	-	1	-	1
III	1	1	-	1	-	-
IV	1	1	1	1	-	1
V	1	1	-	1	-	1
TOTAL	6	6	2	5	-	4
SECTION A - 12			**SECTION B - 7**		**SECTION C - 4**	

CORE 2 - PRINCIPLES OF MANAGEMENT

SUBJECT CODE: 19UBBA302	THEORY	100 MARKS
SEMESTER: I	CREDITS: 4	NO. OF HOURS PER WEEK: 5

(Common to BBA, B.Com (A&F), B.Com (BM), B.Com (MM), B.Com(ISM))

COURSE OBJECTIVES:

- To enable the students to acquire knowledge on principles, concepts and functions of management and inherit the importance of decision making.

UNIT I (25 Hours)

Management: Importance – Definition – Is Management art or science or –Is Management a profession –Functions of Management: *POSDCORB framework by Luther* Gulick and Lyndall Urwick - Role and Functions of Managers - Managerial skills – Levels of Management – Application of management in various functional areas – Production, Accounting, Finance, Marketing and Personnel Management

Administrative Management by Henri Fayol - Scientific Management by F.W.Taylor - Bureaucratic Management by Max Weber - Human Relations Management by Elton Mayo - Modern Management by Peter Drucker

Approaches to Management - Systems Approach & Contingency Approach

UNIT II (10 Hours)

Planning – Definition, Objectives of planning - Importance of planning – Types of plans - Decision making: Nature and significance- Process of Decision making – Types of Decisions.

UNIT III (20 Hours)

Organizing – Meaning and definition of Organizing, Importance of Organizing, and Principles of Organizing-Delegation and Decentralization-Span of control:Meaning,Factors affecting span of control-Types of organizational structure-Line organizational structure –Staff organizational structure- line and staff – Departmentation -Bases of Departmentation - Departmentation by functions, Departmentation by products, Departmentation by territories, Departmentation by customers, Departmentation by process, Departmentation by numbers and Combined Base Departmentation

UNIT IV (10 Hours)

Staffing & Recruitment –Meaning, Directing-Meaning-Importance of Directing- Leadership-Styles of leadership - Authoritative leadership (Autocratic), Participative leadership (Democratic) - Delegative leadership (Laissez-faire)

UNIT V (10 Hours)

Co-ordination: What is co-ordination, Need for co-ordination, Types of co-ordination, Essential requisites for excellent co-ordination- Controlling: Meaning and Importance, Functions of controlling, Process of control and types of Control.

RECOMMENDED TEXTBOOKS

1. C.B.Gupta, Management Theory & Practice - Sultan Chand & Sons – New Delhi, 16th Edition.
2. L.M.Prasad, Principles & Practice of Mangement – Sulatan Chand & Sons – New Delhi, 8th Edition.

REFERENCE BOOKS

1. P.C.Tripathi & P.N.Reddy, Principles of Managements – Tata Mc.Graw Hill – New Delhi, 5th Edition
2. Weihrich and Koontz, Management – A Global Perspective, 8th Edition.
3. N.Premavathy, Principles of Mangement – Sri Vishnu Publication – Chennai 8th Edition
4. J.Jayashankar, Business Management - Margham Publications -Chennai

E-L EARNING RESOURCES

1. http://www.12manage.com
2. http://www.businessballs.com
3. http://www.tutotrialspoint.com/management_principles/management_principlestutorial.pdf

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-19	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	3	-	2	-	2	-
II	2	-	1	-	1	-
III	3	-	2	-	1	-
IV	2	-	1	-	1	-
V	2	-	1	-	1	-
TOTAL	12	-	7	-	6	-
SECTION A 12			**SECTION B 7**		**SECTION C 6**	

ALLIED 1 – CORPORATE COMMUNICATION

SUBJECT CODE: 19UBBA303	THEORY	MARKS
SEMESTER: I	CREDITS: 5	NO. OF HOURS PER WEEK: 6

(Common to B.Com (BM), B.Com (MM), B.B.A)

COURSE OBJECTIVES:

- To enable the students to acquire knowledge about the importance of communication in today's competitive business environment

UNIT I - (20 Hours)

Concept of Communication – Meaning, Definition, Process, Need, Feedback, Principles of effective Communication – Barriers to Communication: Physical, Semantic/Language, Socio-Cultural and Psychological Barriers - Ways to Overcome these Barriers.Types of Communication: Verbal, Non-verbal – Characteristics of Verbal communication and Non-verbal communication Merits and Demerits of Verbal and Non- verbal communication.

UNIT II - (20 Hours)

Channels of Communication: Formal and Informal—Vertical, Horizontal, Diagonal, Grapevine. Business Letters and Layout:Parts, Structure, Layouts— Full Block, Modified Block, Semi – Block, Principles of Effective Letter Writing.

UNIT III - (20 Hours)

P**ersonnel correspondence**-Job Application Letter and Resume Letter of Acceptance of Job Offer, Inter-Office-Memo, Letter of Resignation

Business Correspondence: Trade Letters –Inquiry, Order, Credit and Status Enquiry, Complaints, Claims, Sales Letters, promotional leaflets and fliers.

UNIT IV - (15 Hours)

Report Writing – Agenda, Minutes of Meeting – Memorandum – Office Order – Circular Notes- Correspondence with share holders –Correspondence with directors.

UNIT V - (15 Hours)

Modern Forms of Communication: Fax – E-mail – Video Conferencing – Benefits and Perils of communication through social media: Website and Apps.

RECOMMENDED TEXTBOOKS

1. Rajendra Pal and Korlahalli, Essentials of Business Communication- Sultan Chand & Sons, New DelhiN.S.Raghunathan, R.Santhanam,Business Communication-Margham Publications

REFERENCE BOOKS

1. Rajendra Pal and Korlahalli, Essentials of Business Communication- Sultan Chand &Sons, New Delhi.
2. Shirley Taylor, Communication of Business- Pearson Publication- New Delhi
3. K.Sundar, A.Kumararaj, Business Communication, Vijay Nichole Imprints Pvt.Ltd.

E-LEARNING RESOURCES

1. https://books.google.co.in/books?isbn=130556023X
2. https://books.google.co.in/books?isbn=0618990488
3. https://books.google.co.in/books?isbn=0538466251

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 4 out of 6 questions (each in 1200words)	20-25	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory and Letter writing

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	LETTER WRITING	THEORY	LETTER WRITING	THEORY	LETTER WRITING
I	2	-	1	-	2	-
II	2	-	1	1	-	1
III	3	-	1	1	-	1
IV	3	-	1	1	-	1
V	2	-	1	-	1	-
TOTAL	12	-	5	3	3	3
SECTION A - 12			**SECTION B - 8**		**SECTION C - 6**	

NON-MAJOR ELECTIVE 1

ANALYTICAL AND LOGICAL REASONING

SUBJECT CODE : 19UNME401K	**THEORY**	**MARKS : 100**
SEMESTER : I	**CREDITS : 2**	**No. OF HOURS PER WEEK : 2**

(Common to B.Com (ISM), B.Com (HONS), B.Com (BM), B.Com (A&F), B.B.A and B.Com (MM))

COURSE OBJECTIVE:

- To enable students to learn to describe the problem-solving process
- To make the students identify various problem-solving techniques and apply these in solving business problems
- To Understand thinking models and practice exercises to help in thinking outside-the-box and generate a larger solution space
- To Understand creativity and blocks to creativity
- To Arrive at objective, well-reasoned decisions in a reasonable time

UNIT-I (6 Hours)

Logical reasoning Introduction- Number Series

UNIT-II (6 Hours)

Statement and assumptions – Statement and conclusion

UNIT-III (6 Hours)

Verbal reasoning – Coding and Decoding (with alpha numeric characters)- Reasoning Blood Relationship

UNIT-IV (6 Hours)

Direction Sense Test – Data Interpretation from bar chart, pie chart.

UNIT-V (6 Hours)

Venn Diagrams – Image Series

RECOMMENDED TEXTBOOKS

1. Logical and Analytical Reasoning – A.K. Gupta – Ramesh publishing house – 2016 Paper Back edition

REFERENCE BOOKS

1. A Modern Approach to verbal and non-verbal reasoning – Revised edition by R.S.Agarwal – Publisher – S.Chand and Company Pvt. Ltd.

E-L EARNING RESOURCES

1. http://www.careerguide.co.in/search/label/Reasoning
2. http://www.indiabix.com/logical-reasoning

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Multiple Choice Questions	1-50	1	**50**

Break up of questions for problem

Sections	Units	No. of Problems
Section A	Unit – 1	10
	Unit – 2	10
	Unit – 3	10
	Unit – 4	10
	Unit – 5	10

SEMESTER II

CORE 3–ADVANCED FINANCIAL ACCOUNTING

SUBJECT CODE : 19UCAF304	**THEORY& PROBLEMS**	**MARKS : 100**
SEMESTER : II	**CREDITS : 4**	**No. OF HOURS PER WEEK : 5**

(Common to B.Com (A&F), B.Com (BM))

COURSE OBJECTIVES:

- To build the conceptual understanding developed in simple financial accounting.
- To understand the accounting procedure for different kinds of businesses Branch, Hire Purchase, Departments.
- To familiarize students with methods of preparing Partnership Accounts.

UNIT I (15 hours)

Branch Accounts-Dependent branches-stock & debtor system-Objects of branch accounts, types of Branches, Goods sent to branch at invoice price are included.

UNIT II (15 hours)

Departmental Accounts-Basis for allocation of expenses-Inter departmental transfer at cost or selling price-Need for departmental accounting and Advantages of departmental accounting are included.

UNIT III (20 hours)

Hire purchase and Instalment-Default & Repossession-Hire purchase trading account- Instalment purchase system- Features of hire purchase system, Hire purchase vsInstalment purchase system, accounting treatment of Instalment system, Journal entries and Interest calculation.

UNIT IV (20 hours)

Admission of Partner-Retirement of Partner-Deathof Partner- Accounting aspects of admission of Partners, Accounting treatment of Goodwill, Revaluation of assets and liabilities, Adjustments on retirement- Amount payable to the retiring partner and Accounting treatment at the time of death of a partner.

UNIT V (20 hours)

Dissolution of a partnership – Insolvency of a partner (Application of Indian Partnership Act 1932) – Insolvency of all partners – Gradual realization of assets and piecemeal distribution- modes of dissolution

THEORY: 20% PROBLEMS: 80%

RECOMMENDED TEXTBOOKS

1. Financial Accounting - R.L.Gupta & M.Radhaswamy– Sultan Chand& sons.
2. Financial Accounting - T.S.Reddy & A.Murthy – Margham Publications

REFERENCE BOOKS

1. Principles and practice of Accounting - R.L.Gupta & V.K.Gupta– sultan chand& sons.
2. Financial Accounting– S.P. Jain & K. L. Narang –Kalyani Publishers.

E-L EARNING RESOURCES

1. https://books.google.co.in/books?isbn=8126909935
2. https://books.google.co.in/books?isbn=9966254455
3. https://books.google.co.in/books?isbn=0470635290

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	**PROBLEM**	**THEORY**	**PROBLEM**	**THEORY**	**PROBLEM**
I	2	-	1	1	-	1
II	2	1	-	1	-	1
III	2	-	-	1	-	-
IV	1	2	-	1	-	1
V	2		1	1	-	1
TOTAL	9	3	2	5	-	4
SECTION A - 12			**SECTION B - 7**		**SECTION C - 4**	

CORE 4 - THEORY OF MONEY & BANKING

SUBJECT CODE: 19UCBM305	THEORY	100MARKS
SEMESTER: II	CREDITS: 4	NO. OF HOURS PER WEEK: 5

COURSE OBJECTIVES:

- To expose the students to various concepts in the Banking system and money market.
- To make the students understand the working of the banks and the banking instruments used in the system.

UNIT I (18 Hours)

Introduction to Money – Kinds, Functions and Significance – Demand for and Supply of Money – Monetary Standards – Gold Standard – Bimetallism and Paper Currency Systems –Paper Money – Money Market.

UNIT II (17 Hours)

Commercial Banking – Classification of Banks – Functions – Creation of Credit – Balance Sheet – Investment Policies – Bank Assets – Banking Structure – Clearing Houses.

UNIT III (12 Hours)

Central Banking – Evolution – Definition – Concepts – Functions – Methods of Credit Control.

UNIT IV (10 Hours)

Foreign Exchanges – Exchange Market and Rates of Exchange – Exchange Control.

UNIT V (18 Hours)

Indian Banking –NABARD – State Bank of India – Exchange Banks – Commercial Banks - Indigenous Banks – Co-operative Banks.

RECOMMENDED TEXTBOOKS

1. K.P.M. Sundharam, P.N. Varshney, Banking Theory Law & Practice - Sultan Chand & Sons - New Delhi.
2. Dr. D.M. Mithani, Banking, International Trade and Public Finance, Himalaya Publishing House, 16th revised Edition.

REFERENCE BOOKS

1. K.P.M. Sundharam, Money, Banking & International Trade - Sulltan Chand & Sons - New Delhi.
2. S.V. Vasudevan, Theory of Banking - S.Chand& Company Ltd., - New Delhi.
3. B.S. Raman, Banking Theory, law and Practice-United Publishers, First Edition, Jan 2010.
4. MC.Vaish, Money, Banking trade and Public Finance, 3rd Updated Edition.

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	**PROBLEM**	**THEORY**	**PROBLEM**	**THEORY**	**PROBLEM**
I	2		2		1	
II	3		1		1	
III	2		1		1	
IV	2		1		1	
V	3		2		2	
TOTAL	12		7			
SECTION A - 12			**SECTION B - 7**		**SECTION C - 6**	

ALLIED 1- MONETARY ECONOMICS

SUBJECT CODE: 19CBM306	THEORY	100MARKS
SEMESTER: II	CREDITS: 5	NO. OF HOURS PER WEEK: 6

COURSE OBJECTIVES:

- To help students understand the most important theories in monetary economics
- To enable the students to understand the role of monetary policy on the economy.

UNIT - I (15 Hours)

Money - Functions and classification - Role of money in capitalist, socialist and mixed economies.

UNIT – II (15 Hours)

Value of money - Fishers equation - Cambridge equation - superiority of Cambridge equation over Cash Transaction.

UNIT – III (20 Hours)

Monetary standards - Paper currency -Systems of note issue - Indian currency system - Development and problems

UNIT - IV (20 Hours)

Factors influencing money supply - Money supply and price level - Keynesian approach - Neutrality of money - Real balance effect - Patinkin - Friedman's Restatement of quantity theory of Money.

UNIT - V (20 Hours)

Business Cycles: - Phases, types and Theories - Inflation : Causes, types and remedies - Effects of inflation on Production, Consumption and distribution - Deflation - effects and control.

RECOMMENDED TEXTBOOKS

1. Sankaran .S : Monetary Economics
2. Vaish .M.C. : Monetary Theory

REFERENCE BOOKS

1. Jhingan .M.L. : Monetary Economics
3. Seth M.L. : Money, Banking and International Trade
4. Vaish .M.C. : Monetary Theory
5. Cauvery and Others : Monetary Economics
6. Gupta .S.B. : Monetary Economics
7. Sethi .T.T. : Monetary Economics
8. Kishore, G. Kulkarni : Modern Monetary Theory
9. Gupta .G.P. : Monetary Policy of the Reserve Bank of India
10. Mithani, D.M. : Money, Banking, International trade & Public finance

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	3	-	2	-	1	-
II	2	-	1	-	1	-
III	2	-	1	-	2	-
IV	3	-	2	-	1	-
V	2	-	1	-	1	-
TOTAL	12	-	7	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

NON MAJOR ELECTIVE - II

IMPORTANCE OF EMOTIONAL INTELLIGENCE

SUBJECT CODE : 19NME402K	**THEORY**	**MARKS : 100 (50 CIA + 50 ESE)**
SEMESTER : II	**CREDITS : 2**	**No. OF HOURS PER WEEK : 2**

(Common to B.Com (MM), B.Com (ISM), B.Com (BM), B.Com (A&F), and BBA) COURSE

OBJECTIVES:

- To evoke knowledge amongst students on Emotional Intelligence
- To make students understand the importance of self-awareness and self-development

UNIT I (6 Hours)

Introduction -Emotional Intelligence –Meaning, Benefits, Importance of emotions - Self-awareness and Competencies Psychological Needs. EQ vs IQ.

UNIT II (6 Hours)

Personality Analysis -Distinct Personality Type-Hand writing Analysis, Colour preference, listening, Profile, Self Esteem, Will power, Confidence

UNIT III- (6 Hours)

Negative Traits - Anger Management -Negative Syndrome and Attitude-Negative thinking-Guilt Quotient Stress and Emotion, Adapting to Loneliness

UNIT IV- (6 Hours)

Positive Traits-Humor and Happiness- Empathetic ability-Sensitivity profile-Empowered personality, Self-Empowerment

UNIT V- (6 Hours)

Self-analysis: Psychological growth and adjustment- Personal Development plan- Successful negotiator Personal SWOT Analysis, Celebrating Life

RECOMMENDED TEXTBOOKS

1. What's Your Emotional IQ, Dr.AparnaChattopadhyay,PustakMahal,May 2004.
2. Emotional Intelligence In A Week,JillDann,Hodder& Stoughton,10 Edition,2007.

REFERENCE BOOKS

1. Emotional Intelligence: Why It Can Matter More Than IQ Paperback – September 27, 2005by Daniel Goleman

E-LEARNING RESOURCES

1. www.psychology.ccsu.edu/engwall/Emotional%20Intelligence.ppt
2. www.personality_project.org
3. www.donblake.com/module5/resources/emotionalintelligence.doc
4. www.visionrealization.com/Resources/.../Emotional_intelligence_handout.pdf

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Multiple Choice Questions	1-50	1	**50**
Total Marks				**50**

Break up of questions for theory

Sections	Units	No. of Theory
Section A	Unit – 1	1
	Unit – 2	2
	Unit – 3	2
	Unit – 4	2
	Unit – 5	1

SEMESTER III

CORE 5 CORPORATE ACCOUNTING

SUBJECT CODE: 19UCAF306	THEORY & PROBLEM	MARKS: 100
SEMESTER: III	CREDITS: 4	NO.OF HOURS PER WEEK: 6

(Common to B.Com (AF), B.Com (BM), B.Com (MM))

COURSE OBJECTIVES

1. To Prepare the journal entries of issue of shares and compute underwriter's liabilities.
2. Demonstrate thorough knowledge of relevant accounting treatment of redemption of preference shares and the ability to find the profit prior to incorporation of companies.
3. To Demonstrate thorough knowledge in preparation of financial statements of companies as per the provisions of companies ACT 2013.
4. To Select the appropriate methods of valuation of shares and goodwill and perform the accounting treatment of the company.
5. To Learn about the concepts of various procedures for alteration of share capital and accounting treatment in respect of internal reconstruction of a company

UNIT I (22 Hours)

Meaning of shares – Kinds of Shares – Issue of shares- Forfeiture and Reissue- Underwriting of shares-Determination of the liability of underwriters-Complete underwriting- partial underwriting-Firm underwriting.

UNIT II (17 Hours)

Redemption of preference shares- Revenue profit and capital profit – Minimum fresh issue of shares. profit prior to incorporation, Treatment of Profit or Loss Prior to Incorporation in Financial Statement as per revised format of Companies Act 2013 – Basis of Apportionment of expenses(Simple problems only).

UNIT III (20 Hours)

Company final accounts- Preparation of statement of profit& loss and company balance sheet as per Revised format (Schedule VI) of companies Act.-Computation of Managerial Remuneration.

UNIT IV (16 Hours)

Valuation of Goodwill - Meaning – Nature – Factors affecting goodwill – Methods of valuation of goodwill - Valuation of Shares – Need – Methods of valuation of shares.

UNIT V (15 Hours)

Alteration of Share Capital – Different kinds of Alteration of Share Capital - Internal Reconstruction and Reduction of Share Capital (Simple Problems only)

THEORY: 20% PROBLEMS: 80%

RECOMMENDED TEXTBOOKS

1. Corporate Accounting : Gupta R.L and Radhaswamy M., Sultan Chand & Sons, New Delhi. (2013)
2. Corporate Accounting: Reddy T.S &.Murthy A, Volume 1 & 2, Sixth Edition , Margham Publications, Chennai. (2014)

REFERENCE BOOKS

1. Corporate Accounting: Arulanandam M.A. and Raman K.S-Himalaya Publishing House.
2. Corporate Accounting-I :Jain S.P, Narang K.L, Agrawal Simmi & Sehgal MonikaNinth Edition , KalyaniPublishers, Ludhiana (2018).
3. Advanced Accountancy : Maheswari S.N; Volume 1,10th Edition; Vikas Publishing.
4. Shukla M.C, Grewal T.S. and.Gupta S.C;),Corporate Accounting; S Chand & Sons, New Delhi.;

E-LEARNING RESOURCES

1. https://commerceatease.com/terms-of-issue-of-shares/
2. https://edurev.in/studytube/ICAI-Notes-of-Ch-9-3-Redemption-of-Preference-Shares/
3. https://blog.ipleaders.in/rules-share-capital-alteration/
4. https://books.google.co.in/books?isbn=8131754510
5. https://books.google.co.in/books?isbn=8120346270
6. https://books.google.co.in/books?isbn=8126908394

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	1	1	1	-	1
II	1	1	-	1	-	-
III	1	1	-	1	-	1
IV	2	1	1	1	-	1
V	1	1	-	1	-	1
TOTAL	7	5	2	5	-	4
SECTION A - 12			**SECTION B - 7**		**SECTION C - 4**	

CORE 6
BUSINESS AND CORPORATE LAWS

SUBJECT CODE:19UBBA304	**THEORY**	**MARKS: 100**
SEMESTER: III	**CREDITS: 4**	**NO. OF HOURS PER WEEK : 5**

(Common to B.Com (A&F), B.Com (MM), B.Com (BM), B.B.A)

COURSE OBJECTIVES

1. To inherit the knowledge about the legal methodology involved in business by the students.
2. To impart the performance of contract as per Indian Contract Act, 1872.
3. To create and demonstrate the knowledge about sale of goods Act 1930.
4. To demonstrate Memorandum and Articles of Association.
5. To make the students to understand Meetings of the company.

UNIT I (12 Hours)

Law of Contract –Essential elements of a valid contract- Classification of Contracts - Offer and Acceptance – Capacity of parties to Contract – Free Consent – Consideration – Legality of Object – Agreements Declared Void – Contingent Contracts.

UNIT II (21 Hours)

Performance of Contract – Discharge of Contract – Remedies for breach of contract – Quasi Contracts (General Contract – Sections 1 to 75) - Contract of Indemnity &Guarantee -Bailment: Meaning, Essential features of Bailment - Duties and Rights of bailor and bailee - Termination of bailment- Pledge - Meaning, Essentials of a valid pledge - Rights and Duties of pawnor and pawnee.

UNIT III (18 Hours)

Contract of Agency - Definition of Agent and Principal - Essentials and legal rules of a valid agency - Creation of Agency - Termination of Agency. Sale of Goods Act - Definition of Sale and Agreement to Sell – Distinction between Sale and Agreement to Sell ,Condition and Warranties - Distinction between Conditions and Warranties - Rights and Duties of an unpaid seller.

UNIT IV (12 Hours)

Company – Meaning-Characteristics - Kinds of Companies - Memorandum of Association – Contents - Articles of Association - Contents – Distinction between Memorandum and Articles – Prospectus – Meaning - Contents-Statement of lieu in prospectus - Types-Misstatements in prospectus.

UNIT V (12 Hours)

SEBI-Introduction and guidelines – Meetings - Annual General Meeting-Meaning-Extra- ordinary General Meeting- Meaning- Board Meeting- Meaning-Procedure for the conduct of the meetings (Meaning of Notice, Agenda, Quorum, Voting, Proxy, Minutes-Resolution- Meaning and Types

RECOMMENDED TEXTBOOKS

1. Business Laws – N.D. Kapoor, Sultan Chand Publications, 15th Edition
2. Legal Systems in Business – P. Saravanavel , S. Sumathi, Himalaya Publishing House, 2011.

REFERENCE BOOKS

1. P.C.Tulsian, Business Laws, Tata Mc Graw Hill, 2nd Edition.
2. M.R. Sreenivasan, Business Laws – Margham Publications , Chennai
3. S.S. Gulshan and G.K. Kapoor, Business Law including Company Law, 12th Edition, New Age International (P) Ltd. Publishers.

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
TOTAL MARKS				**100**

Break Up Of Questions For Theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	**PROBLEM**	**THEORY**	**PROBLEM**	**THEORY**	**PROBLEM**
I	2	-	2	-	1	-
II	2	-	2	-	1	-
III	3	-	1	-	2	-
IV	2	-	2	-	1	-
V	3	-	1	-	1	-
TOTAL	12	-	8	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

CORE 7
FINANCIAL MANAGEMENT

SUBJECT CODE: 19UBBA308	**THEORY & PROBLEM**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 4**	**NO.OF HOURS PER WEEK: 5**

(Common to B.Com (GEN), B.Com (CS), B.Com (AF), B.Com (BM), B.Com (MM), B.Com (ISM), BBA)

COURSE OBJECTIVES

1. To understand how crucial financial decisions are taken in a firm and gain insight into wealth maximization and profit maximization.
2. To understand the cost of capital, importance of leverage and capitalization.
3. To Demonstrate the Theories of capital structure.
4. To formulate dividend decisions in a firm.
5. To select and apply techniques for short term financial needs of the firm using working capital management concepts.

UNIT I (12 Hours)

Financial Management – Introduction – Scope – Finance and other related disciplines – Function of Finance – Functions of Finance Manager in 21st Century. Financial Goals: Profit Maximization Vs Wealth Maximization – Time value of money-perpetuity –CMI Amortization.

UNIT II (17 Hours)

Cost of Capital – Significance of the cost of Capital – Determining Component costs of Capital – Cost of Equity - Cost of Preference share capital – Cost of Debt - Cost of Retained Earnings – Weighted Average cost of capital.

UNIT III (17 Hours)

Capital structure – Importance – Factors affecting Capital structure - Determining Debt – Equity proportion – Theories of capital structure –Net Income Approach – Net Operating Income Approach – M.M Approach & Traditional Approach - Leverage concept –Operating Leverage – Financial Leverage and Combined Leverage.

UNIT IV (12 Hours)

Dividend policy – Objective of Dividend Policies - Types of Dividend Policies - Factors Affecting Dividend Policy – Dividend Theories: Walter's - Gordons's – M.M Hypothesis – Forms of Dividend

UNIT V (17 Hours)

Working Capital – Components of working Capital – Operating Cycle – Factors influencing working capital – Determining working capital requirements. Capital Expenditure Capital Budgeting Techniques: Discounted Cash flow technique: Net Present Value - Internal Rate of Return- Profitability Index, Non – Discounted Cash flow Techniques: Pay back methods – Accounting Rate of Return

THEORY: 20% PROBLEMS: 80%

RECOMMENDED TEXTBOOKS

1. M.Y.Khan and P.K.Jain Basic Financial Management, Tata McGraw-Hill Education
2. Dr. A. Murthy, Financial Management, Margham Publications

REFERENCE BOOKS

1. Pandey I.M.: Financial Management, Vikas Publishing House Pvt Ltd
2. Maheswari . S.M.: Financial Management, Sultan Chand & Sons
3. Prasanna Chandhra :Financial management theory and practice, McGraw-Hill Education
4. Dr. Rustagi P R, Fundamentals of Financial management , Taxman's publication,14th edition
5. Paramasivan C & Subramanian T, Financial Management, New Age International Publishers

E-L EARNING RESOURCES

1. https://www.managementstudyguide.com/financial-management.htm
2. https://corporatefinanceinstitute.com/resources/knowledge/finance/cost-of-capital/
3. https://www.investopedia.com/terms/c/capitalbudgeting.asp
4. https://efinancemanagement.com/dividend-decisions
5. https://cleartax.in/s/working-capital-management-formula-ratio
6. https://books.google.co.in/books?isbn=812591658X
7. https://books.google.co.in/books?isbn=8174465863

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 2 out of 4 questions (each in 1200words)	20-23	20	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	1	1	-	-	-
II	2	1	-	1	-	1
III	1	1	1	1	-	1
IV	1	1	-	1	-	1
V	1	1	-	2	-	1
TOTAL	7	5	2	5	-	4
SECTION A 12			**SECTION B 7**		**SECTION C 4**	

CORE 8

ENTREPRENEURIAL DEVELOPMENT

SUBJECT CODE: 19UBBA310	**THEORY**	**MARKS: 100**
SEMESTER: V	**CREDITS: 4**	**NO.OF HOURS PER WEEK: 5**

(Common to B.Com (GEN), B.Com (CS), B.Com (AF), B.Com (BM), B.Com (MM), B.Com (ISM), BBA)

COURSE OBJECTIVES

1. To discuss the concept of entrepreneurship and its importance.
2. To analyze the scope of various financial institutions for the enhancement of small entrepreneurs.
3. To utilize the various technical tools for the business premises and encounter business ventures.
4. To Communicate the important values of EDP's and the government role played in.
5. To design the valuable approaches in the changing economic scenario and to apply the same for the improvement of small-scale entrepreneurs.

UNIT I (13 Hours)

Entrepreneurship – Meaning – Types – Qualities of an Entrepreneur – Classification of Entrepreneurs – Factors influencing Entrepreneurship – Functions of Entrepreneurs.

UNIT II (20 Hours)

Entrepreneurial Development Agencies - Commercial Banks – District Industries Centre – National Small Industries Corporation – Small Industries Development Organisation – Ministry of Micro, Small & Medium Enterprises (MSME)- Prime Minister Employment Generation Programme - Pradhan Mantri Yuva Yojana - All India Financial Institutions – IDBI – IFCI – ICICI – IRDBI.

UNIT III (15 Hours)

Project Management: Business idea generation techniques – Identification of Business opportunities – Feasibility study – Marketing, Finance, Technology & Legal Formalities - Preparation of Project Report – Tools of Appraisal.

UNIT IV (12 Hours)

Entrepreneurial Development Programmes (EDP) – Role, relevance and achievements – Entrepreneurship Development Institute of India (EDII), Role of Government in organizing EDPs – Critical evaluation.

UNIT V (15 Hours)

Economic development and entrepreneurial growth – Role of entrepreneur in economic growth- Strategic approaches in the changing economic scenario for small scale entrepreneurs- Networking, Niche play, Geographic concentration, Franchising / Dealership – Development of Women entrepreneurship - problems – steps taken by government- Women and Self Help Groups. (SHGs)

RECOMMENDED TEXTBOOKS

1. Gupta, D. C., & Srinivasan, D. N. Entrepreneurship Development in India Sultan Chand & Sons, (2001).
2. Khanka, S. S. Entrepreneurial development. S. Chand Publishing, (2006).

REFERENCE BOOKS

1. Desingu Setty, E., & Krishna Moorthy, P. Strategies for developing women entrepreneurship. Akansha Pub. House, (2010).
2. Drucker, P. F. Innovation and Entre-preneurship: Practice and Principles. Harper & Row, (1986).
3. Gupta, M. Entrepreneurial Development Raj Publishing House, (2006).
4. Shankar, R.Entrepreneurship Theory & Practice Vijay Nicole Imprints Private Ltd
5. Suresh, J. Entrepreneurial Development Margham Publications, (2002).

E-LEARNING RESOURCES

1. http://www.yourarticlelibrary.com/entrepreneur/entrepreneurshipcharacteristicsimportancet yps-and-functions-of-entrepreneurship/5228
2. https://landor.com/thinking/eight-principles-of-innovation
3. http://www.simply-strategic-planning.com/innovation-and-entrepreneurship.html
4. https://www.slideshare.net/sahilkamdar1/institutional-support-in-entrepreneurship
5. https://www.businessmanagementideas.com/entrepreneurship-2/institutional-supportsystem-for-entrepreneurs/18184
6. https://www.entrepreneur.com/article/323660
7. https://www.entrepreneur.com/article/314723

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	3	-	2	-	1	-
II	3	-	2	-	2	-
III	2	-	1	-	1	-
IV	2	-	2	-	1	-
V	2	-	1	-	1	-
TOTAL	12	-	8	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

ALLIED: 3 BUSINESS STATISTICS AND O.R.-I

SUBJECT CODE: 19UMATA339	THEORY & PROBLEMS	MARKS : 100
SEMESTER: III	CREDITS: 5	NO. OF HOURS PER WEEK: 6

(COMMON TO B.B.A,BM,MM AND ISM)

COURSE OBJECTIVES:

- To develop skills in analysis & interpretation of data
- Handle challenging problems using appropriate analysis tools

UNIT –I: (18 Hours)

Introduction –Basic definitions - Diagrammatic and graphical representation of data – Simple bar diagram, Multiple bar diagram, sub-divided bar diagram, Deviation bar diagram, Histogram, Pie diagram - Measures of Central tendency – Mean, median and mode.

Chapter 1 to Chapter 4

UNIT – II: (18 Hours)

Measure of Dispersion - Range, Quartile Deviation, Mean Deviation , Standard Deviation – Measures of Skewness.

Chapter 5 and Chapter 6

UNIT – III: (18 Hours)

Correlation – Karl Pearson's Coefficient of Correlation – Spearman's Rank Correlation – Regression Lines and Coefficients.

Chapter 7 and Chapter 8

UNIT – IV: (18 Hours)

Introduction to OR – Linear Programming –Formulation - Graphical and Algebraic Solution (**< = type**)

Chapter 1 and chapter 2 Section-1.1 to 1.8 and 2.1 to 2.41

UNIT – V: (18 Hours)

Network Analysis - PERT and CPM (no crashing) Chapter 15; Section-15.1 to 15.67

CONTENT AND TREATMENT AS IN

1. Business Statistics – S.P.Gupta and M.P.Gupta,Sultan Chand &Sons,Sixteenth Edition [Units I,II and III]
2. Resorce Management Techniques-Prof V.Sundaresan ,K.S.Ganapathy Subramanian, K.Ganesan,A.R Publications,Ninth Edition.[Units IV and V]

REFERENCE BOOKS

1. Elementary Statistical Methods – Dr.S.P. Gupta, Sultan Chand &Sons,Eighteenth Edition
2. Operations Research – Hira and Gupta, S. Chand.
3. Operations Research – Handy and A. Taha, Macmillan Publishers.

Web Reference

1. https://www.easycalculation.com/tutorial.php
2. http://people.brunel.ac.uk/~mastjjb/jeb/or/contents.html
3. www.e-booksdirectory.com
4. www.bookboon.com/en/statistics-and mathematics-ebooks
5. www.freebookcentre.net

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any **10** out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any **5** out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions :

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	1
	Unit – 2	1	2
	Unit – 3	1	1
	Unit – 4	2	
	Unit – 5	1	1
Section B	Unit – 1	1	1
	Unit – 2		2
	Unit – 3		1
	Unit – 4		1
	Unit – 5		1
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit - 5		2

Syllabus for Under Graduates

DEPARTMENT OF ENGLISH
UG Part IV SOFT SKILLS
2019 Batch onwards

2020-21

SECOND YEAR

THIRD SEMESTER: Job-oriented Skills 19UGSL402

CREDITS:2 **30 hrs.**

OBJECTIVES:

- to prepare the students to be job-ready.
- to help learners use English Language appropriately to the role or situation.
- to develop confidence in them to face Interviews.
- to train them to prepare their own CV/Resume

Different kinds of Interviews

Letter of Application and CV

Technical Writing - Circulars, Memos, Agenda and Minutes

Group Discussion

Review

i. Books
ii. Films

Books for Reference

1. Harishankar, Bharathi. ed. Essentials of Spoken and Presentation Skills. University of Madras.

2. John, Seely. 1998. The Oxford Guide to writing and speaking. Oxford U P, 1998, Delhi.

3. The Princeton Language Institute and Lanny Laskowski.2001. 10 days to more confident Public Speaking. Warner Books.

4. http://jobsearch.about.com/cs/curriculumvitae.html.//

5. http://www.cvtips.com//

QUESTION PAPER PATTERN

UG - SOFT SKILLS

TIME – 3 HRS **MAXIMUM MARKS – 50**

PART – A (5X2=10)

Answer any FIVE from the questions given below from Q.No.1 to Q.No.7 (5 out of 7)

PART – B (4X5=20)

Answer any FOUR from the questions given below from Q.No.8 to Q.No.13 (4 out of 6)

PART – C (2X10=20)

Answer TWO questions only choosing one each from Q.No.14 &Q.No.15 (Internal Choice)

SEMESTER IV

CORE 9
INTERNATIONAL ECONOMICS

SUBJECT CODE: 19UBBA311	THEORY	100 MARKS
SEMESTER: III	CREDITS: 4	NO. OF HOURS PER WEEK: 5

(Common to B.B.A, B.Com (BM))

COURSE OBJECTIVES:

- To impart the knowledge about international trade and export management.
- To create awareness about the different international economic organizations and its functions

UNIT I (20 Hours)

International Trade – Importance of International Trade, Theories of Foreign Trade:- Theories of Adam Smith, Ricardo, Haberler'sHechsher-**Ohlin**

UNIT II (18 Hours)

Balance of Trade, Balance of Payment – Concepts – Causes of Disequilibrium, Methods to Correct Disequilibrium – Fixed and Floating Exchange Rates – Euro – Dollar Marketing (An Over View)

UNIT III (12 Hours)

Export Management – Export Procedure and Documents – Export Finance – Export Promotion – Export Pricing

UNIT IV (15 Hours)

International Economic Organizations and its Functions IMF, IDA, IFA, IBRD, ADB, UNCTAD, UNIDO

UNIT V (10 Hours)

WTO and Trade Liberalization – Liberalization of Trade in Manufacturing and in Agricultural Trade – TRIPS, TRIMS – Indian Patent Law

RECOMMENDED TEXTBOOKS

1. Robert J.Carbaugh, International Economics - Thomson Information Publishing Group - Wadsworth Publishing Company - California.
2. H.G. Mannur, International Economics – Vikas Publishing House (P) Ltd - New Delhi - 14.

REFERENCE BOOKS

1. Paul.R.Krugman and Maurice Obstfeld, International Economics (Theory and Policy) Pearson Education Asia - Addison Wesley Longman (P) Ltd -Delhi – 92.
2. Dr. S. Sankaran, International Economics, Margham Publications, Chennai.
3. Francis Cherunilam, International Trade and Export Management - Himalaya Publishing House - Mumbai – 04.

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	**PROBLEM**	**THEORY**	**PROBLEM**	**THEORY**	**PROBLEM**
I	3	-	1	-	2	-
II	2	-	2	-	1	-
III	2	-	1	-	1	-
IV	2	-	2	-	1	-
V	3	-	2	-	1	-
TOTAL	12	-	8	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

CORE 10 - FINANCIAL SERVICES

SUBJECT CODE: 19UBBA313	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

(Common to B.COM (A&F), BBA, B.Com (BM))

COURSE OBJECTIVES:

- To impart knowledge about the various financial services.
- To have a knowledge of venture capital and mutual funds.

UNIT – I: (15 Hours)

Meaning and importance of **financial services** – Types of financial services – Financial services and economic environment – Players in Financial Services Sector.

UNIT- II: (20Hours)

Merchant Banking: Meaning, Functions – **Issue management:** Pre Issue management and Post issue activities – Managing of new issues – **Underwriting:** meaning, types of underwriting – **Capital market:** Meaning, Definition, Capital market instruments: equity shares, Preference shares and Debentures. Types of capital market: Primary market and Secondary market – **Stock Exchange:** Meaning and definition, Characteristics of stock exchange, Operators at stock exchange, BSE, NSE and OTCEI – Listing: Meaning, objectives and advantages – Types of speculators - Role of SEBI.

UNIT-III: (10 Hours)

Leasing: Meaning, types of lease, features of lease agreement - **Hire purchase:**Concepts and features – Distinguishing features between hire purchase and leasing. **Factoring:**Definition and meaning, Functions of Factor, types of factoring.

UNIT-IV: (15 Hours)

Venture Capital: Meaning, Features, Functions, Modes or Forms of venture capital – **Credit Rating:** Meaning, Advantages and disadvantages, CRISIL, ICRA, CARE Consumer Finance: Meaning and types of consumer finance.

UNIT – V: Mutual Funds: (15 Hours)

Meaning – Types: Based on Ownership, Operation, Objectives and Location – Advantages and Disadvantages of mutual fund – Institutions Involved – UTI.

RECOMMENDED BOOKS

1. Financial Services – M.Y.Khan, 3rdEdition , 2004,Tata McGraw Hill Publications.
2. Financial Services – B.Santhanam, Margham Publications.
3. Financial services – K.S. Dinesh Kumar, ShriSai Publishers' Distributors, 2014.

REFERENCE BOOKS

1. Law of Insurance – Dr.M.N. Mishra,2014, Sultan Chand Publications.
2. Indian Financial System – H.r.Machiraju, 4thEdition ,2010, Vikas Publications.
3. A Review of current Banking Theory and Practice – S.K. Basu., 2nd Edition, MacMillan Publications, London.

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	3	-	2	-	1	-
II	3	-	1	-	2	-
III	2	-	2	-	1	-
IV	2	-	1	-	1	-
V	2	-	2	-	1	-
TOTAL	12	-	8	-	6	-
	Section-A 12		**Section-B 8**		**Section –C 6**	

CORE 11
ADVANCED CORPORATE ACCOUNTING

SUBJECT CODE : 19UCBM315	**THEORY& PROBLEMS**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 4**	**No. OF HOURS PER WEEK : 5**

COURSE OBJECTIVES:

- To prepare financial statements of special types of businesses viz. Banks, Insurance and Holding & Subsidiary Companies.
- To familiarize the accounting treatment for price level changes.
- To understand the accounting procedures for amalgamation of companies in the nature of merger or purchase and at the time of liquidation.

UNIT I (20 hours)

Amalgamation, Absorption and External reconstruction.

UNIT II (16 hours)

Consolidated final statement of Holding companies and subsidiary companies (Inter company owing excluded) – treatment of dividend.

UNIT III (15 hours)

Final statements of Banking companies (As per New provisions).

UNIT IV (10 hours)

Liquidation - Statement of affairs(only theory) and Liquidator's Final statement of Account.

UNIT V (14 hours)

Final statements of Insurance companies (As per New provisions).

RECOMMENDED BOOKS

1. T.S. Reddy and A. Murthy, Corporate Accounting, Margham publications, Chennai.
2. M.C. Shukla and J.S. Grewal, Advanced Accounts, New Delhi, S. Chand and Company.

REFERENCE BOOKS

1. R.L. Gupta and M. Radhaswamy Advanced Accounts New Delhi, sultan Chand.
2. S.P. Jain and K.L. Narang Advanced Accounts Ludhiana Kalyani Publishers.

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
Section C	**Essay** Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL				**100**

Distribution of Questions :

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	1	1
	Unit – 2	2	
	Unit – 3	2	1
	Unit – 4	1	2
	Unit – 5	1	1
Section B	Unit – 1	1	1
	Unit – 2	1	1
	Unit – 3		1
	Unit – 4		1
	Unit – 5	1	
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit - 5		

CORE 12
BUSINESS TAXATION

SUBJECT CODE: 19UBBA314	**THEORY**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 4**	**NO.OF HOURS PER WEEK: 5**

(Common to B.Com (AF), B.Com (BM), BBA)

COURSE OBJECTIVES:

- To familiarize students with the basic concepts of Indirect Taxes and Customs Act
- To enable the students to understand the concept and procedure for computation of GST.

UNIT I: (10 Hours)

History of Taxation – Elements of Tax – Objectives of Taxation – Canons of Taxation – Tax System in India – Classification of Taxes.

UNIT II: (15 Hours)

Customs Act 1962 – Definition, Concepts and Scope – Levy and Collection of Customs Duty – Classification of Goods – Assessment of Duty – Valuation of Goods under Customs Act – Prohibition on Importation & Exportation of Goods – Demand and Recovery of Customs Duty – Clearance of Goods – Baggage.

UNIT III: (15 Hours)

Introduction to GST - Meaning – Need – Benefit – Types – GST Council – Applicability – Exclusions.Good exempted from GST – Services exempted from GST – Powers to grant Exemption from tax

UNIT IV: (15 Hours)

Introduction to taxable events under GST – Concepts of Supply – Types of Supply – Composite Supply – Mixed Supply – Composite Levy - Introduction to value and time of supply - Time of Supply of Goods – Time of Supply of Service – Value of Supply and its Provision

UNIT V: (20 Hours)

Introduction to registration under GST –Time limit – Persons liable for Registration – Persons not liable for Registration – Compulsory Registration – Procedure – Cancellation and Revocation GST Returns – Returns under GST- Assessment and Tax Payment under GST - GST Audit.

RECOMMENDED BOOKS

1. T.S.Reddy & Y.Hariprasad Reddy, Business Taxation , Margham Publications, 2018.
2. ICAI – Indirect Tax Study Material, 2018.

REFERENCE BOOKS

1. Dr.Vinod K Singhania, Monica Singhania, Students Guide to Income Tax, TaxmannPublicationsPvt Ltd., New Delhi.
2. GirishAhiya, Dr. Ravi Gupta, Systematic Approach to Income Tax and CST, Bharat Law HousePvt. Ltd. New Delhi.
3. Dr.Sanjeev Kumar, Systematic Approach to Indirect Taxes with Practical problems and solutions,Bharat Law House Pvt. Ltd., New Delhi.

E-L EARNING RESOURCES

1. http://www.idtc.icai.org/gst.html
2. http://idtc.icai.org/gst-topic-wise-study-material-list.html

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	3	-	2	-	1	-
II	3	-	1	-	1	-
III	2	-	1	-	2	-
IV	2	-	1	-	1	-
V	2	-	2	-	1	-
TOTAL	12	-	7	-	6	-
	Section-A 12		**Section-B 7**		**Section –C 6**	

ALLIED: 4 BUSINESS STATISTICS AND O.R.-II

SUBJECT CODE: 19UMAT343	**THEORY & PROBLEMS**	**MARKS : 100**
SEMESTER: IV	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 6**

(COMMON TO B.B.A, MM,BM AND ISM)

COURSE OBJECTIVE:

- To introduce basic concepts of statistics and understand the statistical techniques used for business data analysis.
- To give an insight into operation research techniques used in business for critical decision making.

UNIT - I: (18 Hours)

Time Series Analysis – Secular trend: Graphic or free hand method, Method of semi average, Moving average and Method of least squares to fit a straight line-Seasonal variation: Method of simple average only. Chapter 10

UNIT - II: (18 Hours)

Index Numbers: Simple aggregative, simple average of price relative method, weighted average of price relative method and weighted aggregative method – Fixed and Chain base Index – Cost of Living Index. Chapter 9

UNIT - III: (18 Hours)

Sampling Techniques – Types of Sample and Sampling procedures – Tests of Significance – t, Chi –square test only**.** Chapter 16 and 17

UNIT - IV: (18 Hours)

Assignment Problems: Minimisation, Maximisation case in assignment problem. unbalanced assignment problem. Chapter 8 -Section-8.1 to 8.7

UNIT - V: (18 Hours)

Transportation Problems: North West Corner Method (NWCM) – Lowest Cost Entry Method (LCM), Vogel's Approximation Method (VAM) and MODI Method.
Chapter 7 Section -7.1,7.2,7.4,7.5.

CONTENT AND TREATMENT AS IN

1. Business Statistics – S.P.Gupta and M.P.Gupta,Sultan Chand &Sons, Sixteenth Edition[Units I,II and III]
2. Resource Management Techniques-Prof V.Sundaresan ,K.S.Ganapathy Subramanian, K.Ganesan,A.R Publications,Ninth Edition. [Units IV and V]

REFERENCE BOOKS

1. Elementary Statistical Methods-Dr.S.P.Gupta, Sultan Chand &Sons,Eighteenth Edition
2. Operations Research – Hira and Gupta, S. Chand.
3. Operations Research – Handy and A. Taha, Macmillan Publishers

Web Reference:

1. https://www.easycalculation.com/tutorial.php
2. http://people.brunel.ac.uk/~mastjjb/jeb/or/contents.html

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any **10** out of 12questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any **5** out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 24	10	**40**
TOTAL MARKS				**100**

Distribution of Questions :

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	1
	Unit – 2	1	2
	Unit – 3	2	
	Unit – 4	1	1
	Unit – 5	1	1
Section B	Unit – 1		1
	Unit – 2		2
	Unit – 3		1
	Unit – 4		2
	Unit – 5		1
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit - 5		2

DEPARTMENT OF COMPUTING SKILLS

COURSE COMPONENT: Soft Skill – Computing Skills

SUBJECT CODE: 19UGSL404	**PRACTICAL**	**MARKS :100**
SEMESTER : IV	**CREDIT :2**	**NO.OF.HOURS PER WEEK :**

(For the following UG Departments)

SHIFT –I:

B.A. (Economics), B.A. (Defence and Strategic Studies), B.Sc. Mathematics, B.Sc. Physics, B.Sc. Chemistry, B.Sc. Zoology, B.Sc. Plant Biology and Plant Biotechnology, B.Com (General), B.Com (Corporate Secretaryship)

SHIFT –II:

BBA, B.Sc. Visual Communication, B.Com (General), B.Com (Accounting & Finance), B.Com (Corporate Secretaryship), B.Com (Information System Management), B.Com (Banking Management) and B.Com (Marketing Management)

COURSE OBJECTIVES

- The major objective in introducing the Computer Skills course is to impart training for students in Microsoft Office which has different components like Ms word, MS Excel, Ms Access, Power point etc., at two levels based on their knowledge and exposure.
- It provides essential skills for the user to get adapted to any work environment, as most of the systems in any workplace have Ms Office installed for their day to day activities. The course is highly practice oriented rather than regular class room teaching

UNIT I

Word Processing – Open, Save and close word document; Editing text- tools, formatting, bullets; Spell Checker; Navigating in word – keyword, Mouse; document formatting- paragraph alignment, indentation, headers and footers, numbering; printing- preview, options

UNIT II

Spreadsheets – MS Excel – opening, entering text and data, formatting, navigating; Formulas – entering, handling and copying; Charts –creating, formatting and printing, header and footer, centering data, printing.

UNIT III

Presentations – Power point – exploring, creating and editing slides, inserting tables and charts – Special effects – Clip Art, creating and drawing shapes, inserting multimedia content – Presentations – planning, animation, handouts, slideshow.

Unit VI

Networks – Internet Explorer- components; www – working, browsing, searching, saving – Bookmark – favorite, create, delete – Printing a web page; email- creating, receiving, reading and sending messages

UNIT V

HTML – Defining HTML paragraph and spacing – HTML styles, that include Background color – Text color - Text Fonts – Text that includes Bold, Italic, Underline, Superscript and Subscript.

Note:*Unit II to Unit V needs exposure thru Practicals*

REFERENCES:

1. Introduction to Computers – Peter Norton, Tata McGraw HillMicrosoft 2003 – Jennifer Ackerman Kettell, Guy Hat-Davis, Curt Simmons, Tata McGraw Hill

SEMESTER – V

CORE 13 - COST ACCOUNTING

SUBJECT CODE: 19UCBM314	**THEORY & PROBLEMS**	**100 MARKS**
SEMESTER: V	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES:

- To enlighten the students on the importance of cost ascertainment reduction and control.
- To teach the method of arriving at cost and thereby reconciling the same with Financial accounts.
- To teach the students to calculate the element-wise and the total cost of product and services.

UNIT I

Nature and scope of Cost Accounting, Cost analysis, concepts and Classifications. Installation of costing systems, cost centres and profit centers.

UNIT II

Cost sheets, tenders and quotations. Reconciliation of cost and financial accounts.

UNIT III

Material purchase control, Level, aspects, need and essentials of material control. Stores control – Stores Department, EOQ, Stores records, ABC analysis, VED analysis. Material costing – Issue of materials – FIFO, LIFO, HIFO, SAM, WAM, Market price, Base stock method and standard price method.

UNIT IV

Labor cost – Computation and control. Time keeping, Methods of wage payment – Time rate and piece rate system- Payroll procedures-Idle time and over time-Labour turnover.

UNIT V

Overheads – Classification, Allocation, Apportionment and Absorption. Accounting and control of overheads – Manufacturing, Administration, Selling and Distribution (Primary and Secondary Distribution) Machine Hour Rate.

REFERENCE BOOKS

1. Jain S.P. and Narang K.L. – Cost Accounting.
2. Khanna B.S., Pandey I.M. Ahuja G.K. and Arora M.N. – Practical costing.
3. T.S. Reddy and Y. Hariprasad Reddy – Cost Accounting
4. N.K. Prasad and V.K. Prasad – Cost Accounting.
5. Saxena and Vashist – Cost Accounting.
6. Hansen / Mowen – Cost Management Accounting and Control.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer ANY 10 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
	TOTAL MARKS			**100**

Distribution of Questions

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	1
	Unit – 2	2	
	Unit – 3	1	2
	Unit – 4	1	1
	Unit – 5	1	1
Section B	Unit – 1	1	1
	Unit – 2	1	1
	Unit – 3		1
	Unit – 4		1
	Unit – 5		1
Section C	Unit – 1	1	
	Unit – 2		1
	Unit – 3		1
	Unit – 4		
	Unit - 5		1

CORE 14 – INCOME TAX LAW & PRACTICE – I

SUBJECT CODE : 19UCOM320	**THEORY& PROBLEMS**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common to B.COM(A&F)

COURSE OBJECTIVES

- To familiarize students with the basic concepts of Income Tax.
- To enable the students to compute income under various heads of income.

UNIT I (15 Hours)

Meaning and features of income –Important definitions under the Income Tax Act – Tax Rates of Individual Assesse – Residential status - Scope of total income – Capital and revenue –Incomes exempt from tax. **(Simple problems only)**

UNIT II (25 Hours)

Heads of income - Salaries – Allowances – Perquisites and their valuations - Deductions from salary – Gratuity – Pension – Commutation of pension – Leave Salary – Profits-in-lieu of salary - Provident funds – Deductions under section 80C. **(Simple problems only)**

UNIT III (20 Hours)

Income from House property – Definition of annual value – Deductions from annual value – Computation of income under different circumstances.**(Simple problems only)**

UNIT IV (15 Hours)

Income from Business or Profession -Allowable and not allowable expenses –General deductions – Provisions relating to depreciation – deemed business profits – Undisclosed Income / Investments - compulsory maintenance of books of accounts – audit of accounts of certain persons - special provision for computing incomes on estimated basis – Computation of income from business or profession. **(Simple problems only)**

UNIT V (15 Hours)

Income Tax Authorities – Powers of the central Board of Direct Taxes (CBDT), Commissioners of Income Tax and Income Tax officers – Assessment Procedures – Self Assessment – Best Judgement Assessment – Income Escaping Assessment (Re assessment) - Advance payment of Tax – Meaning and Due dates – Deduction of Tax at source – Meaning - Filing of Return – Various Return Forms – Permanent Account Number (PAN) and its usage. **(Simple problems only)**

RECOMMENDED BOOKS

1. Income Tax Theory, Law & Practice – T.S. Reddy and Y Hariprasad Reddy Margham Publications.

REFERENCE BOOKS

1. Students Guide to Income Tax – Dr. Vinod K. Singhania, Taxman Publications Pvt. Ltd.
2. Income Tax Law & Accounts, Dr. Mehrotra&GoyalSahityaBhavan Publications.
3. Income Tax Law & Practice V.P. Gaur & D.B. Narang,Kalyani Publishers.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (Each in 50 words)	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions (Each in 300 words)	13-19	6	**30**
Section C	**Essay** Answer any 2 out of 4 questions (Each in 1200 words)	20-23	20	**40**
TOTAL				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	1	1
	Unit – 2	1	1
	Unit – 3	2	1
	Unit – 4	2	1
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2		2
	Unit – 3		2
	Unit – 4		1
	Unit – 5	1	
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		
	Unit - 5	1	

CORE 15 - BANKING LAW AND PRACTICE

SUBJECT CODE: 19UCBM319	**THEORY**	**100 MARKS**
SEMESTER: V	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

COURSE OBJECTIVES:

- To expose the students to various concepts in the Banking Law
- To make the students understand the working of the banks and the banking instruments used in the system.

UNIT -I (15 Hours)

Banking Regulation Act, 1949 (Definition of Banking, Licensing, opening of branches, Functions of Banks, Inspection) – Role of RBI and their functions

UNIT -II (20 Hours)

Definition of Banker-Definition of Customer-General relationsip between Banker and customer –Rights and duties of banker-Different types of customers-Customer identification and KYC norms. Debt Recovery Act- Definitions and objectives - Establishment of Tribunal and Appellate Tribunal - Jurisdiction, Powers and Authority of Tribunals - Procedure of Tribunals - Recovery of Debt Determined by Tribunal - Miscellaneous

UNIT –III (15 Hours)

Negotiable instruments: Promissory notes- Bills of Exchange-Cheques, Crossing, Endorsement-Material alteration-Paying Banker-Rights and Duties;Staturory protection-Dishonour of cheques-Role of Collecting Banker.

UNIT-IV (15 Hours)

E-Banking-Forms of E-Banking-Features and benefits of online banking-Importance of E-Banking in business-Development in E-Payments-Key benefits of internet banking-Drawbacks of internet banking-Internet banking frauds-Prevention of online frauds-RBI guidelines-Mobile banking-Services offered by mobile banking-Top 10 mobile wallets in India-Electronic fund transfer- Types.

UNIT-V (10 Hours)

Customer grievance –Grievance redressal-Banking Ombudsman-Banking Ombudsman scheme-Procedure of redressal of grievance-Appointment of Banking Ombudsman-Powers and duties of Ombudsman-Grounds of Complaint-Procedure for filing complaint-Appeal against the award-Redressal for customer complaints against banks-steps for complaints.

PRESCRIBED TEXT BOOKS:

1. Banking Law, Theory and Practice – Sundaram and Varshney – Sultan Chand Co.,
2. Banking and Financial Systems – B. Santhanam ,Margham Publishers

REFERENCE BOOKS

1. Banking Law, Theory and Practice- S.N. Maheswari, Kalyani Publications.
2. Indian Banking – Parameswaran – S.Chand and Co,
3. Banking Law Theory and Practice – Tanon
4. Banking Law Theory and Paractice – Sherlaker&Sherlaker.
5. Banking Regulation Act, 1949
6. Negotiable Instruments Act, 1881
7. Banking Theory Law and Practice, Dr. S. Guruswamy, Fourth Edition

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
				100

Distribution of questions :

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	3	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

CORE 16–PRACTICAL AUDITING

SUBJECT CODE : 19UCOM318	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common to B.COM(A&F) and BM)

COURSE OBJECTIVES

- To appreciate the role of auditing in business.
- To understand the steps involved in the audit of account.
- To familiarise with provisions of the Companies Act relating to the appointment, conduct and liabilities of an audit.
- To understand the new EDP audit in tune with the latest adoption of technology in businesses.

UNIT I (20 Hours)

Meaning and definition of auditing – Distinction between auditing and accounting – objectives – Advantages and limitations of audit – scope of audit – classifications of audits – Audit planning, meaning – Audit programme, meaning, objectives and contents – audit note book, contents, usefulness of audit note book – Audit working papers, meaning. Ownership and custody – Test checking and Routine checking, meaning- Internal control, meaning , definition, objectives, Technique for evaluation of internal control system – Internal check, meaning, objectives, difference between internal control, Internal check and internal audit.

UNIT II (20 Hours)

Vouching, meaning and definitions, objectives – Trading transactions – audit of ledger- Scrutinizing of ledgers - vouching of cash receipts and payments. Vouching of outstanding assets and liability – verification, meaning objectives and process – valuation of assets and liabilities- Distinction between verification and valuation.

UNIT III (20 Hours)

Appointment of auditors – appointment of first auditor – appointment by central government – filling of casual vacancy – Appointment by special resolution – Re-appointment and compulsory re-appointment – ceiling on the number of Auditorship - Removal of auditor – Remuneration - auditors lien – qualification and disqualification

UNIT IV (15 Hours)

Duties of the company auditor – Rights and powers of auditors – different classes of auditors – Audit Report – Preparation and Presentation.

UNIT V (15 Hours)

EDP audit – meaning -Division of auditing in EDP environment – Impact of computerization on audit approach – online computer system audit – Types of online computer systems – audit around with the computers – procedure of audit under EDP system.

RECOMMENDED BOOKS

1. Practical Auditing – B.N. Tandon Sultan Chand and Co.,

REFERENCE BOOKS

1. Auditing – D.P. Jain KonarkPublishersPvt. Ltd.
2. Auditing, Principles and practice – Ravinder Kumar and virender Sharma, Eastern economy edition.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

INTER-DISCIPLINARY ELECTIVE I–Personal Investment Planning

SUBJECT CODE: 19UIDE316	THEORY	100MARKS
SEMESTER: V	CREDITS: 5	NO. OF HOURS PER WEEK: 6

COURSE OBJECTIVES:

- To understand the meaning and necessity of investment.
- To identify the investment opportunity in various areas

UNIT I - INTRODUCTION

Introduction about investment, Difference between investment, speculation and gambling- Features of investment- Importance of Investments- Types of Investors.

UNIT II - INVESTMENTOPPORTUNITIES – I

Meaning – Non- marketable financial assets, equity shares, preference shares, Debentures, Gilt Edged Securities, Post office savings deposits (Term deposits, MIS, KVP, NSC, NSS)

UNIT III - STOCK EXCHANGE AND NEW ISSUE MARKET

Meaning and definition of stock exchange- Introduction & Functions of SEBI– Listing of securities – Stock brokers – Sub brokers, Types of brokers – Types of speculators (Bull, Bear, Stag)- Meaning of NSE , BSE , OTCEI- Steps for opening a Demat Accout.

UNIT IV - INVESTMENT OPPORTUNITIES – II

Provident fund, Types of PF, Features of PPF, Unit trust of India - Bank deposits (Current, SB account, FD, RD) – Investment in precious objects- Investment based Insurance policies – Real estate- Mutual Funds, Definition, Types.- Investment in commodity trading.

UNIT V – PERSONAL INVESTMENT PATTERN

Analyzing the opportunities of investment applicable to the current scenario- Developing personal investment pattern for individuals.

REFERENCE BOOKS:

1. Study Material
2. Investment Management by L.Natarajan, Morgan publications,2007
3. Investment Management by Hiriappa, New age international publications,2008

WEBSITES:

1. www.personalfinance.byu.edu
2. www.halifax.co.uk./investments/pdfs/sw51813.pdf
3. www.occ.gov/publications/publications-by-type/comptrollers-handbook/invmgt.pdf

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
				100

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	3	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

SEMESTER VI

CORE 17 - INCOME TAX LAW &PRACTICE – II

SUBJECT CODE : 19UCAF314	**THEORY& PROBLEMS**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common to B.COM(A&F)

COURSE OBJECTIVES:

- To enable the students to compute income under various heads and also the total income subject to deductions.
- To familiarize students with the procedure of assessment and filing of return.

UNIT I (25 Hours)

Income under capital gains – Short term, long term capital gains – certain transactions not included as transfer – cost of acquisition – cost of improvement – Indexation of cost- Capital gains under different circumstances- Exempted capital gains- computation of capital gains.

UNIT II (15 Hours)

Income from other sources – their computation – grossing up – deductions in computing income under the head and other related provisions.

UNIT III (20 Hours)

Clubbing of Income – Deemed incomes – Provisions of the Act relating to clubbing of income – Set off - Carry forward and set off of losses.

UNIT IV (15 Hours)

Permissible deductions from gross total income – Sec. 80C, 80CCC, 80CCCD, 80DD, 80DDB, 80E, 80G,80GG,80GGA, 80U.

UNIT V (15 Hours)

Assessment of Individuals (Covering incomes under Salary, House Property, Business or Profession, Capital gains, Income from other sources including deductionsunderSec. 80C, 80CCC, 80CCCD, 80DD, 80DDB, 80E, 80G,80GG,80GGA, 80U) – Computation of Tax liability.

RECOMMENDED BOOKS

1. Income Tax Theory, Law & Practice – T.S. Reddy and Y Hariprasad Reddy Margham Publications.

REFERENCE BOOKS

1. Students Guide to Income Tax – Dr. Vinod K. Singhania, Taxman Publications Pvt. Ltd.
2. Income Tax Law & Accounts, Dr. Mehrotra&GoyalSahityaBhavan Publications.
3. Income Tax Law & Practice V.P. Gaur &D.B. Narang, Kalyani Publishers.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
Section C	**Essay** Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
	TOTAL			**100**

Distribution of Questions :

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	1	1
	Unit – 2	1	1
	Unit – 3	2	1
	Unit – 4	2	1
	Unit – 5	1	1
Section B	Unit – 1	1	1
	Unit – 2		1
	Unit – 3		2
	Unit – 4		1
	Unit – 5		1
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		
	Unit – 4		1
	Unit - 5		1

CORE 18- MANAGEMENT ACCOUNTING

SUBJECT CODE : 19UBBA305	**THEORY & PROBLEM**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common to B.Com (MM), B.Com (ISM) B.B.A, A&F)

COURSE OBJECTIVES

- To understand and analyze financial statement to help in managerial decision making.
- To prepare statements like Cash Flow, Fund Flow, Budgets etc., so as to assist the managements to take meaningful and correct decisions.
- To learn the various tools and techniques in cost control like variance analysis and budgetary control.

UNIT I (10 Hours)

Management accounting – Meaning, nature, scope and functions, need, importance and limitations – Management Accounting vs. Cost Accounting. Management Accounting vs. Financial Accounting.

UNIT II (15 Hours)

Analysis and Interpretation of financial statements – Nature, objectives, essentials and tools , methods – Comparative Statements, Common Size statement and Trend analysis.

UNIT III (20 Hours)

Ratio Analysis – Interpretation, benefits and limitations. Classification of ratios-Liquidity, Profitability, turnover ratios, construction of Balance sheet(simple problems only)

UNIT IV (20 Hours)

Fund flow analysis-meaning of funds, importance and uses of funds flow statement-preparation of working capital statement-Funds from operations-Funds flow statements(simple problems only)

UNIT V (25 Hours)

Cash Flow analysis – meaning of cash and cash equivalents-preparation of cash flow statement as per AS-3, Fund flow analysis Vs. Cash flow analysis, Budgets and budgetary control-meaning, importance, merits and demerits, types of budgets-Production, cash and flexible budget. (simple problems only)

RECOMMENDED TEXTS

1. T. S. Reddy and Hari Prasad Reddy, Management Accounting,2014-MarghamPulication.
2. SN Maheswari, Management Accounting - Sultan Chand &Sons.

REFERENCE BOOKS

1. RSN Pillai &Bagavati, Management Accounting - S Chand & Co Ltd - NewDelhi.
2. Horngren Sunderu Stratton, Introduction to Management Accounting - PearsonEducation
3. Dalston L. Cecil and Jenitra L. Merwin, Management Accounting,Learn Tech press, Trichy, 3rd Edition2015

Web References:

1. **http://pakaccountants.com/courses/managementaccounting/**
2. **http://www.elearnuk.co.uk/course/management-accounting**

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	1	1
	Unit – 3	1	2
	Unit – 4	1	1
	Unit – 5	1	2
Section B	Unit – 1	1	
	Unit – 2	1	1
	Unit – 3		1
	Unit – 4		1
	Unit – 5		2
Section C	Unit – 1		
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit - 5		1

CORE 19- CREDIT AND RISK MANAGEMENT IN BANKING

SUBJECT CODE : 19UCBM323	THEORY	MARKS : 100
SEMESTER: VI	CREDITS: 4	No. OF HOURS PER WEEK: 6

COURSE OBJECTIVES:

- To learn about the various forms of credit extended by banks and the security system prevalent in safeguarding from NPAs.
- To focus on the credit risk and the governance of credit risk management and analyses

UNIT-I (25 Hours)

Bank credit – Basic Principles and Approach – Three C's – Purpose of lending – Security aspects – business experience/Management – Market – Purpose Trading – Manufacturing Service, Agriculture, Personal – Security : Primary – Collateral – Stock, Machinery, Land and Building – Guarantee – Different types of Mortgages – Management/Experience : Business Experience – Technical Qualification – Professional Management – Market : Local – National – Global – Types of Credit – Demand Loan – Cash Credit – Overdraft – Term Loan – Basic Characteristics and difference between the four – Legal and Regulatory Aspect – Legal Documents – Loan Documents – RBI Directives – Various Committees – Tandon – Chore, Nayak and such other committees – Brief details.

UNIT -II (13 Hours)

Lending to Different Customers – Individuals – Partnership – Limited companies – Trust – Association – Legal aspects – Documents to be called for.

UNIT -III (25 Hours)

Loan Processing – Sanctioning – Monitoring – Recovering Commercial Loans(Activity Based) – Government Sponsored Loans (mostly agricultural, Rural and Weaver section) – Trading : small – Retail – Wholesale – Chain/Supermarket – Manufacturing : Industrial Advances – Service Transport – Telecommunication – Hospital – Hotel. Infrastructure : Power – Petrol – Port – Agriculture: Crop – Plantation – Well – Motor Pump set – Tractor etc. Miscellaneous : Self – Employed.Business loan(Borrower Based) – Small Business :Self Employed – Transport – Trade – Hotel – Others – Approach – Assessment – Supervision – Recovery Medium and Large Scale: Small Scale Industries – Corporate – Approach – Assessment – Sanction –Disbursement – Follow Up – Recovery Agriculture : Small, Medium and Big Farmers – Short term and Medium term Loans – Corporate Borrowers.Government sponsored : Priority sector lending – Lead Bank Scheme – Government sponsored loan to Weaver section – Subsidy.

UNIT- IV (15 Hours)

Corporate Finance – Project Finance – Appraisal – Assessment – Documentation – Disbursement – Monitoring – Follow Up – Review – Creation of Charge – Analysis of Balance sheet – Profit and Loss account – Cash flow and Fund flow working – Project approach

UNIT V (12 Hours)

NPA – Causes and Remedial Measures – Management of NPA's – Debt Recovery Tribunals – Asset Reconstruction Fund.

PRESCRIBED TEXTS

1. Indian Financial System and Commercial Banking – IIB
2. Special and preferred sector Finance – IIB
3. Management and Accounting and Financial Management – IIB

REFERENCE BOOKS

1. Prudential Accounting Norms and Audit of Banks – Naganatham M. and Jayaraman .
2. Annual Reports of RBI

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
				100

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	3	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

ELECTIVE II– MANAGEMENT OF HUMAN RESOURCES

SUBJECT CODE : 19UCAF316	THEORY	MARKS : 100
SEMESTER : VI	CREDITS : 5	No. OF HOURS PER WEEK : 6

(Common To B.Com (A&F), BM)

COURSE OBJECTIVES

- To understand the nature of human resources and its significance to the organization.
- To familiarize students with the various techniques in HRM that contributes to the overall effectiveness of an Organization.
- To bring to the attention of the students the latest trends in managing human resources in an organization.

UNIT I (20 Hours)

Nature and scope of Human Resources Management – Differences between personnel management and HRM – Environment of HRM – Human resource planning – Recruitment – Sources of Recruitment –Selection – Methods of Selection – Process of Selection - Uses of various tests – Interview techniques in selection and placement.

UNIT II (20 Hours)

Induction – Training – Methods – Techniques – Identification of the training needs – Training and Development – Performance appraisal – Transfer – Promotion and termination of services – Career Development.

UNIT III (20 Hours)

Remuneration – Components of remuneration – Incentives – Benefits – Motivation –Abraham Maslow's theory, Mc Gregor's "X" , "Y", William Ouchi's "Z" Theory - Herzberg's two factor theory and Vroom's valence expectancy theory – Mc Clelland's Need Achievement theory.

UNIT IV (15 Hours)

Labour Relation – Functions of Trade Unions – Forms of collective bargaining-Workers participation in management – Types and effectiveness.

UNIT V (15 Hours)

Industrial Disputes and Settlements (Laws Excluded) – Settling Industrial Disputes in India – Arbitration – Adjudication – Settlement.

PRESCRIBED TEXTS

1. Essentials of Human Resource Management and Industrial Relations- P.Subba Rao – Himalaya Publishing House- 2010
2. Human Resource Management – L M Prasad- Third Edition Reprint 2014 – Sultan Chand & Sons.
3. Human Resource Management – Ashwathappa -5th Edition – McGraw Hill

REFERENCE BOOKS

1. Human Resource Management – Garry Deseler -11th Edition – Pearson International
2. Human Resource Management- By DrCharmine E.J. Härtel , Dr Yuka Fujimoto – 2nd Edition

Web References:

1. https://www.wiziq.com/tutorials/human-resource-management
2. https://www.sophia.org/tutorials/introductory-human-resource-concepts

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	3	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit –5	1	

ELECTIVE 3 – PROJECT

COURSE OBJECTIVES

- To give an opportunity to students to have an experiencial learning through outside classroom activity.
- To make the students learn life values such as learning from others, listening to others, teamwork,commitment,co-ordination, meeting deadlines,sharing, adapting etc. as the project is done in groups.
- To add value through practical experience in the relevant field of project .

MODUS OPERANDI:

1. A group of 3 students will be assigned a project in the beginning of the final year in the field of banking, finance, insurance or related areas.

2. The students would be asked to prepare the theoretical content and practical component(Questionnaire).

3. The Questionnaire would be corrected by the respective faculty-in-charge.

4. The same will be administered to the employees of the organisation in the relevant field of project work.

5. Based on the filled-in questionnaire, the students would do data entry,classify,tabulate and analyse the results to conclude on the findings in the area chosen for study.

6. The project report shall be submitted to the college before the due date prescribed by the department and the college has to certify the same and submit to the OCOE 15 days prior to the commencement of the End Semester Examinations.

7. The project shall be evaluated through internal project(50 marks) and external Viva-voce examination(50 marks).

8. The external examination shall be conducted by the panel of examiners suggested by the Controller of Examinations from time to time.

9. Those who fail to present the project report will have to redo the project work and submit to the college for the next external examination.

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A- Grade' by NAAC
(Affiliated to the University of Madras)

BACHELOR OF COMMERCE

Regulations and Syllabus

(For the Candidates admitted from 2019 -2020 and thereafter)

GURU NANAK COLLEGE (AUTONOMOUS)

B.COM (GENERAL) SEMESTER SYSTEM WITH CREDITS - COURSE STRUCTURE 2019-2020

SEM	PART	SUBJECT NAME	HOURS	CREDITS
I	I	LANGUAGE	6	3
	II	ENGLISH-I	4	3
	III	CORE PAPER 1-FINANCIAL ACCOUNTING –I	6	4
		CORE PAPER 2- BUSINESS COMMUNICATION	5	4
		ALLIED PAPER 1-ECONOMICS FOR BUSINESS DECISION	5	5
	IV	NON MAJOR ELECTIVE- RETAIL MARKETING/ BASIC TAMIL	2	2
		SOFT SKILL-ENGLISH	2	3
		TOTAL	***30***	***24***
II	I	LANGUAGE	6	3
	II	ENGLISH-II	4	3
	III	CORE PAPER 3-FINANCIAL ACCOUNTING –II	6	4
		CORE PAPER 4- PRINCIPLES OF MANAGEMENT	5	4
		ALLIED PAPER 2-INDIAN ECONOMIC DEVELOPMENT	5	5
	IV	NON MAJOR ELECTIVE- FUNDAMENTALS OF INSURANCE /BASIC TAMIL	2	2
		SOFT SKILL-ENGLISH	2	3
		TOTAL	***30***	***24***
III	III	CORE PAPER 5-CORPORATE ACCOUNTING –I	6	4
		CORE PAPER 6- BUSINESS LAWS	5	4
		CORE PAPER 7- BANKING THEORY LAW AND PRACTICE	6	4
		CORE PAPER 8- MARKETING	5	4
		ALLIED PAPER 3-BUSINESS STATISTICS	6	5
	IV	SOFT SKILL- PERSONALITY ENRICHMENT	2	3
		TOTAL	***30***	***24***

GURU NANAK COLLEGE (AUTONOMOUS)

B.COM (GENERAL) SEMESTER SYSTEM WITH CREDITS - COURSE STRUCTURE 2019-2020

SEM	PART	SUBJECT NAME	HOURS	CREDITS
IV	III	CORE PAPER 9-CORPORATE ACCOUNTING –II	6	4
		CORE PAPER 10- COMPANY LAW	5	4
		CORE PAPER 11- GOODS AND SERVICES TAX AND CUSTOMS LAW	5	4
		CORE PAPER 12- FINANCIAL SERVICES	5	4
		ALLIED PAPER-4 –ADVANCED STATISTICAL METHODS	6	5
	IV	ENVIRONMENTAL STUDIES	2	2
		SPECIAL SKILL-COMPUTING SKILL	1	3
		TOTAL	***30***	***26***
V	III	CORE PAPER 13-COST ACCOUNTING	6	4
		CORE PAPER 14- PRACTICAL AUDITING	5	4
		CORE PAPER 15- ENTREPRENEURAL DEVELOPMENT	5	4
		CORE PAPER 16- FINANCIAL MANAGEMENT	6	4
		ELECTIVE 1-INCOME TAX LAW & PRACTICE-I	6	5
	IV	VALUE EDUCATION	2	2
		TOTAL	***30***	***23***
VI	III	CORE PAPER 17- ADVANCED COST ACCOUNTING	6	4
		CORE PAPER 18- MANAGEMENT ACCOUNTING	6	4
		CORE PAPER 19- BUSINESS ENVIRONMENT	6	4
		ELECTIVE 2-INCOME TAX LAW & PRACTICE-II	6	5
		ELECTIVE 3-HUMAN RESOURCE MANAGEMENT	6	5
	IV	COMMUNITY SERVICE		1
		TOTAL	***30***	***23***
		GRAND TOTAL		***144***

SEMESTER I

Core paper – 1 **FINANCIAL ACCOUNTING – I**

Objectives:

(1) To develop the ability in understanding the basic accounting concepts and principles of the accounting process.

(2) To familiarise the students with methods of preparing final accounts of sole proprietorship concern.

Unit -I

Basic Accounting concepts – Accounting process – Journals, Ledger and Preparation of Trial balance.

Unit-II

Final Accounts of sole traders – Common adjustments in the preparation of final accounts – Adjusting and closing entries.

Unit-III

Deprecation – Meaning, causes, types – straight line method and written down value method (Change in method excluded)

Unit-IV

Insurance claims, claims of stock destroyed including Average Clause.

Unit-V

Accounts from incomplete records (Single Entry) - Meaning, Features, Defects, Differences between Single Entry and Double Entry System – Statement of Affairs method – Conversation method.

Proportion of theory and problems: 20% and 80%

References:

1. R. L. Gupta & M. Radhaswamy – Advanced Accountancy, Sultan Chand , New Delhi.
2. R.L Gupta & V.K. Gupta – Financial Accounting – Sultan Chand Publishing, New Delhi.
3. T.S.Reddy & A. Murthy, Financial Accounting, Margum Publications, Chennai.
4. Dr.S.Manikandan ,Financial Accounting, Scitech Publications, Chennai.

https://books.google.co.in/books?isbn=8126909935
https://books.google.co.in/books?isbn=9966254455
https://books.google.co.in/books?isbn=0470635290

Core paper – 2 BUSINESS COMMUNICATION

Objectives:

1. To enable the students to acquire effective oral and written communication skills.
2. To enlighten the students in drafting Letters, Circulars, Orders and Reports relevant to Business.

Unit -I

Business Communication – Meaning and Definition – process – need – Methods: verbal, non-verbal – channels of communication: formal, in-formal – dimensions of communication: upward, downward, horizontal,diagonal – Principles of Effective Communication – Barriers to Communication.

Unit -II

Business Letters – Lay out – Kinds of Business Letters – Preparation of Bio-Data/Resume – Interview – Appointment- Joining Report – Promotion – Transfer.

Unit – III

Business Letters – Enquiries – Replies- Orders – Sales Letters – Circulars-Complaints.

Unit –IV

Bank Correspondence – Insurance Correspondence – Correspondence with shareholders, Directors.

Unit – V

Report Writing – Agenda – Minutes of the Meeting – Modern forms of Communication.

References:

1. C.B.Gupta - Basics of Business Communication, Sultan Chand & Sons.
2. Rajendra Pal- Basics of Business Communication, Sultan Chand & Sons.
3. Dr. Marlene Morais and John Joseph Adaikalam- Business Communication.
4. S.Sankaran – Business Communication, Margham Publications.

https://books.google.co.in/books?isbn=130556023X
https://books.google.co.in/books?isbn=0618990488
https://books.google.co.in/books?isbn=0538466251

Allied Paper – I **ECONOMICS FOR BUSINESS DECISION**

Objectives:

(1) To enable the students to understand the concepts and theories of Business Economics

(2) To enable the students to learn how the economic principles are applied in business decision making process.

Unit – I

Definition- Nature ,Scope and importance of Business Economics – Role of Business Economist – Positive and Normative Economics.

Unit – II

Meaning of demand – Distinctions of demand – Law of Demand – Elasticity of demand – Supply concepts.

Unit – III

Consumer Behaviour Theories- Law of Diminishing Marginal Utility - Equi- Marginal Utility- Indifference Curve- Properties

Unit – IV

Production – Factors of Production - Production theories - Law of Variable Proportion, Law of Returns to Scale.- Iso Quants

Unit - V

Pricing – Objectives – Factors influencing pricing – Classification of Pricing – Break Even Analysis.

References:

1. Business Economics – E. Dharmaraj – Scitech publications
2. S.Shankaran , Business Economics – Margham publications Ch -17
3. A.L. Ahuja , Business Economics – RBSA publishers Jaipur – 03

https://books.google.co.in/books?isbn=0470021128
https://books.google.co.in/books?isbn=1451602391
https://books.google.com/books?isbn=0333961110

NME : BASICS OF RETAIL MARKETING (NON – MAJOR)

Objectives:

1. To expose the students to various trend in retail business.
2. To provide the basic understanding to broad set of specialized activities and techniques in managerial retail business.
3. To motivate the students to take up retailing business as a carrier.

Unit – I

Retailing-Definition-Retail marketing – Growth of organized retailing in India – Importance of Retailing.

Unit- II

Functions of Retailing – Characteristics of Retailing –Types of Retailing – Store Retailing – Non store Retailing.

Unit – III

Retail Location Factors – Branding in Retailing – Private Labelling – Franchising concept.

Unit – IV

Communication tools used in retailing – sales promotion, E- Retailing – Window Display.

Unit – V

Supply Chain Management – Definition – Importance – Role of information technology in Retailing.

References:

1. Gilbert Pearson , Retail Marketing Education Asia , 2001
2. Vedamani Gibson , Retail Marketing Jaici Publishing House New Delhi– 2000
3. Herman & Evans Retail Management Phi , New Delhi -2001
4. Michael Levy and Barton A Weitz , Retail Management Tata Mc , Graw hill, New Delhi - 2001
5. Dr. L. Natarajan , Retail Marketing , Margham Publication Chennai.

SEMESTER II

Core paper – 3 **FINANCIAL ACCOUNTING - II**

Objective:
To impart skills in accounting for various kinds of business transactions.

Unit -I - Hire Purchase System:
Meaning & features, legal provisions of Hire Purchase Act, calculation of Interest, Journal entries in the books of Vendee and Vendor, preparation of various ledger, in the books of hire purchaser and seller.

Unit -II - Branch Account:
Inland Branches: Dependent branches only and Ascertainment of Profit by Debtors method and Stock and Debtors System.

Unit-III - Departmental Account:
Departmental Accounts need, features, Basis for Allocation of Expenses, treatment of Inter - Departmental Transfer at cost or Selling Price-Treatment of Expenses that cannot be allocated – Preparation of departmental profit and loss.

Unit-IV - Reconstitution of Partnership Firms:
Admission of a Partner, Retirement and death of a partner including treatment of goodwill.

Unit-V - Accounting for Partnership Firms:
Dissolution of partnership firms including piecemeal distribution of assets.

Proportion of theory and problems: 20% and 80%

References:

1. R. L. Gupta & M. Radhaswamy – Advanced Accountancy, Sultan Chand , New Delhi.
2. R.L Gupta & V.K. Gupta – Financial Accounting – Sultan Chand Publishing, New Delhi.
3. T.S.Reddy & A. Murthy, Financial Accounting, Margum Publications, Chennai.
4. Dr.S.Manikandan ,Financial Accounting, Scitech Publications, Chennai.

https://books.google.co.in/books?isbn=8126909935
https://books.google.co.in/books?isbn=9966254455
https://books.google.co.in/books?isbn=0470635290

Core Paper –4 PRINCIPLES OF MANAGEMENT

Objectives:

1. To enable the students to appreciate the contribution made by management and learn towards the basic principles and functions of management.
2. To provide opportunities to apply the general function of management in day – to day managerial practice.

Unit – I

Management: Importance – Definition- Nature and Scope of Management Process – Role and Functions of a Manager – Levels of Management – Evolution of Management thoughts : Scientific Management – F.W.Taylor, Administrative Management – Henry Fayol, The Human Relationship Management School – Hawthorne Experiment .

Unit – II

Planning: Nature – Importance – Forms – Types – Steps in Planning – Objectives – Policies – Procedures and Methods – Natures and Types of Policies – Decision-making – Process of Decision-making – Types of Decision.

Unit- III

Organisation: Types of Organisations – Organisation Structure – Span of Control and Committees – Departmentalisation – Informal Organisation.

Unit- IV

Authority – Delegation – Decentralisation –Difference between Authority and Power – Responsibility – Recruitment – Sources, Selection, Training – Direction – Nature and purpose.

Unit- V

Co-ordination - Need, Type and Techniques and requisites for excellent Co- ordination – Controlling – Meaning and Importance – Control Process.

References:

1. C.B.Gupta, Management Theory & Practice -Sultan Chand & Sons - New Delhi.
2. L.M.Prasad, Principles & Practice of Management - Sultan Chand & Sons - New Delhi.
3. P.C. Tripathi & P.N Reddy, Principles of Managements - Tata Mc.Graw Hill - New Delhi.
4. Weihrich and Koontz, Management – A Global Perspective.
5. N.Premavathy, Principles of Management - Sri Vishnu Publication - Chennai.

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https://books.google.co.in/books?isbn=0754619842
https://books.google.co.in/books?isbn=05471484

Allied Paper- 2 **INDIAN ECONOMIC DEVELPOMENT**

Objectives:

(1) To enable the students to know about the major constituents of Indian Economy.
(2) To enhance the knowledge of the students to learn about the economic planning.

Unit- I

Economic growth and Economic Development-Features of economic development-Indicators of economic development-National Income - Basic concepts and computation of National Income

Unit-II

Major problems of Indian Economy-Poverty-Inequalities- Unemployment- Population-Causes , Consequences and Remedial measures to solve the problems .

Unit-III

Agriculture –Contribution to economic development- Green Revolution and its importance – Objectives of Land Reform measures-Food policy and Public Distribution System

Unit- IV

Industry-Types of Industries - Role of industries in economic development-Importance of Large Scale Industries – Small Scale Industries – Problems and Remedies.

Unit -V

Economic Planning - Five Year plans in India-Achievements and failures-Economic development under Five Year Plans

References:

1. I.C. Dingra, Indian Economy
2. Ruddar Datt & K.P.M. Sundharam, Indian Economy - S.Chand & Sons - New Delhi.
3. K.N. Agarwal, Indian Economy – Problem of Development of Planning - Wishwa Prakasan - New Age of International Ltd.
4. S.K.Misra & V.K.Puri, Indian Economy – Its Development - Himalaya Publishing House - Mumbai.
5. G. Maheshkumar, Indian Economy, AR Publications, Chennai.

https://books.google.co.in/books?isbn=0470021128
https://books.google.co.in/books?isbn=1451602391

https://books.google.com/books?isbn=0333961110

NME ELECTIVE: FUNDAMENTALS OF INSURANCE (NON MAJOR)

Objective:

To ensure the students to understand in the basic and fundamentals of insurance

Unit -1:

Origin and History of insurance – Meaning and Definition on Insurance – Features of Insurance Principles of Insurance – Objective and Advantage of Insurance - types of insurance

Unit- II

Insurance Organizations in India and Their Profile – Insurance Regulatory and Development Authority – Its Duties and Functions.

Unit -III

Meaning and Definition of Life Insurance – Its Features – Its Fundamental Principles Type of Policies in Life Insurance

Unit -IV

Meaning and Definition of Fire Insurance – its features. Its Fundamental Principles – Types of Policies in Fire Insurance

Unit- V

Meaning and Definition of Marine Insurance – its Features – Its Fundamental Principles – Types of Policies in Marine Insurance.

References:

1. A.MURTHY: Elements of Insurance
2. M.N.MISH : Insurance – Principles and Practice

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https://books.google.com/books?id=iNnuAAAAMAAJ
https://books.google.com/books?isbn=1533697442

SEMESTER III

Core Paper –5 CORPORATE ACCOUNTING – I

Objectives

1. To enable students to understand the accounting treatment relating to issue of shares and underwriting of shares.
2. To understand the procedure for internal reconstruction and capital reduction and valuation of Good will and shares .
3. To familiarize the students with the preparation of financial statement of banking companies

Unit –I

Issue of shares- forfeiture and re-issue of shares. Underwriting of shares-Determination of the liability of underwriters-Complete Underwriting-Partial Underwriting-Firm Underwriting.

Unit-II

Profit prior to incorporation- Liquidation of companies- order of payment- calculation of liquidator's remuneration- Preparation of Liquidators final statement of accounts.

Unit-III

Alteration of share capital-Internal reconstruction and reduction of capital-Valuation of Good will and shares-Methods of Valuation of Goodwill-Average profits method-Super profit method-Capitalization method-Methods of Valuation of shares-Net assets method-Yield method-Fair value method.

Unit-IV

Financial statement of banking companies- Preparation of profit and loss account -Balance sheet.

Unit-V

Accounting for price level changes -Social responsibility accounting-Human resource accounting- Mechanised Acconuting (Theory only).

Proportion of theory and problems: 20% and 80%

REFERENCES:

1. Corporate Accounting-T.S. Reddy & A.Murthy- Margham publishers.
2. Corporate Accounting-R.L.Gupta&Radhaswamy-Sultan chand &sons.New Delhi.
3. Advanced Accounting-M.C.Shukla&T.S.Grewal.
4. Advanced Accounting-S.P.Jain &K.L.Narang.Kalyani publishers.

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https://books.google.co.in/books?isbn=8120346270
https://books.google.co.in/books?isbn=8126908394

Core Paper – 6 **BUSINESS LAWS**

Objective:

To make the students understand the significant provisions of General Contract and Special Contracts.

Unit-I

Indian Contract Act – Formation – Terms of contract – Forms of Contract – Offer and acceptance – Consideration.

Unit-II

Persons Incompetent to contract – Free Consent – Agreements with unlawful object – Wagering agreements and Contingent contracts.

Unit-III

Performance of contract – Discharge – Remedies for breach of contract – Quasi contract.

Unit-IV

Sale of Goods Act-Formation of contract of sale-Passing of property in goods-Performance of contract of sale.

Unit-V

Conditions and warranties – Rights of unpaid seller.

References :

1. Business Laws- N.D. Kapoor , Sultan Chand and Sons
2. Business Laws – M.R. Sreenivasan , Margam Publications
3. Business Laws – M.V. Dhandapani, Sultan Chand ad Sons
4. Mercantile Law – S. Badre Alam and P. Saravanavel
5. Business Law – R.S.N. Pillai – S. Chand
6. Mercantile Law – Gogna, S. Chand.

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https://books.google.co.in/books?isbn=0748766472
https://books.google.co.in/books?isbn=0748766774

Core Paper-7 BANKING THEORY, LAW AND PRACTICE

OBJECTIVES: 1. To expose the students to various concepts in Indian Banking system.
2. To make the students understand the provisions of the Banking Regulations Act, 1949.
3. To familiarize the students with various functions of a modern banker.

Unit- I

Banking Regulation Act, 1949(Definition of Banking, Licensing, Opening of branches, Functions of Banks, Inspection) – Role of RBI and their functions.

Unit- II

Commercial Banks – Functions – Traditional and Modern- Types of Deposits, Principles of lending- agency and general utility services

Unit- III

E-Banking – ATM Cards, Debit cards, Personal Identification Number – Online enquiry and update facility – Electronic Fund Transfer – Electronic Clearing System- Core Banking- Real time gross settlement(RTGS) - SWIFT- National Electronic Funds Transfer (NEFT)- KYC.

Unit- IV

Opening of an Account – Types of customers(Individuals, firms, Trusts, and Companies) – Importance of customer relations – Customer grievances and redressal – Ombudsman.

Unit- V

Negotiable instruments: Promissory Note – Bills of Exchange, Cheque, Draft – Definitions, Features – Crossing – Endorsement – Material Alteration – Paying Banker – Rights and Duties – Statutory Protection – Dishonour of Cheques – Role of collecting banker.

REFERENCES:

1. Banking Law Theory and Practice – Sundaram and Varshney – Sultan Chand Co.
2. Banking and Financial Systems – B. Santhanam(Margham Publishers)
3. Banking Law Theory and Practice – S.N. Maheswari – Kalyani Publications
4. Indian Banking – Parameswaran – S. Chand and Co.
5. Banking Law Theory and Practice – Tanon

https://books.google.co.in/books?isbn=0471292192
https://books.google.co.in/books?isbn=1904727891
https://books.google.co.in/books?isbn=8131752666

Core Paper – 8 MARKETING

Objectives:

1. To expose students to the importance of marketing in the business world.
2. To enable students to understand the various aspects in marketing.

Unit-I

Marketing- Introduction – Meanings – Definition – Functions – Role and importance – Kinds of Market – Marketing Managements – Marketing Process – Marketing Management Orientation marketing Plan – Marketing Mix.

Unit –II

Marketing Environment – Managing Marketing information – Consumer Markets – Consumer Buying Decision Process – Business Markets – Business Buyer Behaviour Process – Market Segmentation.

Unit –III

Product – Types of Products – Product Mix – New Product Development – Product Life Cycle Strategy, Pricing – Pricing Objectives – Kinds of Pricing – Factors Affecting Pricing – Pricing Strategies.

Unit – IV

Marketing Channels – Functions – Types – Event Management –Channel design management channel behaviour; Marketing Communication Mix – Communication Process – Steps in Developing Effective Marketing Communication – Setting Promotion Budget and Mix

Unit – V

Competitor Analysis and Strategies – Social Responsibility and Ethics – Recent Trends in Marketing : A Basic understanding of E-Marketing , Consumerism , Market Research , MIS and Marketing Regulations.

References:

1. Kotler Philip, Armstrong Gary , agnihotri y. prafulla, ehsan UI Haque , principles of marketing – A South Asian Perspective , 13th Edition , Pearson 2009
2. Rajan Nair, Marketing, Sultan Chand & Sons Publications, New Delhi.

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https://books.google.co.in/books?isbn=0324591098
https://books.google.co.in/books?isbn=0415380804

Allied Paper – 3 **BUSINESS STATISTICS**

Objective: To provide knowledge in statistics methods and applications and to offer expertise in statistics analysis

Unit- I: Introduction: Statistics - Definitions; Variables - Quantitative and Qualitative data – Primary and Secondary - Collection of data - Census method - Sampling methods - Precautions while using secondary data.

Unit -II: Classification and Presentation of data - Tabulation - Frequency Distribution – Diagrammatic and Graphical representation of data – Bar diagram – Pie Diagram – Frequency Curve - Ogive Curves – Histogram – Polygon – Lorenz Curve.

Unit -III: Measures of Central Tendency - Mean, Median and Mode, – Measures of Variation – Range, Quartile Deviation, Standard Deviation, Mean Deviation and Coefficients - their characteristics – uses and limitations.

Unit- IV: Skeweness – Types and measurement – Karl Pearson – Bowley's.

Unit-V : Time series – components – models – Trend measurement (Graphic and Straight line trend) - Seasonal Index measurement (Simple Average & Moving Average method)

Proportion of theory and problems: 20% and 80%

REFERENCES:

1. Statistical Methods – S.P. Gupta, Sultan 2000.
2. Introduction to Operations Research – Dr. P.R. Vittal, Margham Publications
3. Statistics - Elhance
4. Operations Research – Hira a nd Gupta, S. Chand.
5. Operations Research – Handy and A. Taha, Macmillan Publishers.
6. Statistical methods- Dr.S.GuruSwamy

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https://books.google.co.in/books?isbn=8122400116
https://books.google.co.in/books?isbn=8131726029

SEMESTER IV

Core Paper – 9 CORPORATE ACCOUNTING – II

Objectives:

1. To enable students to understand the accounting treatment relating to amalgamation, absorption and external reconstruction
2. To understand the accounting procedure relating to holding companies and subsidiary companies.
3. To familiarize the students with the preparation of life insurance and general insurance company accounts.

Unit –I

Amalgamation, Absorption and External reconstruction-Computation of purchase consideration-Pooling of interest method-Purchase method-Accounting treatment-Journal entries-Preparation of Balance sheet.

Unit-II

Consolidated final statement of Holding companies and Subsidiary companies (Intercompany holdings excluded)

Unit-III

Accounts of life insurance companies-Life insurance revenue account-Balance sheet-Ascertaining correct Life assurance fund-Preparation of valuation of Balance sheet-Determination of amount due to policy holders.

Unit-IV

Accounts of general insurance companies-Calculation of Reserve for unexpired risk-Preparation of Revenue account –Profit& loss account and Balance sheet.

Unit-V

Accounting standards-Meaning-Need for Accounting standards-Significance of Accounting standards-Provision of Accounting standards(AS)-1, AS-2,AS-3, AS-6 AS-14 and AS-21

Proportion of theory and problems: 20% and 80%

.

REFERENCES:

1. Corporate Accounting-T.S. Reddy & A.Murthy- Margham publishers.
2. Corporate Accounting-R.L.Gupta&Radhaswamy-Sultan chand &sons.New Delhi.
3. Advanced Accounting-M.C.Shukla&T.S.Grewal
4. Advanced Accounting-S.P.Jain &K.L.Narang.Kalyani publishers.

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https://books.google.co.in/books?isbn=8120346270
https://books.google.co.in/books?isbn=8126908394

Core Paper – 10 COMPANY LAW

Objective:

To make the students understand the significant provisions of Companies Act 2013

Unit -I

Definition of joint stock company – Kinds – Characteristics-Advantages and disadvantages – Formation – Incorporation.

Unit- II

Memorandum of association – Contents – Doctrine of Ultra Virus – Articles of Association – Contents –Doctrine of Indoor Management- Prospectus – Contents.

Unit -III

Share capital – Kinds of share capital – Voting rights – Borrowing power of companies – Share certificate-Membership of company – Shareholder-Directors.

Unit- IV

Meetings and resolutions – Statutory meetings – Annual general Meeting – Quorum – Extra ordinary Meeting – Resolutions – Ordinary and special.

Unit -V

Winding up of companies – Modes of winding up – Winding up by the court – Voluntary winding up – Members voluntary winding up – Creditors voluntary winding up.

REFERENCES:

1. Company Law by N.D.Kapoor
2. Company Law by Avtar Singh
3. Company Law and secretarial practice by P.Srirenganayaki
4. Company Law by J.Santhi
5. Company Law by P.M.S.Abdul Gaffoor and S.Thothadri

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https://books.google.**co**.in/books?isbn=0582894182
https://books.google.**co**.in/books?isbn=8171567312

Core Paper-11 GOODS AND SERVICES TAX AND CUSTOMS TAX COURSE OBJECTIVES:

- To familiarize students with the basic concepts of Indirect taxes & Customs Act
- To enable the students to understand the concept and procedure for computation of GST

UNIT- I: TAXATION AND TAX SYSTEM IN INDIA

History of Taxation – Elements of Tax – Objectives of Taxation – Canons of Taxation – Tax System in India – Classification of Taxes.

UNIT- II: CUSTOMS ACT 1962

Customs Act – Definition, Concepts and Scopes – Levy and Collection of Customs Duty – Classification of Goods – Assessment of Duty – Valuation of Goods under Customs Act – Prohibition on Importation & Exportation of Goods – Demand and Recovery of Customs Duty – Clearance of Goods – Baggage.

UNIT- III: INTRODUCTION TO GST

Introduction - Meaning – Need – Benefit – Types – GST Council – Applicability – Exclusions.

EXEMPTIONS

Good exempted from GST – Services exempted from GST – Powers to grant Exemption from tax

UNIT- IV: TAXABLE EVENTS UNDER GST

Introduction – Concepts of Supply – Types of Supply – Composite Supply – Mixed Supply – Composite Levy

VALUE AND TIME OF SUPPLY

Introduction – Time of Supply of Goods – Time of Supply of Service – Value of Supply and its Provisions

UNIT- V: REGISTRATION UNDER GST

Introduction – Time limit – Persons liable for Registration – Persons not liable for Registration – Compulsory Registration – Procedure – Cancellation and Revocation

RECOMMENDED BOOKS:

1. Business Taxation – T.S.Reddy & Y.Hariprasad Reddy, Margham Publications, 2018.
2. ICAI – Indirect Tax Study Material, 2018.

REFERENCE BOOKS

1. Dr.Vinod K Singhania, Monica Singhania, Students Guide to Income Tax, TaxmannPublicationsPvt Ltd., New Delhi.
2. GirishAhiya, Dr. Ravi Gupta, Systematic Approach to Income Tax and CST, Bharat Law HousePvt. Ltd. New Delhi.
3. Dr.Sanjeev Kumar, Systematic Approach to Indirect Taxes with Practical problems and solutions,Bharat Law House Pvt. Ltd., New Delhi.

Web References:

http://www.idtc.icai.org/gst.html
http://idtc.icai.org/gst-topic-wise-study-material-list.html

Core Paper: 12 FINANCIAL SERVICES

OBJECTIVES: 1. To understand the meaning and significance of the financial services available in India.

2. To expose the students to the role of financial services in the development of the capital market and the economy of the country.

Unit- I

Meaning and importance of financial services – Types of financial services – Financial services and economic environment – Players in Financial Services Sector.

Unit -II:

Money market- Meaning- Instruments- Commercial papers- Certificate of Deposit- Repos- Capital Market- New issue market, meaning and functions

Unit -III:

Stock exchange- Meaning- Functions of Stock Exchange- Types of speculators- SEBI – objectives- functions and powers- Merchant Banking- Functions.

Unit -IV:

Venture capital- stages in Venture capital- VCI in India- Credit Rating- Basis- Factoring- Functions and types

Unit- V:

Leasing- types of lease accounts-Hire purchase- concepts and features Underwriting- Consumer finance- advantages.

REFERENCES:

1. Financial Services – M.Y.Khan
2. Financial Services – B.Santhanam
3. Law of Insurance – Dr.M.N. Mishra
4. Indian Financial System – H.r. Machiraju
5. A Review of current Banking Theory and Practice – S.K. Basu.

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Allied Paper-4 **ADVANCED STATISTICAL METHODS**

Objective: To provide knowledge in statistics methods and applications and to offer expertise in statistics analysis

UNIT –I

Index Numbers – Aggregative and Relative Index – Chain and Fixed Index – Wholesale Index – Cost of Living Index.

Unit- II: Probability - measurement method – Addition and multiplication theorems – conditional probability– combinations-Probability distributions.

Unit -III: Sampling- Sampling methods- sampling error- Sample size and standard error- Sampling distribution- Central limit theorems- Estimating population parameters- point and interval estimates- percentage and mean population from large sample and small sample.

Unit-IV: Hypothesis Testing in Sampling – Z, t, F tests, One way ANOVA, Chi–Square (Simple Problem Only)

Unit- V: Correlation – Karl Pearson & Spearman's Rank – uses & limitations - Regression analysis – OLS method

Problem 80% and Theory 20%

REFERENCES:

1. Statistical Methods – S.P. Gupta, Sultan 2000.
2. William C Emory, Business Research Methods, Richard D Irwin, NJ
3. Donald R Cooper, Business Research Methods 7th Ed, McGraw Hill
4. Krishnaswami OR, Methodology of Research for Social Science, Himalaya, Mumbai

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https://books.google.co.in/books?isbn=8122415229

SEMESTER V

Core Paper – 13 COST ACCOUNTING

Objective: To enable the students to understand the methods and techniques of costing.

Unit- I

Definition, Nature and scope of Cost Accounting, Cost analysis, concepts and Classifications. Installation of costing systems, cost centres and profit centers.

Unit- II

Simple Cost sheets- cost sheet with details of overheads- Stock of work in progress and finished goods, sales price computation- tenders and quotations. Reconciliation of cost and financial accounts.

Unit- III

Material purchase control, Level, aspects, need and essentials of material control. Stores control – Stores Department , EOQ , Stores records, ABC analysis, VED analysis. Material costing – Issue of materials – FIFO, LIFO, HIFO, SAM, WAM, Market price, Base stock method and standard price method.

Unit- IV

Labour cost – Computation and control. Time keeping, Methods of wage payment – Time rate and piece rate system. Payroll procedures. Idle time and over time. Labour turnover.

Unit -V

Overheads – Classification, Allocation, Apportionment and control of overheads – Manufacturing, Administration, Selling and Distribution (Primary and Secondary Distribution) Computation of Machine Hour Rate.

Proportion of theory and problems: 20% and 80%

REFERENCES:

1. Jain S.P. and Narang K.L. – Cost Accounting.
2. Khanna B.S., Pandey I.M. Ahuja G.K. and Arora M.N. – Practical costing.
3. T.S. Reddy and Y. Hariprasad Reddy – Cost Accounting
4. N.K. Prasad and V.K. Prasad – Cost Accounting.
5. N.K. Prasad and V.K. Prasad – Cost Accounting.
6. Hansen / Mowen – Cost Management Accounting and Control.

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https://books.google.co.in/books?isbn=8189781502
https://books.google.co.in/books?isbn=9380901666

Core Paper – 14 PRACTICAL AUDITING

Objective: To gain knowledge of the principles and practice of auditing.

Unit- I

Meaning and definition of auditing – Distinction between auditing and accounting – objectives – Advantages and limitations of audit – classifications of audits – Audit planning, meaning – Audit programme, meaning, objectives and contents – audit note book, contents, usefulness of audit note book – Audit working papers, meaning. Ownership and custody – Test checking and Routine checking, meaning- Internal control, meaning , definition, objectives – Internal check, meaning, objectives.

Unit -II

Vouching, meaning and definition, objectives – Trading transactions – audit of ledger- Scrutinizing of ledgers - vouching of cash receipts and payments. Vouching of credit sales and credit purchase – verification, meaning objectives and process – valuation of assets and liabilities- Distinction between verification and valuation.

Unit- III

Depreciation and reserves – meaning – Auditor's duty with regard to depreciation – Reserves and provisions- Distinguish reserves and provisions – Depreciation of wasting Assets.

Unit- IV

Appointment of auditors – appointment of first auditor – appointment by central government – filling of casual vacancy – Appointment by special resolution – Re-appointment and compulsory re-appointment – ceiling on the number of Auditor ship - Removal of auditor – Remuneration - auditors lien – qualification and disqualification – Duties of the company auditor – Rights and liabilities of auditors – Audit Report – Preparation and Presentation.

Unit- V

EDP audit – meaning – procedure of audit under EDP system- Specialised Audits- points to be considered while Auditing Educational Institutions- Hotels-Banking and insurance companies.

References:

1. Auditing – D.P. Jain Konark PublishersPvt. Ltd.
2. Auditing, Principles and practice –Ravinder Kumar and virender Sharma,Eastern economy edition.
3. Practical Auditing – B.N. Tandon Sultan Chand and Co.,
4. Contemporary Audinting, Kamal Gupta Tata MC Graw Hill.

https://books.google.co.in/books?isbn=8121920418
https://books.google.co.in/books?isbn=5877373412
https://books.google.co.in/books?isbn=8170231868

Core Paper – 15 FINANCIAL MANAGEMENT

Objectives:

1. To enable the students to understand the managerial decisions on the acquisition and effective utilisation of long –term and short – term funds of the organization.

2. To enlighten the students about the maximisation of the profitability of the firm.

Unit- I

Meaning and objectives and importance of finance - Source of finance – Functions of financial management – Role of Financial manager in financial management.

Unit -II

Cost of Capital – Cost of Equity – Cost of Preference share capital – Cost of Debt – Cost of Retained Earnings – Weighted Average cost of capital.

Unit- III

Capital structure – Planning – Factors affecting Capital structure – Determining Debt – Equity proportion – Theories of capital structure – Leverage concept

Unit -IV

Dividend policy – Factors affecting Dividend payment – Company Law provision on Dividend payment – Various dividend Models.(Walter's Gordon's- M.M Hypothesis.)

Unit -V

Working Capital – Components of Working Capital – Operating Cycle – Factors influencing working capital – Determining or forecasting of working capital requirements.

The proportion between theory and problem 20% and 80%

References:

1. Dr.S.N. Maheshwari , Sultan chand and sons.
2. Dr. A Murthy , Margham publications

https://books.google.co.in/books?isbn=812591658X
https://books.google.co.in/books?isbn=8174465863
https://books.google.co.in/books?isbn=0070599432

Elective Paper – 1 INCOME TAX LAW AND PRACTICE – I

Objective:

To understand the basic concepts of Income Tax and to acquaint knowledge with provisions relating to Salary, House Property, Business or Professional Income and Filing of Returns.

Unit-I

Meaning and features of income- Important definitions under the Income Tax Act- Residential Status – Scope of Total income – Incomes exempt from tax.

Unit-II

Heads of income – Salaries – Allowances – Perquisites and their valuations – Deductions from salary – Gratuity – Pension – Commutation of pension – Leave salary – Profits-in-lieu of salary – Provident funds – Deductions under section 80C.

Unit-III

Income from House property – Definition of Annual value – Computation of Income under different circumstances.

Unit-IV

Income from Business or Profession- Allowable and not allowable expenses – General deductions – Provisions relating to depreciation – Deemed business profits- Compulsory maintenance of books of accounts – Audit of accounts of certain persons – Special provision for computing incomes on estimated basis – computation of income from business or profession.

Unit-V

Tax Rates of Individual Assessee – Filing of Return – Various Return Forms – Permanent Account Number (PAN) – Advance payment of Tax – Meaning of Due date – Meaning of Deduction of Tax at Source.

Proportion of theory and problems: 20% and 80%

References:

1. Students Guide to Income Tax – Dr. Vinod K. Singhania, Taxman Publications Pvt. Ltd.
2. Income Tax Law & Accounts, Dr. Mehrotra & Goyal Sahitya Bhavan Publications.
3. Income Tax Law & Practice V.P. Gaur & D.B. Narang Kalyani Publishers.
4. Income Tax Theory, Law & Practice – T.S. Reddy and Y Hariprasad Reddy Margham Publications.
   https://books.google.com/books?isbn=1584773855
   https://books.google.com/books?id=iiQKAAAAMAAJ
   https://books.google.com/books?isbn=813172191

SEMESTER VI

Core Paper – 16 ADVANCED COST ACCOUNTING

Objectives:

1. To enable students to acquire the versatile costing knowledge in various nature of concern.
2. To make them to understand the techniques of cost control and decision making.

Unit - I

Methods of Costing : Unit Costing – Tenders or Quotations – Job Costing – Definition, importance and preparation of job cost sheets- Batch Costing- Determination of Economic Batch Quantity- preparation of Batch cost sheets..

Unit --II

Contract Costing – Preparation of Contract Account – Simple financial contrats- transfer of profit to P&L a/c, Treatment of plant in contract a/c- Contractee Account – Preparation of Balance Sheet.

Unit-- III

Process Costing – Features of Process Costing – Simple Process Accounts, Treatment of opening and closing stock in process a/c – Abnormal Loss and Gains.

Unit- IV

Operating Costing – Transport- Computation of passenger transport cost , Power house costing- costing for Cinema Theater.

Unit -V

Marginal Costing as a Technique – Marginal Costing – BEP Analysis – Profit Planning - Contribution – Key Factor – Margin of Safety.

Marginal Costing – Decision – making - Sales – Mix Exploring New Markets – Make or Buy Decisions – Shut down or Continue.

Proportion of theory and problems: 20% and 80%

REFERENCES:

1. S.P. Jain and K.L. Narang : Cost Accounting
2. P.T. Pattanshetty and Dr. Palekar : Cost Accounting
3. S.P. Iyengar : Cost Accounting
4. Khanna, Pandey, Ahuja and Arora : Cost Accounting
5. T.S. Reddy and Y. Hariprasad Reddy : Cost Accounting
6. Saxena and Vashist : Cost Accounting
7. Hansen/Mowen : Cost management Accounting and Control

https://books.google.co.in/books?isbn=0070402248
https://books.google.co.in/books?isbn=8189781502
https://books.google.co.in/books?isbn=9380901666

Core Paper – 17 MANAGEMENT ACCOUNTING

Objectives:

1. To enable the students to get knowledge about the various techniques of management principle.
2. To make the students to get practical skill in solving management problems.

Unit- I

Management Accounting – Meaning, scope, importance and limitations Management Accounting vs. Cost Accounting. Management Accounting vs. Financial Accounting.

Unit- II

Analysis and Interpretation of Financial Statements – Nature, objectives, tools – Methods – Comparative Statements, Common Size statement and trend analysis.

Unit- III

Ratio Analysis – Interpretation, benefits and limitations - Classification of ratios– Liquidity, Profitability, turnover ratios.

Unit –IV

Fund flow statement- meaning, objectives, merits and demerits- preparation of fund flow statement- cash flow statement- meaning advantages- limitations- preparation of cash flow-statement-types of cash flows- operating, financing, inventing cash flow.

Unit –V

Budgetary control – Meaning, objectives, merits and demerits – Types of Budgets – Production, Cash and Flexible Budgets.Capital Expenditure Control – Capital Budgeting Techniques – Pay Back Period – Accounting Rate of Return – Net Present Value Method.

Proportion of theory and problems: 20% and 80%

REFERENCES:

1. Dr.Maheswari S.N. – Management Accounting.
2. Chadwick – The Essence of Management Accounting
3. Charles T.Horngren and Gary N.Sundem – Introduction to Management Accounting.
4. Sharma and Shashi K.Gupta – management Accounting
5. T.S. Reddy & Dr. Y.Hariprasad Reddy – Management Accounting.
6. Hansen-Mowen – Cost management Accounting and Control.

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https://books.google.co.in/books?isbn=1853963836
https://books.google.co.in/books?isbn=8131731782

Core Subject : 18 BUSINESS ENVIRONMENT

Objective: To enable the students to scan the business environment and appraise various factors which influence on business performance

Unit– I

The concept of Business Environment - its nature and significance – Brief overview of political – Cultural – legal – economic and social environments and their impact on business and strategic decisions.

Unit-II

Political Environment – Government and Business relationship in India – Provisions of Indian constitution pertaining to business.

Unit –III

Social and Cultural Environment – Impact of foreign culture – Castes and Communities – Linguistic and Religious groups – Types of Social organization – Social responsibilities of business.

Unit –IV

Economic Environment – Economic systems and their impact of business – Macro Economic parameters like GDP -growth rate population – Urbanization - Fiscal deficit – Plan investment – Per Capita Income and their impact on business decisions.

Unit –V

Technological Environment – Meaning- Features OF Technology-Sources of Technology Dynamics-Transfer of technology- Impact of Technology on Globalization-Status of Technology in India- Determinants of Technology Environment.

REFERENCES:

1. Sankaran.S. – Business Environment
2. Francis Cherunilam – Business Environment
3. Aswathappa – Business Environment
4. Daasgupta & Sengupta – Government and Business in India.
5. Srinivasan.K. – Productivity and social Environment.

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https://books.google.com/books?isbn=0080557449
https://books.google.com/books?isbn=933255912

Elective Paper – 2 INCOME TAX LAW AND PRACTICE – II

Objective:

To acquaint knowledge with provisions relating to Capital gains, Income from Other Sources, Deductions, Assessment of Individuals and Powers of Income Tax Authorities.

Unit- I

Income under Capital Gains – Short term, Long term Capital gains – Certain transactions not included as transfer – Cost of Improvement – Indexation of Cost – Exempted Capital Gains- Computation of Capital Gains.

Unit-II

Income from other sources – Grossing up – Deductions in computing income under the head Income from other sources.

Unit-III

Clubbing of income – Deemed incomes – Provisions of the Act relating to clubbing of income – Set off – Carry forward and set off of losses.

Unit-IV

Permissible deductions from gross total income – Sec. 80C, 80CCC, 80CCD,80D, 80DD, 80DDB, 80E, 80G, 80GGC,8OGG,80TTA, 80GGA, 80QQB, 80RRB,80U, – Assessment of individual- Computation of Tax.

Unit-V

Income Tax Authorities – Powers of the Central Board of Direct Taxes (CBDT) , Commissioners of Income Tax and Income Tax Officers – Self Assessment – Best Judgement Assessment – Income Escaping Assessment (Re assessment).

Proportion of theory and problems: 20% and 80%

References:

1. Students Guide to Income Tax – Dr. Vinod K. Singhania, Taxman Publications Pvt. Ltd.
2. Income Tax Law & Accounts, Dr. Mehrotra & Goyal Sahitya Bhavan Publications.
3. Income Tax Law & Practice V.P. Gaur & D.B. Narang Kalyani Publishers.
4. Income Tax Theory, Law & Practice – T.S. Reddy and Y Hariprasad Reddy Margham Publications.

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https://books.google.com/books?id=iiQKAAAAMAAJ
https://books.google.com/books?isbn=8131721914

Elective Paper-3 HUMAN RESOURCE MANAGEMENT

Objectives:

1. To provide knowledge on understanding managing human resources in organizations.
2. To offer exposure on human resources practices in organizations.

Unit- I

Nature and scope of Human Resources Management – Differences between personnel management and HRM – Environment of HRM – Human resource planning – Recruitment – Selection – Methods of Selection – Uses of various tests – interview techniques in selection and placement.

Unit- II

Induction – Training – Methods – Techniques – Identification of the training needs – Training and Development – Performance appraisal – Transfer – Promotion and termination of services – Career development.

Unit- III

Remuneration – Components of remuneration – Incentives – Benefits – Motivation – Welfare and social security measures.

Unit- IV

Labour Relation – Functions of Trade Unions – Forms of collective bargaining- Workers' participation in management – Types and effectiveness – Industrial Disputes and Settlements (laws excluded)

Unit- V

Human Resource Audit – Nature – Benefits – Scope – Approaches- Human Resource Information System (HRIS)- Need- Benefits- Designing of HRIS- Computerized HRIS.

REFERENCES :

1. Human Resource Management – V S P Rao
2. Human Resource Management – Ashwathappa
3. Human Resource Management – C.B.Gupta
4. Human Resource Management – L M Prasad
5. Human Resource Management – Tripathi.
6. Human Resource Management- S.S.Khanka

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https://books.google.co.in/books?isbn=813175426X

GURU NANAK COLLEGE, CHENNAI - 42.
PG & RESEARCH DEPARTMENT OF COMMERCE UG - INTER-DISCIPLINARY COURSE

SEMESTER-V

(For the students admitted in 2019-20 batch onwards)

ENTREPRENEURIAL DEVELOPMENT

Hours: 6 per week **Credits: 4**

UNIT I

Entrepreneur – Meaning-Definition-Classification-Qualities-Functions of entrepreneur.

UNIT II

Entrepreneurship – Meaning-Definition-Nature-Factors affecting entrepreneurship growth, Pros and Cons of entrepreneurship.

UNIT III

MSME an overview- Evolution of SSI- Importance- Problems faced by SSI.

UNIT IV

EDP – Objectives of EDP – Training phases of EDP- Role of Government in organizing EDP's. Women Entrepreneur in India - Problems, Remedial measures.

UNIT V

Business plan- Sources of ideas- Identification of opportunities and Preparation of project proposal for start-ups.

REFERENCE BOOKS

1. Srinivasan.N.P. , - Entrepreneurial Development.
2. P.Saravanavel – Entrepreneurial Development.
3. Vasanth Desai – Project Management.
4. Jayashree Suresh – Entrepreneurial Development.

GURU NANAK COLLEGE (AUTONOMOUS), CHENNAI – 6000 042
(Effective for the batch of candidates admitted from 2019-2020)

DEPARTMENT OF BCOM CORPORATE SECRETARYSHIP

COURSE STRUCTURE – (2019-2022)

SEMESTER	PART	SUBJECT TITLE	No of Hours Per Week	Credits
I	I	TAMIL-I/Hindi-I/Sanskrit-I/French-I	6	3
	II	English-I	4	3
	III	***Core I*** Financial Accounting	6	4
	III	**Core II** - Human Resource Management	6	4
	III	**Allied-I** Corporate E Management	4	5
	IV	**Non Major Elective:** A) Introduction to Financial Markets and Investment/ B) Basic Tamil/ C) Advanced Tamil Soft Skills	2 2	2 3
II	I	TAMIL-II/Hindi-II/ Sanskrit-II/French-II	6	3
	II	English-II	4	3
	III	**Core-III** Advanced Financial Accounting	6	4
	III	**Core-IV** Company Law and Secretarial Practice – I	6	4
	III	**Allied-II** Business Communication	4	5
	IV	**Non Major Elective:** **A)** Fundamentals of Insurance/ **B)** Basic Tamil **C)** Advanced Tamil Soft Skills	2 2	2 3
III	I	**TAMIL-III/Hindi-III**/ Sanskrit-III/French-III	6	3
	II	**English-III**	4	3
	III	**Core-V** Corporate Accounting-I	6	4
	III	**Core-VI** Company Law and Secretarial Practice – II	6	4
	III	**Allied-III** Statistics-I	6	5
	IV	Soft Skills	2	3
IV	I	TAMIL-IV/Hindi-IV/ Sanskrit-IV/French-IV	6	3
	II	English-IV	4	3
	III	**Core-VII** Corporate Accounting-II	6	4
	III	**Core-VIII** Goods and Services Tax & Customs Law	5	4
	III	**Allied-IV** Statistics-II 1	5	5
	IV	EVS Soft Skills	2 2	2 3

SEMESTER	PART	SUBJECT TITLE	No of Hours Per Week	Credits
V	III	**Core -IX**: Management Accounting	6	4
	III	**Core -X:** Securities Law &Market Operations	5	4
	III	**Core -XI** Income Tax Law & Practice-I	6	4
	III	**Core -XII** Commercial & Industrial Law	5	4
	III	Entrepreneurial Development (**IDE Subject**)	6	5
		(**IDE Subject**) offered to B.COM C.S Students		
	IV	Value Education	2	2
VI	III	**Core – XIII** Cost Accounting	6	4
	III	**Core –XIV** Financial Management	6	4
	III	**Core –XV** Income Tax Law & Practice-II	6	4
	III	**Core -XVI** Corporate Governance	6	4
	III	Institutional Training (**Application oriented Subject)**	6	6
	IV	Extension Activities		1
TOTAL				**140**

Question Paper Pattern: (For Theory and Mathematics Papers)

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	2	20
Section B	**Short Answers** Answer any 5 out of 7 questions (each in 300 words)	13-19	5	25
Section C	**Essay** Answer any 3 out of 5 questions (each in 1200 words)	20-24	10	30
	TOTAL			**75**

Question Paper Pattern: (For Accountancy Papers)

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	2	20
Section B	**Short Answers** Answer any 5 out of 7 questions (each in 300 words)	13-19	5	25
Section C	**Essay** Answer any 2 out of 4 questions (each in 1200 words)	20-23	15	30
	TOTAL			**75**

SEMESTER: I

CORE I: FINANCIAL ACCOUNTING -I

SUBJECT CODE:	THEORY/ PRACTICAL	100 MARKS

SEMESTER: I **CREDITS: 4** **NO.OF HOURS PER WEEK: 06**

COURSE OBJECTIVES:

To make students to understand the concepts of financial transactions and various Conventions & practice of Fundamentals of Accounting

UNIT-I

Preparations of Final Accounts of a Sole Trading Concern – Adjustments – Closing Stock, Outstanding and Prepaid items, Depreciation, Provision for Bad Debts, Provision for Discount on Debtors, Interest on Capital , interest on Drawings.

UNIT- II

Preparations of Receipt and Payments Accounts, Income and Expenditure Account and Balance Sheet of Non Trading Organizations

UNIT-III

Account Current – Meaning – Definition – Procedure for calculating days of interest – Preparation of Account Current – Product method – Red-ink interest. Average Due Date - meaning – practical uses – basic types of problems – where amount is lent in different installments – determination of due date - average due date as basis for calculation of interest

– interest on drawings of partners - Sale or Return Account – Meaning – Purpose – Methods of recording –When transactions are very few. (Simple problem only)

UNIT- IV

Depreciation – Meaning, Causes, Types – Straight-Line Method – Written Down Value method.

Fire Insurance Claims – Need for fire insurance – Types of fire insurance policies – Computation of claim to be lodged for loss of stock – Gross profit ratio – Abnormal items - Average Clause (Loss of Stock only) (Simple problem only)

UNIT- IV

Single Entry – Meaning, features, Defects, Differences between Single Entry and Double Entry System – Statement of Affairs Method – Conversion Method (Simple problem only)

PRESCRIBED BOOKS:

1. Financial Accounting - T.S.Reddy&A.Murthy – Margham Publications
2. Financial Accounting - R.L.Gupta&M.Radhaswamy– Sultan Chand& sons.

REFERENCE BOOKS:

1. Principles and practice of Accounting - R.L.Gupta&V.K.Gupta– Sultan Chand & sons.
2. Financial Accounting– S.P. Jain & K. L. Narang –Kalyani Publishers.

SEMESTER: I

CORE II: HUMAN RESOURCE MANAGEMENT

SUBJECT CODE:	THEORY	100 MARKS

SEMESTER: II **CREDITS: 4** **NO. OF HOURS PER WEEK: 06**

COURSE OBJECTIVES:

To introduce the concepts of various principles and process involved in effective Human Resources Management.

UNIT I

Human Resource Management - Nature and Scope of the HRM - Managerial and Operating Functions -Difference between Personnel management and HRM – Human Resource Planning – Recruitment – Selection – Methods of Selection – Use of various Tests – interview techniques in Selections.

UNIT II

A Placement and Induction - Training – Methods – Techniques – Identification of Training Needs - Development – Methods – Performance Appraisal – Methods – Promotions and Transfers

UNIT III

Remuneration – Factors determining remuneration - Components of Remuneration – Incentives – Benefits – Motivation – Welfare and Social Security Measures -

UNIT IV

Collective Bargaining – Workers participation in Management – Types - Quality Circles – Management by Objectives – Environment of HRM - HRM as a Profession.

UNIT V

Human Resource Audit – Nature – Benefits – Scope – Approaches.

PRESCRIBED BOOKS:

1. Human Resource Management – C.B.Gupta – Sultan Chand & Sons.
2. Human resource management – J.Jayashankar -Margham Publications.

REFERENCE BOOKS:

1. Human Resource Management - L.M.Prasad– Sulthan Chand & Sons.
2. Human Resource Management – P.C.Tripathi– Sulthan Chand & Sons.

SEMESTER: I

ALLIED I: CORPORATE E-MANAGEMENT

SUBJECT CODE:	THEORY	100 MARKS

SEMESTER: I **CREDITS: 5** **NO. OF HOURS PER WEEK: 04**

COURSE OBJECTIVES:

To teach the basics of Computer and Computer applications oriented programs in relation to corporate management.

UNIT - I

Introduction to computers –Characteristics - Classification –Advantages &Disadvantages of Computers - Anatomy of Digital Computer - Memory Devices - Input Devices Output Devices.

UNIT - II

Concept of Operating System – Functions - Advantages – Classification - Assembler, Complier, Interpreter– Hardware & Software and its types, Computer Networks – Classification – Typology of Networks.

UNIT - III

Introduction to Internet –- Advantages & Uses of Internet - Requirements of internet - Internet Service Providers (ISPs), IP Addressing - Domain Name - Web Browser- E-Mail– Advantages & Disadvantages of E-Mail.

UNIT – IV

Multimedia – meaning –Basic Concepts & Elements of Multimedia- Text, Images, Sound/ Audio, Video, Graphics and Animations – Uses of multimedia in Education and Entertainment.

UNIT - V

E-Commerce –Benefits – Nature- Classification of E-commerce –Advantages &Disadvantages of E-Commerce. Traditional Commerce vs. E-Commerce – Payment through Electronic mode.

PRESCRIBED BOOKS:

1. Fundamentals of Computer Science and Communication - Alexix Leon, Mathew Leon - Engineering. 2. Fundamentals of Information Technology - Alexix Leon, Mathew Leon

REFERENCE BOOKS:

1. Every Students guide to Internet. - John Callahan.
2. E-Commerce - K.K.Bajai and Debjani Nag - The cutting edge of Business.
3. Introduction to Information Technology – P.Rizwan Ahmed – Margham Publications.
4. E-Commerce -Dr.K.Abirami Devi &Dr.M.Alagammai – Margham Publications.

SEMESTER: I

NON MAJOR ELECTIVE - I

NME: – INTRODUCTION TO FINANCIAL MARKETS AND INVESTMENTS

SUBJECT CODE:	THEORY	100 MARKS

SEMESTER: I **CREDITS: 2** **NO. OF HOURS PER WEEK: 02**

COURSE OBJECTIVES:

To Impart & Provide the Basic Knowledge of Financial Market & Investment Aspects.

Level of Knowledge: Basic Level

UNIT – I

An Overview of Money Market – Indian Money Market – Constituents of Money Markets – Sub Markets of Money Market –Reforms in Money market.

UNIT – II

Constituents of Indian Capital market –-Difference between Money market and Capital market.

UNIT – III

Indian Stock market –Primary and Secondary market operations-

UNIT – IV

Share market – Stock exchange functions

UNIT – V

Foreign Exchange market – Government Securities Market - Depository and Dematerializations.

PRESCRIBED BOOKS:

1. Financial Services - B.Santhanam- Margham Publications. 2. Financial Services – M.Y.Khau – MC GrawHill.

REFERENCE BOOKS:

1. Managing& Marketing of Financial Services – Taxmann – Indian Institute of Banking.
2. Financial Institutions & Services – Dr. S.A.Majeeb Pasha &T.N.Murthy – Scitech Publications.

SEMESTER: II

CORE III: ADVANCED FINANCIAL ACCOUNTING

SUBJECT CODE:	THEORY/	100 MARKS

SEMESTER: II **CREDITS: 4** **NO. OF HOURS PER WEEK: 06**

COURSE OBJECTIVES:

Students to get acquaintance with the Accounting Methods and Practices of various business organizations.

UNIT – I

Branch Accounts – Dependent Branches – Debtors System - Goods invoiced at cost and Invoice price - Stock & Debtors System – Goods invoiced at cost and Invoice price. (Simple problem only)

UNIT – II

Departmental Accounts – Basis for allocation of expenses – Interdepartmental transfer at cost or selling price – Treatment of expenses which cannot be allocated.

UNIT – III Hire-purchase and Installment System – Default and repossession – Installment Purchase System. (Excluding "Hire Purchase Trading A/c") (Simple problem only)

UNIT – IV

Partnership Accounts – Admission of a Partner- Adjustment in the profit sharing ratio – Adjustment for Goodwill –Application of Accounting Standard (AS) 10 – Revaluation of assets & Liabilities – Adjustment of capitals - Retirement of a Partner – Profit sharing ratio – Treatment of goodwill on retirement/death of a partner - Death of a Partner – mode of payment, Joint Life Policy.

UNIT – V

Dissolution of partnership – Insolvency of a partner (application of Indian Partnership Act, 1932) – Insolvency of all partners – gradual realization of asset and piece meal distribution. (Simple problem only)

PRESCRIBED BOOKS:

1. Financial Accounting - T.S.Reddy & A.Murthy – Margham Publications
2. Financial Accounting - R.L.Gupta & M.Radhaswamy– Sultan Chand& sons.

REFERENCE BOOKS:

1. Principles and practice of Accounting - R.L.Gupta & V.K.Gupta– sultan chand& sons.
2. Financial Accounting– S.P. Jain & K. L. Narang –Kalyani Publishers.

SEMESTER: II

CORE IV: COMPANY LAW AND SECRETARIAL PRACTICE – I

SUBJECT CODE:	THEORY	100 MARKS

SEMESTER: I **CREDITS: 4** **NO.OF HOURS PER WEEK: 06**

COURSE OBJECTIVES:

To impart the basic knowledge of Companies Act 2013 and Corporate Administration.

UNIT – I

Evolution of Company Law – Meaning and Characteristics of a Company – New concept in moderncompany law -Comparative analysis and benefits of different business models - Illegal Association –Lifting of Corporate Veil.

Role and Importance of Company Secretary – Key Managerial Personnel – Compliance Officer –Compulsory Appointment – Qualification and Disqualification - Powers, duties, and responsibilities ofSecretary – Resignation and removal of Company Secretary - Officer in default

UNIT – II

Incorporation of Company – Memorandum and Articles of Association – Provision for Entrenchment - effect of registration - Commencement of business- Alteration of Memorandum and Articles of Association - Doctrine of Constructive notice-Ultra vires and Indoor Management - Duties of Company Secretary in the formation and Incorporation of company.

UNIT - III

Prospectus – Matters to be stated in the prospectus – Offer of Securities for sale - Shelf prospectus - Red herring prospectus - Civil and Criminal Liability for mis-statement of prospectus – Statement in lieu of prospectus – Punishment for Personation for acquisition of securities – global depository receipt - Securities and Exchange Board -Powers to regulate issue and transfer of Securities – Private placement - Role of secretary in the issue of Prospectus.

UNIT – IV

Share Capital – Meaning and Kinds – Alteration of Capital – Issue of further Capital, Rights issue, Bonus issue, Private and Preferential allotment – rules and regulations relating to the issue of capital - Role of Company Secretary in the issue of capital - Dematerialization and Re-materialization of securities - Reduction of Share capital and the procedure there for – Buy back of securities – Issue of share capital at a premium and discount – Rules relating to the same.

UNIT – V

Meaning of the term member and difference between a member and share holder and contributory. How to become a member - rights and responsibilities of a member - Transfer and Transmission of Shares (including depository mode) – Nomination and its importance – Who can be admitted as a member - Manner of becoming a member – Can a member be removed- Statutory register to be maintained – Electronic mode.

PRESCRIBED BOOKS:

1. Company law – Dr.M.R.Sreenivasan – Margham Publications.
2. Company Law and Secretarial Practice – N.D.Kapoor – Sultan Chand& sons.

REFERENCE BOOKS:

1. Company law – Avtal Singh – Eastern Book Company.
2. Business Law & Company Law – S.S.Gulshan&G.K.Kapoor – New Age Internalwual Ltd.

SEMESTER: II

ALLIED II: BUSINESS COMMUNICATION

SUBJECT CODE:	THEORY	100 MARKS

SEMESTER: II **CREDITS: 5** **NO. OF HOURS PER WEEK: 04**

COURSE OBJECTIVES:

To train the students in learning the principles and the practices of business Communication &correspondence.

UNIT-I

Business communication – Meaning – Importance -Classification-Barriers – Structure of business letter (Layout) – Essentials of good Business letter.

UNIT – II

Various types of business letters - letter of enquiry - quotations - Offers - Orders - Cancellation -Complaints and Settlement.

UNIT – III

Circular - Status enquires - collection Letters - Application for a situation - Letter of recommendation - Reference Letters.

UNIT – IV

Company Correspondence - Correspondence with Shareholders - Debenture holders – Directors- Statutory Bodies - Office staff.

UNIT - V

Report writing - Format - Report style and language – Report by individuals and committees -Report on meeting - Role of computers in Business Correspondence.

PRESCRIBED BOOKS:

1 S.Santhanam&Raghunathan – Business communication-Margham Publications

2.K.Sundar&A.Kumara Raj-Vijay Nicole Imprints Pvt.ltd, Chennai-91.

REFERENCE BOOKS:

1. Bhal And Nagamiah - Modern Business Correspondence
2. Koralahalli - Bussiness Correspondence

SEMESTER: II

NON MAJOR ELECTIVE - II

NME: – FUNADAMENTALS OF INSURANCE

SUBJECT CODE:	THEORY	100 MARKS

SEMESTER: II **CREDITS: 2** **NO. OF HOURS PER WEEK: 02**

COURSE OBJECTIVES:

To provide the knowledge in Risk Management and Insurance process

Level of Knowledge: Basic Level

UNIT – I

Origin and history of Insurance – Meaning and definition of Insurance – Features of Insurance - Principles of Insurance – Objectives and advantages of Insurance.

UNIT – II

Types of Insurance – Insurance Organizations in India and their Profile - Insurance Regulatory and Development Authority – its Duties and Functions

UNIT – III

Meaning and Definition of Life Insurance – its Features – its Fundamental Principles - Types of policies in Life Insurance

UNIT – IV

Meaning and Definition of Fire Insurance - its Features – its Fundamental Principles – Types of policies in Fire Insurance

UNIT – V

Meaning and Definition of Marine Insurance - its Features – its Fundamental Principles - Types of Policies in Marine Insurance.

Text Books Recommended:

1. Elements of insurance – Dr.E.Dharmaraj – Simres publications.
2. Insurance, Principles and practice - M.N.Mishra&S.B.Mishra–, S.Chand& Co. Ltd., New Delhi

References

1. Elements of Insurance - Dr.A.Murthy –Margham Publications.
2. Principles of Insurance & Risk Management – C.Murthy – Urindha Publications.

SEMESTER: III

CORE V: CORPORATE ACCOUNTING – I

SUBJECT CODE:	THEORY/ PRACTICAL	100 MARKS

SEMESTER: III **CREDITS: 4** **NO. OF HOURS PER WEEK: 06**

COURSE OBJECTIVES:

To provide knowledge of the concepts of accounting process, provisions and practices followed by the Companies asper revised format under the Companies Act, 2013

UNIT-I Issue of Shares and Debentures – various kinds – Forfeiture – Re-issue – Underwriting of Shares and Debentures.

UNIT–II Redemption of Preference Shares – Provisions of Companies Act – Revenue Profit and Capital Profit – Minimum Fresh Issue – Profits prior to Incorporation- Treatment of Profit or Loss Prior to Incorporation – Basis of Apportionment of Expenses. (Simple problem only)

UNIT – III

Preparation of Company Final Accounts – Company Balance Sheet preparation as per revised format (Schedule III)Companies Act. 2013 for Financial Statements – Computation of Managerial Remuneration.-.

UNIT – IV

Valuation of Goodwill - Meaning – Nature – Factors affecting value of goodwill – Methods of valuation of goodwill – Valuation of Shares – Need – Methods of valuation of shares.

UNIT – V

Alteration of Share Capital – Different kinds of Alteration of Share Capital - Internal Reconstruction and Reduction of Share Capital (Simple Problems only)

PRESCRIBED BOOKS:

1. Corporate Accounting- T.S.Reddy & A.Murthy –Margham Publication. 2. Corporate Accounting - R.L.Gupta & Radhasamy – Sulthan Chand.

REFERENCE BOOKS:

1. Company Accounts - Jain & Narang –Kalyani Publishers.
2. Company Accounts – S.N.Maheshwari & S.K.Maheshwari – Vikas Publication.

SEMESTER: III

COREVI: COMPANY LAW & SECRETARIAL PRACTICE – II

SUBJECT CODE:	THEORY	100 MARKS

SEMESTER: III **CREDITS: 4** **NO. OF HOURS PER WEEK: 06**

COURSE OBJECTIVES:

To impart the knowledge relating to Company Meetings, Administrations etc., as per the Companies Act, 2013

UNIT – I BORROWING POWERS:

Methods of raising funds – Powers of the Board and Shareholders – Deposit versus Debentures – rules and regulations relating to raising funds through deposits and debentures – Kinds of Debentures - Creations of Charge – modification and satisfaction of charge – Role and Responsibilities of Company Secretary – Difference between Share and Debenture and its holder.

UNIT – II COMPANY MANAGEMENT:

Board – Directors – Kinds of Directors-Requirements of Women Director and importance of independent Director – Director identification Number and its significance- Qualification and Disqualification- Retirement – Resignation-Removal and Vacation of office of Director.- Duties of Directors-Code of Conduct –Key Managerial Personnel – Whole time key managerial personnel – Appointment and Remuneration.

UNIT – III MEETINGS and PROCEDURES:

Board Meetings- Shareholders Meeting – Kinds of Meetings – Committee – Types of Committee - Mandatory Committees and its importance- role and Composition – Powers of the Board and Video Conference – Notice, Agenda, Quorum, Proxy and Minutes – Role of Company Secretary and the Compliance of Legal requirement – Electronics Voting – Postal Ballot- Rules relating to general meetings - Resolutions - Kinds of Resolutions.

UNIT – IV DIVIDENDS, ACCOUNTS AND AUDIT:

Declaration and Payment of dividend and the legal procedure and compliance requirement. Appointment of auditors – Internal and Branch audit, Statutory audit, Secretarial Audit- Importance- Eligibility, Qualification and Disqualifications – Remuneration – Powers and Duties- prohibited Services – Auditors report.

UNIT – V WINDING UP:

Corporate restructuring – Special Courts- Class action - NCLT – Winding Process.

PRESCRIBED BOOKS:

1. Company law – Dr.M.R.Sreenivasan – Margham Publications.
2. Company Law and Secretarial Practice – N.D.Kapoor – Sultan Chand & sons.

REFERENCE BOOKS:

1. Company law – Avtal Singh – Eastern Book Company.
2. Business Law & Company Law – S.S.Gulshan & G.K.Kapoor – New Age Internalwual Ltd.

SEMESTER: III

ALLIED III: STATISTICS– I

SUBJECT CODE:	THEORY/ PRACTICAL	100 MARKS

SEMESTER: III **CREDITS: 5** **NO. OF HOURS PER WEEK: 06**

COURSE OBJECTIVES:

To impart the basic knowledge of collection of primary and secondary data and the Applications of different statistical tools in Business decision making.

UNIT–I

Origin Meaning, Definition and Characteristics of Statistics – Uses and Limitations - Sources of Statistical data – Primary and Secondary – Collection of Primary Data – Direct Personal, Indirect Oral, Mailed Questionnaire and Schedule Methods – Editing of Secondary Data.

UNIT–II

Measures of Central Tendency / Averages – Arithmetic Mean, Median, Quartiles, Deciles, and Percentiles.Mode, Geometric Mean, Harmonic Mean, Combined Mean and Weighted Mean.

UNIT–III

Measures of Dispersion – Range, Quartile Deviation, Mean Deviation and Standard Deviation – Co-efficient of Variation.

UNIT–IV

Measures of Skewness – Meaning, Definition and Types – Karl Pearson's coefficient of Skewness and Bowley's Coefficient of Skewness.

UNIT–V

Probability – Addition and Multiplication Theorem – Conditional probability – Bayer's Theorem (without proof) – Simple problems.

PRESCRIBED BOOKS:

1. Statistical Methods - S.P.Gupta – Sultan Chand 2. Statistics - P.R.Vital-Margham Publications.

REFERENCE BOOKS:

1.Elements of Statistical Hypothesis – E.L.Lehmann – Johu Wiley & Sons.
2. Practical Statistics - R.S.N.Pillai & B.Bhagavathi –S.Chand & Company.

SEMESTER: IV

CORE VII: CORPORATE ACCOUNTING - II

SUBJECT CODE:	THEORY/	100 MARKS

SEMESTER: IV **CREDITS: 4** **NO. OF HOURS PER WEEK: 06**

COURSE OBJECTIVES:
To impart the basic knowledge of Accounting Standards, Financial reporting practices and Banking company accounts as per the provisions of the Companies Act, 2013.

UNIT – I
Accounting Standards – Meaning – Objectives – Significance - Financial Reporting Practices.- Meaning and Scope – Objectives of Financial Reporting - (Theory only)

UNIT – II
Bank Accounts – Non-Performing Assets (NPA) provision for doubtful debts – Rebate on Bills Discounted -Preparation of Profit and Loss account – Preparation of Balance sheet.

UNIT–III
Amalgamation -Meaning – Types - Calculation of Purchase Consideration – Amalgamation in the Nature of Purchase (Excluding Nature of Merger) (Simple problem only)

UNIT– IV Absorption and External Reconstruction of a company – Meaning - Calculation of Purchase Consideration -(Intercompany Investments Excluded) (Simple problem only)

UNIT–V Liquidation – Meaning – Order of Payment – Liquidator's' Remuneration - Liquidator's Final Statement of Receipts and Payments (Statement of Affairs Excluded) (Simple problem only)

PRESCRIBED BOOKS:
1. Corporate Accounting- T.S.Reddy & A.Murthy –Margham Publication. 2. Corporate Accounting - R.L.Gupta & Radhasamy – Sulthan Chand.

REFERENCE BOOKS:
1. Company Accounts - Jain & Narang –Kalyani Publishers.
2. Company Accounts – S.N.Maheshwari & S.K.Maheshwari – Vikas Publication.

SEMESTER: IV

CORE VIII – Goods and Services Tax & Customs Law

SEMESTER: IV **CREDITS: 4** **NO. OF HOURS PER WEEK: 05**

COURSE OBJECTIVES:

- To familiarize students with the basic concepts of indirect tax - GST
- To enable the students to understand the procedure for computation of GST

UNIT- I: TAXATION AND TAX SYSTEM IN INDIA

History of Taxation – Elements of Tax – Objectives of Taxation – Canons of Taxation – Tax System in India – Classification of Taxes.

UNIT- II: CUSTOMS ACT 1962

Customs Act – Definition, Concepts and Scopes – Levy and Collection of Customs Duty – Classification of Goods – Assessment of Duty – Valuation of Goods under Customs Act – Prohibition on Importation & Exportation of Goods – Demand and Recovery of Customs Duty – Clearance of Goods – Baggage.

UNIT- III: INTRODUCTION TO GST

Introduction - Meaning – Need – Benefit – Types – GST Council – Applicability – Exclusions.

EXEMPTIONS

Good exempted from GST – Services exempted from GST – Powers to grant Exemption from tax

UNIT- IV: TAXABLE EVENTS UNDER GST

Introduction – Concepts of Supply – Types of Supply – Composite Supply – Mixed Supply – Composite Levy

VALUE AND TIME OF SUPPLY Introduction – Time of Supply of Goods – Time of Supply of Service – Value of Supply and its Provisions

UNIT- V: REGISTRATION UNDER GST

Introduction – Time limit – Persons liable for Registration – Persons not liable for Registration – Compulsory Registration – Procedure – Cancellation and Revocation

RECOMMENDED BOOKS:

1. Business Taxation – T.S.Reddy & Y.Hariprasad Reddy, Margham Publications, 2018.
2. ICAI – Indirect Tax Study Material, 2018.

REFERENCE BOOKS

1. Dr.Vinod K Singhania, Monica Singhania, Students Guide to Income Tax, TaxmannPublicationsPvt Ltd., New Delhi.
2. GirishAhiya, Dr. Ravi Gupta, Systematic Approach to Income Tax and CST, Bharat Law HousePvt. Ltd. New Delhi.
3. Dr.Sanjeev Kumar, Systematic Approach to Indirect Taxes with Practical problems and solutions,Bharat Law House Pvt. Ltd., New Delhi.

Web References:

http://www.idtc.icai.org/gst.html : http://idtc.icai.org/gst-topic-wise-study-material-list.html

SEMESTER: IV

ALLIED IV: STATISTICS– II

SUBJECT CODE:	THEORY/ PRACTICAL	100 MARKS

SEMESTER: IV **CREDITS: 5** **NO. OF HOURS PER WEEK: 05**

COURSE OBJECTIVES:

To impart the Techniques in the applications of Statistical Tools in Business Process.

UNIT–I.

Correlation and Regression Analysis – Meaning, Definition, Significance and Types of Correlation, Scatter Diagram, Karl Pearson's Coefficient of Correlation – Spearman's Rank Correlation.

UNIT – II

Regression Analysis – Meaning and Importance –Regression Lines and Regression Equations- X on Y , Y on X, Properties of Regression Coefficients –Uses of Regression- Difference Between Correlation & Regression

UNIT – III

Sampling-Meaning of random sample -sampling methods -sampling error and standard error relationship between sample size and standard error

UNIT–IV

Time Series Analysis – Meaning, Need and Components of Time Series – Different Methods – Simple Average Method – Free hand, Semi Average, Moving Average and Least Square Method – Seasonal Indices.

UNIT–V:

Index Numbers – Definition, Usage, Methods of construction of Index Numbers – Types – Unweighted and Weighted Index Numbers. Simple, Aggregate, Price Relatives Methods – Lasperyres, Paasche's Bowley's and Fisher's Index Numbers – Time and Factor Reversal Tests – Cost of Living Index.

PRESCRIBED BOOKS:

1. Statistical Methods - S.P.Gupta – Sultan Chand& Sons 2. Statistics - P.R.Vital-Margham Publications.

REFERENCE BOOKS:

1. Elements of Statistical Hypothesis – E.L.Lehmann – Johu Wiley & Sons.
2. Practical Statistics - R.S.N.Pillai & B.Bhagavathi –S.Chand & Company

SEMESTER: IV

EVS: ENVIRONMENTAL STUDIES SYLABUS

SUBJECT CODE:	THEORY/ PRACTICAL	100 MARKS

SEMESTER: IV **CREDITS: 2** **NO. OF HOURS PER WEEK: 02**

COURSE OBJECTIVES:

To create awareness among the Students community about the Environmental Issues, Causes and Remedies.

UNIT I: MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES Definition, scope and importance-Need for public awareness.

UNIT II: NATURAL RESOURCES:

Renewable and non-renewable resources: Natural resources and associated problems.

a) **Forest resources**: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people.

b) **Water resources**: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.

c) **Mineral resources**: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.

d) **Food resources**: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

e) **Energy resources**: Growing energy needs, renewable and non renewableenergy sources, use of alternate energy sources. Case studies.

f) **Land resources**: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources.Equitable use of resources for sustainable lifestyles.

UNIT III: ECOSYSTEMS: Concept of an ecosystem.

- Structure and function of an ecosystem.
- Producers, consumers and decomposers.
- Energy flow in the ecosystem.
- Ecological succession.
- Food chains, food webs and ecological pyramids.
- Introduction, types, characteristic features, structure and function of the following ecosystem :-
  a. Forest ecosystem
  b. Grassland ecosystem
  c. Desert ecosystem
  d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

UNIT IV: BIODIVERSITY AND ITS CONSERVATION:

- Introduction – Definition: genetic, species and ecosystem diversity.
- Biogeographicaly classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic And option values
- Biodiversity at global, National and local levels.
- India as a mega-diversity nation,Hot-sports of biodiversity.
- Threats to bio diversity: habitat loss, poaching of wildlife, man-wildlife conflicts.
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

UNIT V: ENVIRONMENTAL POLLUTION:

Definition: Cause, effects and control measures of:-

a. Air pollution
b. Water pollution c. Soil pollution
d. Marine pollution e. Noise pollution
f. Thermal pollution g. Nuclear hazards

- Solid waste Management: Causes, effects and control measures of urban and Industrial wastes.
- Role of an individual in prevention of pollution.
- Pollution case studies.
- **Disaster management: floods, earthquake, cyclone and landslides**.

UNIT VI: SOCIAL ISSUES AND THE ENVIRONMENT:

- From Unsustainable to Sustainable development
- Urban problems related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns. Case Studies
- Environmental ethics: Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear Accidents andholocaust.Case Studies.
- Wasteland reclamation.
- Consumerism and waste products.
- Environment Protection Act.
- Air (Prevention and Control of Pollution) Act.
- Water (Prevention and control of Pollution) Act
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation.
- Public awareness.

UNIT VII: HUMAN POPULATION AND THE ENVIRONMENT

- Population growth, variation among nations.
- **Population explosion – Family Welfare Programme. Environment and human health.**
- Human Rights.
- Value Education. • **HIV/AIDS**.
- Women and Child Welfare.
- Role of Information Technology in Environment and human health.
- Case Studies

UNIT VIII: FIELD WORK

- Visit to a local area to document environmental assets- river/forest/grassland/hill/mountain
- Visit to a local polluted site-Urban/Rural/Industrial/Agricultural
- Study of common plants, insects, birds.
- Study of simple ecosystems-pond, river, hill slopes, etc.

PRESCRIBED BOOKS:

1. Environmental studies - St Joseph College Edition
2. Environmental studies- Dr. D.D.Mishra – S.Chand

REFERENCE BOOKS:

3. Environmental studies – Dr. J.P.Sharma – University Science Press.
4. Introduction to Environmental Studies – Dr.Mahainta K.Kalita – Asiau Books.

SEMESTER: V

CORE IX: MANAGEMENT ACCOUNTING

SUBJECT CODE:	THEORY/	100 MARKS

SEMESTER: V **CREDITS: 4** **NO. OF HOURS PER WEEK: 06**

COURSE OBJECTIVE:

To Impart the Basic Knowledge on Accounting for Management and Decision Making Concepts.

UNIT-I:

Management Accounting – Meaning, Scope, Importance and Limitations - Management Accounting vs. Cost Accounting - Management Accounting vs. Financial Accounting.

UNIT -II:

Analysis and interpretation of Financial Statements, nature, objectives, and tools – methods - Comparative Statements, Common Size Statement and Trend Analysis.

UNIT-III:

Ratio analysis - Interpretation, benefits and limitations.Classifications of ratios - liquidity, profitability, turnover, capital structure and leverage. Preparation of balance sheet and profit and loss account form the various ratios

UNIT-IV:

Fund Flow & Cash Flow Statements (**AS-3**) - Budget and budgetary control- meaning, objectives, merits and demerits- types of budgets- production, cash and flexible budgets.

UNIT- V:

Marginal Costing (excluding Decision-Making) - Absorption Costing and Marginal Costing - CVP Analysis -Break-Even Analysis - Break Even Chart.

PRESCRIBED BOOKS:

1. Management Accounting- T.S Reddy &Dr.Y.HariPrasad Reddy- Marghampublilcaitons
2. Management Accounting – S.N.Maheswari – Sultan Chand.

REFERENCE BOOKS:

1. Management accounting – R.S.N.Pillai&Bagavathi – S.Chand
2. Management Accounting – I.M.Pandey – Vikas Publications.

SEMESTER: V

CORE X: SECURITES LAW & MARKETS OPERATIONS

SUBJECT CODE:	THEORY	100 MARKS

SEMESTER: V **CREDITS: 4** **NO. OF HOURS PER WEEK: 05**

COURSE OBJECTIVE:

To Impart the Basic Knowledge of Stock Markets& Legal Framework of The SEBI and Other Agencies.

UNIT-I:INTRODUCTION

Salient features of SEBI Act 1992 & Securities Contract Regulation Act - SEBI Guidelines relating to the functioning of the New Issue Market - SEBI Guidelines for Disclosure and Investor Protection – Securities Contract Regulation Act (SCRA)– features and importance.

UNIT-II: STOCK MARKET

Primary and Secondary Markets; Role and Functions of New Issue Market; Methods of Floatation, Pricing of Issues, Promoters Contribution, Offer Documents, Underwriting of Issues and Allotment of Shares, Appointment and Role of Merchant Bankers, Underwriters, Brokers, Registrars, Lead Managers and Bankers.

UNIT-III: STOCK EXCHANGES

Meaning, Functions, Importance and Limitations; Mechanics of Stock Market Trading-Different Types of Orders, Screen Based Trading and Internet Based Trading; Settlement Procedure; Types of Brokers; Listing of Securities in Indian Stock Exchanges - classification and listing of securities.

UNIT-IV : TRADING PATTERN IN OTCEIAND NSE

Meaning, Significance and Functions, Procedure of Listing and Trading on OTC; NSE-Functioning and Trading Pattern in NSE-Capital Market Segment; Security Market Indicators - Need and Importance; BSE Sensex, NSE, NIFTY and other Index Numbers.

UNIT-V :DEMAT TRADING& MUTUAL FUNDS

Meaning and Significance; SEBI Guidelines and other Regulations Relating to Demat Trading; Procedure of Demat Trading; Role of Depositories and Custodial Services.Introduction, definitions, types, risks involved, performance evaluation and SEBI regulations for mutual funds.

PRESCRIBED BOOKS:

1. Securities Law & Markets Operations- A.Sairam – LearnTech Press.
2. Securities Law & Markets Operations-L.Natarajan – Margham publications.

REFERENCE BOOKS:

1. Machi Raju, H.R. : Working of Stock Exchanges in India; Wiley Eastern Ltd.; New Delhi. Web site of bseindia.com. nse-india.com.

SEMESTER: V

CORE XI: INCOME TAX LAW & PRACTICE-I

SUBJECT CODE:	THEORY/PRACTICA	100 MARKS

SEMESTER: V **CREDITS: 4** **NO. OF HOURS PER WEEK: 06**

COURSE OBJECTIVE:
To Impart the Basic Knowledge and Legal framework and provisions of Income Tax Act 1961.

UNIT- I: BASIC CONCEPTS
Income Tax Act 1961 & relevance of Finance Act – Definition of important terms – Income, Person, Assessee, Assessment Year and Previous Year – Broad features of Income

RESIDENTIAL STATUS, INCIDENCE OF TAX & BASIS OF CHARGE:
Taxable entities – Classification of Residential Status of taxable entities - Residential Status – Individual, firm, AOP, HUF and Companies – Incidence of Tax.

EXEMPTED INCOMES: Classification of exempted incomes – Incomes excluded from total income – Income forming part of total income but exempted from Tax.

UNIT- II: INCOME FROM SALARIES
Different forms of salary – Provident Funds – Allowances – Perquisites – Other items included in Salary – Qualifying amount for deduction u/s 80(C).

UNIT- III: INCOME FROM HOUSE PROPERTY
Computation of Income from House Property – Let-out house – Self occupied house – Deduction allowed from house property – Unrealized rent – Loss under the head house property.

UNIT -IV: PROFITS AND GAINS OF BUSINESS AND PROFESSION
Introduction – Computation of profits and gains of business and profession – Admissible deductions – Specific Disallowances – Depreciation – Loss under the head business and profession.

UNIT- V: ADMINISTRATION OF INCOME TAX ACT
Income tax authorities – procedure for assessment – PAN (Permanent Account Number) – Types of assessment.

PRESCRIBEDBOOKS:

1. Income Tax Theory, law and practice - T.S. Reddy & Dr. Y. Hari Prasad Reddy – Margham publications.
2. Income Tax law and practice. – V.P.Gaur & D.B.Narang.

REFERENCE BOOKS:

1.Students Guide to Income tax – Dr.VinodK.Sign Hania & Dr.Monica Sighania – Taxmann. 2. Income tax service tax & VAT – Dr.Girish Ahuja & Dr.Ravi Gupta – Bharat law house.

SEMESTER: V

CORE XII: COMMERCIAL & INDUSTRIAL LAW

SUBJECT CODE:	THEORY	100 MARKS

SEMESTER: V **CREDITS: 4** **NO. OF HOURS PER WEEK: 05**

COURSE OBJECTIVE:

To Impart the Basic Knowledge of the Legal Framework of the General & Special Provisions of the Indian Contract Act 1872.

UNIT- I:

Meaning of Law – Sources of Law – Classification of Contract – Express & Implied – Valid, Void & Voidable Contracts – Executed &Executory Contracts – Unilateral & Bilateral Contracts.

UNIT- II:

Structure and Formation of Contract – Essential Elements of Contracts – Consensus-ad –idem – Offer – Acceptance – Lawful Consideration- Capacity of parties – Free Consent – Mistake – Misrepresentation – Fraud – Coercion – Undue influence – Lawful Objects – Discharge of Contracts – Remedies for Breach of Contracts.

UNIT-III:

Contract of Indemnity & Guarantee – Essential Difference between Contract of Indemnity & Contract of Guarantee – Revocations of Continuing Guarantee – Surety's Liability – Rights of Surety – Discharge of Surety from Liability – Bailment – Pledge.

UNIT -IV: FACTORIES ACT 1948

Definitions – Health – Safety – Welfare – Working Hours of Adults – Employment of Women – Employment of Young Persons – Leave with Wages.

UNIT- V: INDUSTRIAL DISPUTES ACT

Definitions – Authorities under the Act – Reference of Disputes – Procedures and Powers of Authorities – Strikes and Lock-outs – Lay-off & Retrenchment – Special Provisions relating to Lay-off, Retrenchment & Lock-outs

PRESCRIBED BOOKS:

1. Mercantile law- N.D Kappor – Sultan Chand.
2. Mercantile law-P.C.Tulsian – Tata McGraw Hill.

REFERENCE BOOKS:

1. Mercantile Law –M.C.Shukla – Sultan Chand.
2. Principles of merchatile law – Avtal Singh – Eastern Book Company.

SEMESTER: V

UG - INTER-DISCIPLINARY COURSE

INTER-DISCIPLINARY SUBJECT

(For the students admitted form the academic year 2019-20 onwards)

ENTREPRENEURAL DEVELOPMENT

Hours: 6 per week Credits: 5

UNIT I

Entrepreneur – Meaning - Definition - Classification - Qualities - Functions of entrepreneur.

UNIT II

Entrepreneurship – Meaning – Definition – Nature- Factors affecting entrepreneurship growth, Pros and Cons of entrepreneurship.

UNIT III

MSME an overview – Evolution of SSI – Importance – Problems faced by SSI.

UNIT IV

EDP – Objectives of EDP – Training phases of EDP – Role of government in organizing EDP's-Women Entrepreneur in India – Problems, Remedial measures.

UNIT V

Business plan – Sources of ideas – Identification of opportunities and Preparation of project proposal for start-ups.

REFERENCE BOOKS

1. Srinivasan.N.P. , - Entrepreneurial Development.
2. P.Saravanavel - Entrepreneurial Development.
3. Vasanth Desai – Project Management.
4. Jayashree Suresh - Entrepreneurial Development.

SEMESTER: VI

CORE XIII: COST ACCOUNTING

SUBJECT CODE:	THEORY/PRACTICA	100 MARKS

SEMESTER: VI **CREDITS: 4** **NO. OF HOURS PER WEEK: 06**

COURSE OBJECTIVE:

To Impart the Basic Knowledge on Cost accounting concepts, Pricing of Products, Labour remuneration and Methods of Costing.

UNIT – I:

Definition, meaning and objectives- Advantages and Importance- Distinction between Cost and Financial Accounting -Elements of Cost and Preparation of Cost Sheets and Tenders.

UNIT – II:

MATERIALS Stores record- purchase records- purchase order- Goods received note- Bin card- Stores Ledger -Inventory Control- ABC Analysis – Economic Ordering Quantity – Maximum, Minimum and Reordering levels – Methods of Pricing Issues - Perpetual Inventory System.

UNIT – III:

LABOUR- Importance of Labour Cost Control- Various Methods of Wage Payments - Calculation of Wages - Methods of Incentives (Bonus) Schemes - Recording Labour time- Treatment of "OVER TIME" and "IDLE TIME"- Labour Turn Over (L.T.O)

UNIT – IV:

OVERHEADS: (Factory, Administration, Selling and Distribution) Definition and Meaning of Overheads – Classification – Apportionment of Overheads – Redistribution (Secondary Distribution) – Absorption of Overheads including "Machine Hour Rate".

UNIT – V:

Methods of Cost Accounting: Unit Costing – Job Costing (Excluding Contract Costing) – Process Costing (Excluding Equivalent production , Joint & By-Product, & Inter-Process Profits)– Operating Costing.

PRESCRIBED BOOKS:

1. Cost Accounting - T.S Reddy and Dr.Y.Hari Prasad Reddy – Margham publications
2. Cost & Management Accounting – Jain &Narang –Kalyani Publications**.**

REFERENCE BOOKS

1.Cost Accounting– Pillai & Bhagavathi –Sulttan Chand.
2. Advanced Cost and Management Accounting – Dr.S.N.Maheshwari- Sultan Chand.

SEMESTER: VI

CORE XIV: FINANCIAL MANAGEMENT

Course Objectives:

1.To enable the students to understand the managerial decisions on the acquisition and effective utilisation of long –term and short – term funds of the organization.

2.To enlighten the students about the maximisation of the profitability of the firm.

UNIT I :-

Meaning and objectives and importance of finance - Source of finance – Functions of financial management – Role of Financial manager in financial management.

UNIT II :-

Cost of Capital – Cost of Equity – Cost of Preference share capital – Cost of Debt – Cost of Retained Earnings – Weighted Average cost of capital.

UNIT III : -

Capital structure – Planning – Factors affecting Capital structure – Determining Debt – Equity proportion – Quires of capital structure – Leverage concept

UNIT IV: -

Dividend policy – Factors affecting Dividend payment – Company Law- Provision on Dividend payment – Various dividend Models.

UNIT V :-

Working Capital – Components of Working Capital – Operating Cycle – Factors influencing working capital – Determining or forecasting of working capital requirements.

Theory 40% and Problems 60%

Reference Books

1. Dr.S.N. Maheshwari , Sultan chand and sons.
2. Dr. A Murthy , Margham publications

SEMESTER: VI

CORE XV: INCOME TAX LAW & PRACTICE-II

SUBJECT CODE:	THEORY/PRACTICA	100 MARKS

SEMESTER: VI **CREDITS: 4** **NO. OF HOURS PER WEEK: 06**

COURSE OBJECTIVE:

To Impart The Legal Framework of Various Elements of Income Tax Provisions & Computation of Tax Liability.

UNIT- I: CAPITAL GAINS

Capital Assets – Meaning and Kinds – Procedure for computing Capital Gains – Cost of Acquisition – Exemption of Capital Gains – Loss under head Capital Gains.

UNIT- II: INCOME FROM OTHER SOURCES

Income chargeable to tax under the head Income from Other Sources – Dividends – Interest on Securities – Casual Income – Other Incomes – Deduction from Income from Other Sources – Loss under the head Other Sources.

UNIT- III: AGGREATION OF INCOME

Provisions relating to income of other persons to be clubbed in Assessees Total Income – Income of minor Child – Deemed Incomes.

SET-OFF AND CARRY FORWARD OF LOSSES: Provisions relating to Set-off & Carry forward and Set-off of Losses.

UNIT-IV: AGRICULTURAL INCOME

Agricultural Income – Definition and kinds – Tax treatment of Agricultural Income – Integration of Agricultural Income. (Theory only)

DEDUCTIONS FROM GROSS TOTAL INCOME: Deductions in respect of certain payments – Deduction in respect of income (Deductions applicable to Individuals only) (Simple problems)

UNIT- V: ASSESMENT OF INDIVIDUALS

Assessment of Individuals – Tax rates – Computation of Tax liability of Individuals. (Simple problems)

PRESCRIBED BOOKS:

1. Income Tax Theory, law and practice - T.S. Reddy & Dr. Y. Hari Prasad Reddy – Margham publications.
2. Income Tax law and practice. – V.P.Gaur & D.B.Narang.

REFERENCE BOOKS:

1. Students Guide to Income tax – Dr.VinodK.SignHania&Dr.MonicaSighania – Taxmann.
2. Income tax service tax & VAT – Dr.GirishAhuja&Dr.Ravi Gupta – Bharat law house.

SEMESTER: VI

CORE XVI: CORPORATE GOVERNANCE

SUBJECT CODE:	THEORY	100 MARKS

SEMESTER: VI **CREDITS:4** **NO. OF HOURS PER WEEK: 06**

COURSE OBJECTIVES:
To impart the basic knowledge of Compliance Procedures, Corporate Social Responsibility, Due Diligence, Audit Committees etc.,

UNIT – I INTRODUCTION:
Meaning – Concepts – Objectives – Need and Scope of Corporate governance – Transparency-Elements of Good Corporate Governance

UNIT – II CORPORATE GOVERNANCE:
Shareholders vs. Stake holders approach - **Shareholders** rights, Welfare, Protection, – Grievance Redressal Process Corporate Governance and other Stakeholders- Employees, Customers, Creditors, Community and Government

UNIT – III DUE DILIGENCE:
Due Diligence- Meaning-Requirements for Equity Issues- Securities and Exchange Board of India (Issues of Capital and Disclosure Requirements) Regulations – Initial public offer (IPO); Rights Issue, Bonus Issue, Employees Stock Option Scheme (ESOPS) – Role of Company Secretary regarding the above .

UNIT – IV GOVERNANCE COMMITTES:
Various Committees and Corporate Governance – Audit Committee- Shareholders Grievance Committee-Management Committee – Shareholders Activism.

UNIT – V CORPORATE SOCIAL RESPONSIBILITY:
Meaning – Factors influencing CSR – Promoting Stakeholders' Satisfaction-Managing Socially Responsible Business- Social Reporting – Social Audit.

PRESCRIBED BOOKS:
1. Corporate Governance – P.K.Ghosh– CBS Publilcations
2. Corporate Governance by The Institute of Company Secretaries of India, New Delhi

REFERENCE BOOKS:

1. Corporate Governance – Principles, Policies and Practices by A C Fernando, Pearson Publications, Chennai.
2. Corporate Governance in India – An Evaluation –Subhas Chandradas, Printice Hall India Pvt. Ltd, New Delhi
3. Business Ethics – G.S.V.Murthy- Himalaya Publishing House, New Delhi.
4. Corporate Governance in India – Subratisarkar – Sage Publications
5. Corporate Governance in India – Scenario – Vasudha Joshi – Publication Foundation Books.

SEMESTER: VI

APPLICATION ORIENTED: INSTITUTIONAL TRAINING

SUBJECT CODE:	THEORY/PRACTICA	100 MARKS

SEMESTER: VI **CREDITS: 6** **NO. OF HOURS PER WEEK: 06**

COURSE OBJECTIVE:

To Provide the **PRACTICAL KNOWLEDGE** in **Corporate Management; Office Administration and Secretarial Practices** by deputing the Students to the Public Limited Companies and other Similar Organizations.

Supervised Institutional Training shall be an integral part of B.Com (Corporate Secretaryship) Degree Course. It is a sort of job testing programme designed to bridge the gap between theory & practice and create a natural interest in the practical aspects of the Company Secretaryship so as to stimulate trainee's desire to face its challenges and problems.

The training should be given under the joint supervision and guidance of the Training Officer of the Institution and Faculty member of Corporate Secretaryship. The details of the training are to be given and the assessment of each student in that regard should be fully documented.

The duration of the training shall be for a period of 30 days during the third year. The training shall broadly relate to -

(a) Office Management
(b) Secretarial Practice.

The training relating to Office Management may be designed to acquaint the trainees with

1. Company's activities, organization structure, departments and authority relationship.
2. Study of layout, working conditions, office maintenance, safety and sanitary conditions.
3. Study of the Secretarial service, communication, equipment, postal and mailing services and equipment.
4. Acquaintance with office machines and equipment and accounting, machines.
5. Acquaintance with filing department, sales, purchases, sales accounts, salary, administration and personnel departments.
6. Application of computer, Internet in Company Administration.

The training pertaining to Secretarial Practice shall be on all aspects of the functions of a corporate secretary. The following types of organizations may be selected for training:

1. Public Limited Companies (Both Industrial and Commercial).
2. Statutory bodies, Public Enterprises and Public Utilities like L.I.C., Electricity Board, Housing Board and Chambers of Commerce, Co-op Societies and banks.
3. Office Equipment, Marketing Organizations etc.,

In view of the objective of the course to prepare the students to become professionals like Chartered Accountants, Cost Accountants and Company Secretaries, it is proposed to give on the job training with Practicing Chartered Accountants, Cost Accountants or Company Secretaries. For Institutional training the students may either select to go to a company or to a practicing professional.

NOTE:

The paper on Institutional Training shall carry hundred marks. The students are required to submit a Project Report based on their Training Experience to the Department under the Guidance of their respective Guides assisted by the training officers of the Institutions providing the training.

The Report shall be around 50-60 typed pages, excluding tables, figures, bibliographies and appendices. The External Examiner appointed by the College, in consultation with the Internal Examiner, shall conduct the Viva-Voce Examination and Evaluate the Project Report while awarding the Marks. The marks shall be awarded for Project Report (Max.75) and Viva Voce Exam (Max 25) jointly by both the examiners.

(A candidate failing to secure the minimum for a pass (40%) shall be required to resubmit the report to the Department and reappear for Viva Voce Exam for evaluation)

33333

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042

Re-accredited at 'A - Grade' by NAAC

(Affiliated to the University of Madras)

BACHELOR OF COMMERCE
B.COM (HONOURS)

SYLLABUS

(For the candidates admitted for 2019-2022 Batch)

VISION

To attain a competitive edge over the other academic courses by virtue of its rigorous academia and training structures and to put the students in a rigorous academic environment wherein they are subject to a strong and competitive syllabi and training programs so that they are transformed into professionals who thrive in a challenging and a competitive corporate environment.

MISSION

To strive to attain academic excellence and to maintain a very high standard of education in the dimensions of commerce, management, finance, economics, taxation and financial analysis and to mold the students into competent professionals with a very strong foundation of ethics and professional etiquette.

PROGRAMME OUTCOME

PO1: Convert Students as real time Professionals in the areas of finance, accounting and taxation.

PO2: Prepare Students to face the challenges in the current job market.

PO3: Apply the knowledge gained in the field of finance, law, taxation, treasury, accounting, etc. and in teaching fields.

PO4: Analyze and interpret various case studies related to Marketing, HR, Finance, Management, Accounting, Accounting standards, Income Tax and GST.

PO5: Combine theoretical and practical knowledge through internship and projects

PROGRAMME SPECIFIC OUTCOMES

PS01: Examine the Conceptual knowledge in accounting standards to pursue professional courses

PS02: Prepare students to be proficient in the field of Commerce, Logistics and Supply Chain Management, Research, Corporate Ethics and Governance and Tax.

B.COM (HONOURS)

COURSE STRUCTURE 2019-22 Batch

Semester	Part	Course Component	Subject Name	Subject Code	Credit	Hours	Marks		Total
							Internal	External	
I	I	**Language**	Language (Tamil/Hindi/Sanskrit/French)	19UHTA121/ 19UHHI121/ 19UHSA121/ 19UHFR121	3	4	50	50	100
	II	**English**	English	19UHEN221	3	4	50	50	100
	III	**CORE I**	Financial Accounting -I	19UHON301	4	6	50	50	100
		CORE II	Marketing Practice	19UHON302	4	5	50	50	100
		CORE III	Principles of Management	19UHON303	4	4	50	50	100
		CORE IV	Business Economics	19UHON304	4	5	50	50	100
	IV	**NME I**	Basic Tamil/ Analytical and Logical Reasoning	19UBAT401/ 19UNME401K	2	2		100	100
			Internship - I (two weeks)	19UINT401	2				
CREDIT TOTAL = 26									
II	I	**Language**	Language –II (Tamil/Hindi/Sanskrit/French)	19UHTA122/ 19UHHI122/ 19UHSA122/ 19UHFR122	3	4	50	50	100
	II	**English**	English – II	19UHEN222	3	4	50	50	100
	III	**COREV**	Financial Accounting -II	19UHON305	4	6	50	50	100
		CORE VI	Banking Theory & Practices	19UHON306	4	5	50	50	100
		COREVII	Services Marketing &Customer Relationship Management	19UHON307	4	4	50	50	100
	IV	**COREVIII**	Business Policy & Environment	19UHON308	4	5	50	50	100
		NME II	Basic Tamil/ Fundamentals of Corporate Communication	19UBAT402/ 19UNME402KK	2	2		100	100
			Internship - II (four weeks)	19UINT401	4				
CREDIT TOTAL = 28									
III	III	**CORE IX**	Corporate Accounting	19UHON309	4	6	50	50	100
		CORE X	Business Law	19UHON310	4	5	50	50	100
		CORE XI	Business Mathematics	19UMAT340	4	5	50	50	100
		CORE XII	Financial Services	19UHON311	4	5	50	50	100
		CORE XIII	Logistics and Supply Chain Management	19UHON312	4	5	50	50	100
		CORE XIV	International Trade	19UHON313	4	4	50	50	100
			Internship - III (two weeks)	19UINT401	2				
CREDIT TOTAL = 26									
IV	III	**CORE XV**	Business Statistics and Operations Research	19UMAT347	4	5	50	50	100
		CORE XVI	Insurance and Risk Management	19UHON314	4	4	50	50	100
		CORE XVII	Special Accounts	19UHON315	4	5	50	50	100
	IV	**CORE XVIII**	Company Law	19UHON316	4	5	50	50	100
		CORE XIX	Financial Management	19UHON317	4	5	50	50	100
		CORE XX	Entrepreneurial Development	19UHON318	4	4	50	50	100
			Environmental Studies	16UEVS401	2	2		100	100
			Internship - IV (four weeks)00	19UHON401	4				
CREDIT TOTAL = 30									
V	III	**CORE XXI**	Cost Accounting	19UHON319	4	6	50	50	100
		CORE XXII	Corporate ethics and Governance	19UHON320	4	4	50	50	100
		CORE XXIII	Income Tax Law and Practice I	19UHON321	4	6	50	50	100
		CORE XXIV	Accounting Standards	19UHON322	4	4	50	50	100
		CORE XXV	Practical Auditing	19UHON323	4	5	50	50	100
		CORE XXVI	Research Methodology	19UHON324	4	5	50	50	100
	IV		Value Education	19UVED301	2			100	100
			Internship - V (two weeks)	19UHON401	2			100	100
CREDIT TOTAL = 28									

		CORE XXVII	Management Accounting	19UHON325	4	6	50	50	100
		CORE XXVIII	Human Resource Management	19UHON326	4	5	50	50	100
VI	**III**	**CORE XXIX**	Security Analysis and Portfolio Management	19UHON327	4	4	50	50	100
		CORE XXX	Income Tax Law and Practice II	19UHON328	4	6	50	50	100
		CORE XXXI	Business Taxation	19UHON329	4	4	50	50	100
			Project & Viva-voce	19UHON330	8	5		100	100
			Extension Activities		1				
CREDIT TOTAL = 29									
OVERALL CREDIT TOTAL = 167									

SEMESTER - I

CORE - I
FINANCIAL ACCOUNTING -I

SUBJECT CODE :19UHON301	**THEORY & PROBLEMS**	**MARKS 100**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

- **To help students to acquire conceptual knowledge of the financial accounting**
- **To familiarize students with the basic financial tools with emphasis on applications to Business situations**

UNIT – 1 **(20 Hours)**

Preparations of Final Accounts of a Sole Trading Concern – Adjustments – Closing Stock, Outstanding and Prepaid items, Depreciation, Provision for Bad Debts, Provision for Discount on Debtors, Interest on Capital and Drawings.
(Simple problems only).

UNIT – II **(20 Hours)**

Preparation of Receipt and Payments Account, Income and Expenditure Account and Balance Sheet of Non-Trading Organization (Simple problems only)

UNIT – III **(17 Hours)**

Account Current – Average Due Date – Sale or Return Account - Classification of errors – Rectification of errors – Preparation of Suspense Account - Bank Reconciliation Statement. (Simple problems only)

UNIT – IV **(17 Hours)**

Depreciation – Meaning, Causes, Types – Straight-Line Method, written down Value method, Sinking fund method (Theory & Sums) - Fire Insurance Claims (Loss of stock). (Simple problems only)

UNIT – V **(16 Hours)**

Single Entry – Meaning, features, Defects, Differences between Single Entry and Double Entry System – Statement of Affairs Method – Conversion Method (Simple problems only).

Reference Books:

1. R.L. Gupta & V.K Gupta,Advanced Accounting, Sultan Chands & Sons, New Delhi.
2. T.S. Reddy &A.Murthy, FinancialAccounting,Margham Publications, Chennai.
3. Hanif M, A. Mukherjee, Financial Accounting, Tata McGraw Hill Publishing Company
4. Shukla, M.C., T.S Grewal and S.C. Gupta, Advanced Accounting, Sultan Chands & Sons,

New Delhi.
5. Jain S. P., and K.LNarang, Financial Accounting, Kalyani Publishers, New Delhi
6. P.C.Tulsian, Advanced Accounting, Tata McGraw Hill, New Delhi
7. Maheswari, S. N. and S. K. Maheswari, Financial Accounting, Vikas Publishing House, New Delhi
8. R.L Gupta &Radhaswamy, Advanced Accounting, (Volume I), Sultan Chands Publication, New Delhi
9. Das K. R., K.M. Sinha, Financial Accounting, Lawyers Book Stall
10. Bhattacharya Ashish, Financial Accounting, Prentice Hall Inc. Ltd
11. Banerjee B.K,Financial Accounting –A dynamic Approach, Prentice Hall of India Private Limited, New Delhi.

Note: No theory questions should be asked.

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
SECTION B (Answer any 5 out of 7 questions) 8 marks each	SHORT ANSWERS (Answer any 5 out of 7 questions) 8 marks each (each in 300 words)	13-19	8	40
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	ESSAY (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each (1200 words)	20-22	20	40
Total				100

DISTRIBUTION OF QUESTIONS: (PROBLEM PAPERS)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	-	3
	2	-	2
	3	-	3
	4	-	2
	5	-	2
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	-	1
	2	-	1
	3	-	1
	4	-	2
	5	-	2
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1 (Q.no 20)	-	1
	2	-	1
	3	-	-
	4	-	1
	5	-	

CORE –II: MARKETING PRACTICE

SUBJECT CODE: 19UHON302	**THEORY**	**MARKS 100**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS:75**

COURSE OBJECTIVES:

- **To provide basic knowledge of concepts, principles, tools and techniques of marketing.**
- **To impart better understanding of content of a marketing plan**
- **To familiarize the students with the recent trends in marketing**

UNIT – I **(CASE STUDY)** **(15 Hours)**

Introduction to Marketing – Meaning – Definition and Functions of marketing – Marketing Orientations –Role and Importance of Marketing – Classification of Markets

UNIT – II **(15 Hours)**

Marketing Environment – Micro and Macro Environment (Factors affecting internal environment and external environments) - Marketing segmentation – concept – benefits – bases and levels

UNIT – III **(15 Hours)**

Introduction to consumer behaviour – need for study – consumer buying decision process – buying motives- Pricing decisions- creativity marketing – retail marketing

UNIT – IV **(15 Hours)**

Marketing mix – meaning – introduction to stages for new product development –Types - introduction to product life cycle- Product mix- P r i c e - pricing policy & methods - place- channels of distribution (levels), channel members- promotion – communication mix – basic of advertisement, sales promotion &personal selling.

UNIT – V **(15 Hours)**

Recent trends in marketing – basic understanding of E-marketing – consumerism – market research, MIS (Management information system), marketing regulation

Reference Books:

1. Saxena Rajan, Marketing Management, Sultan Chands & Sons, New Delhi.
2. Kotler, Philip and Gary Armstrong, Principles of Marketing, 13th edition, Pearson Education, New Delhi.
3. Michael, J. Etzel., Bruce J Walker and William J Stanton, Marketing ,13th edition, McGraw Hill, New York
4. Still and Cundiff, Marketing Management, Prentice Hall Inc. Ltd.,
5. Gupta C. B. and Dr.N.Rajan Nair, Marketing Management, Sultan Chand Ltd., New Delhi
6. Kumar A., Meenakshi, Marketing Management, Vikas Publishing House, New Delhi.
7. Sherlekar S. A, Marketing Management, Himalaya Publishing House, Mumbai.

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
SECTION B (Answer any 5 out of 7 questions) 8 marks each	SHORT ANSWERS (Answer any 5 out of 7 questions) 8 marks each (each in 300 words)	13-19	8	40
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	ESSAY (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each (1200 words)	20-22	20	40
Total				100

DISTRIBUTION OF QUESTIONS: (THEORY PAPER)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	3	
	2	3	
	3	2	
	4	2	
	5	2	
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	1	
	2	1	
	3	2	
	4	2	
	5	1	
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1 (Q20)	1	
	2	1	
	3	1	
	4		
	5	-	

CORE III: PRINCIPLES OF MANAGEMENT

SUBJECT CODE: 19UHON303	**THEORY**	**MARKS 100**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 60**

COURSE OBJECTIVES:

- **To impart to the students an understanding of state of art of management & business concepts.**
- **To prepare them to face the emerging challenges of managing resources, business process and managing managers**

UNIT I **(CASE STUDY)** **(12 Hours)**

Meaning and Definition of Management-Principles of Management - Classification of Managerial functions - Importance of Management –Management Thoughts – Classical, Neo Classical, Modern Theories – Taylor, Fayol, Mayo, Hawthorne

UNIT II **(12 Hours)**

Planning-Meaning, Objectives, Steps, Types – MBO - Decision-making- Meaning, Advantages & Disadvantages, Process

UNIT III **(12 Hours)**

Organizing – Authority Responsibility - Delegation and Decentralization

UNIT IV **(12 Hours)**

Directing – Nature and Purpose - Leadership – Styles of leadership– Motivation- Theories of Maslow and Herzberg

UNIT V **(12 Hours)**

Communication Process - Channels, Networks, Barriers, Overcoming of Barriers – Coordination – Control - Meaning, Steps, Advantages & Disadvantages

Reference Books:

1. Gupta C.B., Business Management, Sultan Chand & Sons
2. Koontz Harold and Heinz Weihrich, Mc Graw Hill Book Company
3. Prasad L.M., Principles & Practice of Management, Sultan Chand & Sons
4. Stoner. A.F. and Freeman.R.E., Management, Prentice Hall of India
5. Koontz Harold, Heinz Weihrich, Essentials of Management, Prentice Hall of India
6. Prasad, Manmohan, Management Concept & Practice, Himalaya Publishing House, Mumbai
7. Terry R. George, Principles of Management, Pearson's Education Pvt. Ltd.
8. Vasishth Neeru, Principles of Management, Vikas Publishing House

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
SECTION B (Answer any 5 out of 7 questions) 8 marks each	SHORT ANSWERS (Answer any 5 out of 7 questions) 8 marks each (each in 300 words)	13-19	8	40
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	ESSAY (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each (1200 words)	20-22	20	40
Total				100

DISTRIBUTION OF QUESTIONS: (THEORY PAPERS)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	2	
	2	2	
	3	3	
	4	3	
	5	2	
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	1	
	2	1	
	3	2	
	4	1	
	5	2	
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1(Q20)	1	
	2	1	
	3	1	
	4	-	
	5	-	

CORE IV: BUSINESS ECONOMICS

SUBJECT CODE:19UHON304	THEORY	MARKS 100
SEMESTER: I	CREDITS: 4	TOTAL HOURS: 75

COURSE OBJECTIVES:

- **To develop basic understanding about the economic concepts, tools and techniques for their applications in business decisions.**
- **To impart knowledge on National income and its application in business.**

UNIT I **(15 Hours)**

Introduction to Economics – Wealth, Welfare and Scarcity Views on Economics - Positive and Normative – Economics – Definition, Scope and Importance of Business Economics - Concepts: Production Possibility Frontiers – Opportunity Cost – Accounting Profit and Economic Profit – Incremental and Marginal Concepts – Time and Discounting Principles – Concept of Efficiency

UNIT II **(14 Hours)**

Demand and Supply Functions - Meaning of Demand – Determinants and distinctions of demand – Law of Demand – Elasticity of Demand – Demand Forecasting – Supply concept and Equilibrium

UNIT III **(CASE STUDY)** **(16 Hours)**

Consumer Behaviour: Law of Diminishing Marginal utility – Equi-marginal Utility – Indifference Curve –Definition, Properties and equilibrium- Production: Law of Variable Proportion – Laws of Returns to Scale – Producer's equilibrium – Economies of Scale Cost Classification – Break Even Analysis

UNIT IV **(15 Hours)**

Product Pricing: Price and Output Determination under Perfect Competition - Monopoly – Discriminating monopoly – Monopolistic Competition – Oligopoly – Pricing objectives and Methods

UNIT V **(15 Hours)**

National Income – National Product and National Income – Per Capita Income problems –Economic Welfare - Nature and principles of Public Finance, Public Expenditure and Indirect Taxes.

Reference Books:

1. S.Shankaran, Business Economics - Margham Publications - Ch -17
2. P.L. Mehta, Managerial Economics – Analysis, Problems & Cases - Sultan Chand & Sons – New Delhi – 02.
3. Francis Cherunilam, Business Environment, Himalaya Publishing House -Mumbai – 04.
4. Peter Mitchel son and Andrew Mann, Economics for Business, Thomas Nelson Australia -Can

-004603454.
5. ChaudharyC.M Business Economics, RBSA Publishers,Jaipur - 03.
6. H.L. Ahuja, Business Economics – Micro & Macro, Sultan Chand & Sons, New Delhi

QUESTION PAPER PATTERN

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
SECTION B (Answer any 5 out of 7 questions) 8 marks each	SHORT ANSWERS (Answer any 5 out of 7 questions) 8 marks each (each in 300 words)	13-19	8	40
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	ESSAY (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each (1200 words)	20-22	20	40
Total				100

DISTRIBUTION OF QUESTIONS: (THEORY PAPERS)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	3	
	2	2	
	3	2	
	4	3	
	5	2	
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	1	
	2	1	
	3	2	
	4	1	
	5	2	
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1	1	
	2	1	
	3(Q20)	1	
	4	-	
	5	-	

NME 1 –ANALYTICAL AND LOGICAL REASONING

SUBJECT CODE: 19UNME401K	THEORY & PROBLEMS	MARKS: 100
SEMESTER: I	CREDITS: 2	TOTAL HOURS: 30

COURSE OBJECTIVES:

- **To enable students to learn to describe the problem-solving process**
- **To make the students identify various problem-solving techniques and apply these in solving business problems**
- **To Understand thinking models and practice exercises to help in thinking outside-the-box and generate a larger solution space**
- **To Understand creativity and blocks to creativity**
  To Arrive at objective, well-reasoned decisions in a reasonable time

UNIT-I **(6 Hours)**

Logical reasoning Introduction- Number Series

UNIT-II **(6 Hours)**

Statement and assumptions – Statement and conclusion

UNIT-III **(6 Hours)**

Verbal reasoning – Coding and Decoding (with alpha numeric characters) -Reasoning Blood Relationship

UNIT-IV **(6 Hours)**

Direction Sense Test – Data Interpretation from bar chart, pie chart.

UNIT-V **(6 Hours)**

Venn Diagrams – Image Series

Reference Books

1. Logical and Analytical Reasoning – A.K. Gupta – Ramesh publishing house – 2016 Paper Back edition
2. A Modern Approach to verbal and non-verbal reasoning – Revised edition by R.S.Agarwal – Publisher – S.Chand and Company Pvt. Ltd.

Web References:

1. http://www.careerguide.co.in/search/label/Reasoning
2. http://www.indiabix.com/logical-reasoning

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	Multiple choice Questions	1-50	2	100
TOTAL MARKS				100

Distribution of Questions:

Sections	Units	No. of Questions
		Problems
Section A	Unit – 1	10
	Unit – 2	10
	Unit – 3	10
	Unit – 4	10
	Unit – 5	10

SEMESTER - II

CORE V: FINANCIAL ACCOUNTING -II

SUBJECT CODE: 19UHON305	THEORY & PROBLEMS	MARKS 100
SEMESTER: II	CREDITS: 4	TOTAL HOURS: 90

COURSE OBJECTIVES:

- **To familiarize the students with the practices of advanced financial accounting**
- **To prepare them to understand the practical application of various techniques learnt in Tally Package**

UNIT – I **(18 Hours)**

Hire Purchase System – Introduction- Accounting Procedure for high value goods- Default and Repossession –Accounting treatment for goods of small value- Hire Purchase Trading Account- Instalment Purchase System – Meaning, Accounting Treatment

UNIT – II **(18 Hours)**

Branch Accounting- Debtors system, Stock and debtor's system, Independent branch – Departmental accounts – Inter-departmental transfers

UNIT III **(17 Hours)**

Partnership Accounts- Admission, Retirement, Admission cum Retirement, Death of a Partner (excluding individual & joint life policies)

UNIT IV **(19 Hours)**

Dissolution-Insolvency of a partner-Garner vs. Murray -Insolvency of more than one and all partners – Piecemeal Distribution –Proportionate Capital Method and Maximum Loss method

UNIT V **(18 Hours)**

Introduction to Operating system –Windows - File manager –location and identification– safeguards - Tally Package: Configuration of Tally; Tally screens and menus - Company Information – creating, selecting, altering, closing a company - Accounting Information – creating, displaying, altering and deleting groups and ledgers - Introduction to cost – creating, displaying, altering and deleting cost centres and cost categories - Reports – displaying different types of accounting and inventory reports, changing display format of reports, printing reports - Introduction to ERP and SAP

Reference Books:

1. R.L. Gupta & V.K Gupta, Advanced Accounting, Sultan Chands & Sons, New Delhi.
2. Hanif M, A. Mukherjee, Financial Accounting, Tata McGraw Hill Publishing Company
3. T.S. Reddy &A.Murthy, Financial Accounting Margham Publications, Chennai.
4. Shukla, M.C., T.S Grewal and S.C. Gupta, Advanced Accounting, Sultan Chands &

Sons, New Delhi.
5. Jain S. P., and K.LNarang, Financial Accounting, Kalyani Publishers, New Delhi
6. P.C.Tulsian, Advanced Accounting, Tata McGraw Hill, New Delhi
7. Maheswari, S. N. and S. K. Maheswari, Financial Accounting, Vikas Publishing House, New Delhi
8. R.L Gupta &Radhaswamy, Advanced Accounting, (Volume I), Sultan Chands Publication, New Delhi
9. Das K. R., K.M. Sinha, Financial Accounting, Lawyers Book Stall
10. Bhattacharya Ashish, Financial Accounting, Prentice Hall Inc. Ltd
11. Banerjee B.K,Financial Accounting –A dynamic Approach, Prentice Hall of India Private Limited, New Delhi.

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
SECTION B (Answer any 5 out of 7 questions) 8 marks each	SHORT ANSWERS (Answer any 5 out of 7 questions) 8 marks each (each in 300 words)	13-19	8	40
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	ESSAY (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each (1200 words)	20-22	20	40
Total				100

DISTRIBUTION OF QUESTIONS: (PROBLEM & THEORY PAPERS)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	1	2
	2	1	1
	3	1	1
	4	1	2
	5	1	1
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	-	-
	2	1	-
	3	-	2
	4	-	2
	5	-	2
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1(Q20)	-	1
	2	-	1
	3	-	1
	4	-	-
	5	-	-

COREVI: BANKING THEORYAND PRACTICES

SUBJECT CODE :19UHON306	**THEORY**	**MARKS 100**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS:75**

COURSE OBJECTIVES:

- **To expose students to the concept, importance and dynamics of banking business.**
- **To prepare them to understand the theoretical frame work of functioning of banking sector.**

UNIT I **(15 Hours)**

Commercial banking – definition, classification, functions and working –**Structure of Indian banking system** – universal banking –functions – role of commercial banks in economic development – central banking - definition – need –principles – central banking Vs. commercial banking – functions and role RBI –objective – legal framework – functions

UNIT II **(16 Hours)**

E-banking – meaning – services – risk management for e-banking – Internet banking – Traditional banking – mechanics – drawbacks of Internet banking – Indian scenario and future outlook– Mobile banking – telephone banking – ATM – electronic money – electronic funds transfer – Indian Financial Network (INFINET)

UNIT III **(14 Hours)**

Opening bank accounts – type of bank accounts – FDR – pay-in-slip book – donation mortis cause – bank customer – special type of customers – bank lending – sources and factors of lending – negotiable instruments

UNIT IV **(CASE STUDY)** **(15 Hours)**

Crossing – definition, need, types, consequences – opening of crossing – liability of the paying banker– marking of cheques - Endorsement – meaning, types – negotiation back – effect – duration and rules –paying banker – dishonoring of a cheque – payment in a crossed cheque – material alternation –statutory protection

UNIT V **(15 Hours)**

Collecting banker – meaning – collecting banker's rule – statutory protection – collecting banker's duty –collection of bills of exchange – agent for collection –paying banker vs. collecting banker – customer grievances – grievance redressal – banking ombudsman – Banking Regulations Act – major provisions

Reference Books:

1. K.P.M. Sundharam, Money, Banking & International Trade - Sulltan Chand & Sons - New Delhi.

2. Dr. S. GURUSAMY, Tata McGraw Hill, New Delhi
3. S.V. Vasudevan, Theory of Banking - S.Chand& Company Ltd., - New Delhi.
4. K.P.M. Sundharam, P.N. Varshney, Banking Theory Law & Practice - Sultan Chand &Sons -New Delhi.

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
SECTION B (Answer any 5 out of 7 questions) 8 marks each	SHORT ANSWERS (Answer any 5 out of 7 questions) 8 marks each (each in 300 words)	13-19	8	40
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	ESSAY (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each (1200 words)	20-22	20	40
Total				100

DISTRIBUTION OF QUESTIONS: (THEORY PAPERS)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	3	
	2	2	
	3	2	
	4	3	
	5	2	
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	1	
	2	1	
	3	2	
	4	1	
	5	2	
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1	1	
	2	1	
	3	-	
	4(Q20)	1	
	5	-	

CORE VII: SERVICES MARKETING & CUSTOMER RELATIONSHIP MANAGEMENT

SUBJECT CODE: 19UHON 307	**THEORY**	**MARKS 100**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 60**

COURSE OBJECTIVES:

- **To acquaint the students with the basic concepts and future growth in services industry**
- **To prepare them to face the emerging challenges of managing resources and distribution of services**
- **To expose the students to the concept, evolution and importance of customer relationship management**
- **To provide an insight on emerging technologies, scope, challenges and issues of customer relationship management**

UNIT-I **(12 Hours)**

Services Marketing – Meaning, definition, Introduction - characteristics of service – Classification of Service - Difference between goods and services.

UNIT-II **(CASE STUDY)** **(10 Hours)**

Services Marketing Mix – Products –New Services – Pricing–Objectives, Types.

UNIT-III **(13 Hours)**

Promotion Mix – Advertising, Personal Selling, Sales Promotion – Growth of Service Sector.

UNIT-IV **(13 Hours)**

Customer Relationship Management – Introduction, Meaning, and Definition – Benefits, Limitations and Objectives – Types of Customer Relationship Management.

UNIT-V **(12 Hours)**

Customer Relationship Management Concepts – Cross Selling - Up Selling – Relationship Marketing – Transactional Marketing – Sales Force Automation.

Reference Books:

1. Valarie.A. Zeithaml, Service Marketing Tata McGraw Hill, 2000.
2. Christopher Lovelock, Service Marketing, Pearson Education Asia, 2000.
3. Kruise, Service Marketing John Wiley and Sons ltd 2000
4. Christian Gronroos, service Management and Marketing,John Wiley and Sons ltd 2000
5. Helen Woodruff,ServicesMarketing,Macmillan India Ltd

6. Jha S M., Service Marketing, Himalaya Publishing House, Mumbai.
7. Verma Harsh V., Service Marketing, Pearson Education, New Delhi.
8. John Egan, "Relationship Marketing, Exploring Relational Strategies in Marketing", Prentice Hall.
9. John Anton, "Customer Relationship Management", Prentice Hall.
10. Jagdish N Sheth and AtulParvatiyar, "Handbook of Relationship Marketing", Response Books, 2002.
11. Anderson, "Customer Relationship management", Tata McGraw Hill, 2002
12. David Strutton; Lou E. Pelton; James R. Lumpkin, "Marketing Channels: A Relationship Management Approach", McGraw-Hill Higher Education.
13. John Gosney&Thombs Bochum, CRM essentials, Prentice Hall, 2000.
14. Bryan Bergeron John Wiley & sons, Essentials of CRM, 2002

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
SECTION B (Answer any 5 out of 7 questions) 8 marks each	SHORT ANSWERS (Answer any 5 out of 7 questions) 8 marks each (each in 300 words)	13-19	8	40
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	ESSAY (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each (1200 words)	20-22	20	40
Total				100

DISTRIBUTION OF QUESTIONS: (THEORY PAPERS)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	3	
	2	3	
	3	2	
	4	2	
	5	2	
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	1	
	2	1	
	3	2	
	4	2	
	5	1	
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1	-	
	2(Q20)	1	
	3	1	
	4	1	
	5	-	

CORE VIII: BUSINESS POLICY AND ENVIRONMENT

SUBJECT CODE: 19 UHON 308	THEORY	MARKS 100
SEMESTER: II	CREDITS: 4	TOTAL HOURS: 75

COURSE OBJECTIVES:

- **To provide an overview and importance of business environment**
- **To enable the students to understand the business ethics in the competitive environment**

UNIT I **(15 Hours)**

Dimensions of Business Environment-Economic, Political, Cultural, Social, Legal, Demographic, Governmental, Technological, Natural Environment - Environmental Analysis – Need, Importance, Approaches -ETOP and Forecasting techniques

UNIT II **(CASE STUDY)** **(12 Hours)**

Organizational Analysis-Need, Approaches-SAP, SWOT Analysis

UNIT III **(17 Hours)**

Global Environment – Globalization-Rationale, Significance, Strategies for globalization, MNCs, FDI in India

UNIT IV **(16 Hours)**

Economic and Business Environment - Agreements and Current Issues-WTO, TRIMS and TRIPS – IPRs-Concepts, Features and requisites for registration of Intellectual Property, Implications in India

UNIT V **(15 Hours)**

Corporate Communication- Importance – Methods- Social Networking – Pros & Cons.

Reference Books:

1. Francis Cherunilam, Business Environment, Himalaya Publishing House, Mumbai
2. Aswathappa.K, Business Environment, Himalaya Publishing House, Mumbai
3. V.P. Michael, Business Policy and Environment, S. Chand & Co., New Delhi

4. Raj Agarwal, Business Environment, Excel books, New Delhi

5. Sankaran S. Business Environment, Margham Publications, Chennai

6. Dasgupta and Sengupta, Government and Business in India, Pearson's Education Pvt. Ltd

7. Srinivasan K - Productivity and Social Environment, Vikas Publications

8. Paul, International Business Environment, Prentice Hall of India

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
SECTION B (Answer any 5 out of 7 questions) 8 marks each	SHORT ANSWERS (Answer any 5 out of 7 questions) 8 marks each (each in 300 words)	13-19	8	40
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	ESSAY (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each (1200 words)	20-22	20	40
Total				100

DISTRIBUTION OF QUESTIONS: (THEORY PAPAERS)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	2	
	2	2	
	3	3	
	4	3	
	5	2	
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	1	
	2	1	
	3	2	
	4	1	
	5	2	
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1	-	
	2 (Q20)	1	
	3	1	
	4	1	
	5	-	

NON-MAJOR ELECTIVE– II

NME: – FUNDAMENTALS OF CORPORATE COMMUNICATION

SUBJECT CODE: 19 UNME 402 K	THEORY	MARKS 100
SEMESTER: II	CREDITS: 2	TOTAL HOURS: 30

COURSE OBJECTIVES:

- **To enable the students to acquire knowledge about the importance of communication in today's competitive business environment**

UNIT I **(6 Hours)**

Concept of Communication – Meaning, Definition, Process, Need, Feedback, Principles of effective Communication – Barriers to Communication: Physical, Semantic/Language, Socio-Cultural and Psychological Barriers - Ways to overcome these Barriers.

UNIT II **(6 Hours)**

Types of Communication: Verbal, Non-verbal – Characteristics of Verbal communication and Non-verbal communication Merits and Demerits of Verbal and Non-verbal communication. Channels of Communication: Formal and Informal— Vertical, Horizontal, Diagonal, Grapevine.

UNIT III **(6 Hours)**

Personnel correspondence - Job Application Letter and Resume Letter of Acceptance of Job Offer, Inter-Office-Memo, Letter of Resignation.

UNIT IV **(6 Hours)**

Business Correspondence: Trade Letters – (Inquiry, Order, Credit and Status Enquiry, Complaints, Claims, Sales Letters, promotional leaflets and fliers).

UNIT V **(6 Hours)**

Report Writing – Agenda, Minutes of Meeting – Memorandum – Office Order – Circular Notes- Correspondence with shareholders –Correspondence with directors.

Prescribed Texts:

1. N.S. Raghunthan, B. Santhanam – Margham Publications,Chennai,3rd Edition
2. C.B. Gupta, Business communication, Organisation and Management, 2014.

Reference Books:

1. Rajendra Pal & J.S. Korlahalli, Essentials of Business Communication - Sultan Chand & Sons - New Delhi.
2. Shirley Taylor, Communication for Business - Pearson Publications - New Delhi.
3. Bovee, Thill, Schatzman, Business Communication Today - Pearson Education Private Ltd. - New Delhi.
4. Penrose, Raspberry, Myers, Advanced Business Communication - Bangalore.
5. Mary Ellen Guffey, Business Communication – Process and Product - International Thomson Publishing - Ohio.

Web References:

1. http://www.businesscommunication.org
2. http://www.iabc.com
3. http://www.etiquettetrainer.com

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	Descriptive Questions	1-10	20	100
TOTAL MARKS				100

Distribution of Questions:

Sections	Units	No. of Questions
		Questions
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	2
	Unit – 4	2
	Unit – 5	2

SEMESTER - III

CORE IX: CORPORATE ACCOUNTING

SUBJECT CODE: 19UHON309	THEORY & PROBLEMS	MARKS 100
SEMESTER: III	CREDITS: 4	TOTAL HOURS: 90

COURSE OBJECTIVES:

- **It provides comprehensive understanding of corporate accounting practices and presentation of financial statements as per legal requirements in the organizations.**
- **It provides an overview of the corporate practice in maintaining the books as per accounting standards especially in company final accounts, alteration of shares, valuation of shares etc.,**

UNIT- I **(18 Hours)**

Advanced problems in issue and buy back of shares and debentures – underwriting of shares and Debentures

UNIT- II **(15 Hours)**

Acquisition of Business

UNIT- III **(18 Hours)**

Final Accounts of joint stock companies as per new guidelines– divisible profits, managerial remuneration, profits prior to incorporation - Legal requirements

UNIT- IV **(18 Hours)**

Alteration of share capital and internal reconstruction - Accounting for price level changes

UNIT- V **(21Hours)**

Liquidation of joint stock companies – statement of affairs and deficiency account – Liquidator's statement of account

Reference Books:

1. M.C. Shukla & T.S. Grewal, Advanced Accounting, S.Chand& Co. Ltd. New Delhi
2. P. Jain and K.L Narang, Corporate Accounting, Kalyani Publishers, New Delhi
3. R.L. Gupta and M. Radhaswamy, Advanced Accounting, Sultan Chand & Sons, New Delhi
4. S. N. Maheswari, Advanced Accounting, Sultan Chand & Sons, New Delhi

Note: No theory questions should be asked.

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
SECTION B (Answer any 5 out of 7 questions) 8 marks each	SHORT ANSWERS (Answer any 5 out of 7 questions) 8 marks each (each in 300 words)	13-19	8	40
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	ESSAY (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each (1200 words)	20-22	20	40
Total				100

DISTRIBUTION OF QUESTIONS: (PROBLEM PAPERS)

SECT IONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	-	
	2	-	
	3	-	
	4	-	
	5	-	
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	-	
	2	-	
	3	-	
	4	-	
	5	-	
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1	-	
	2 (Q 20)	-	
	3	-	
	4	-	
	5	-	

CORE X: BUSINESS LAW

SUBJECT CODE :19UHON310	**THEORY**	**MARKS 100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 75**

COURSE OBJECTIVES:

- **To assist the students to learn the elements of general contract.**
- **To enable the students to understand and deal with various contracts in his/her day-to-day life, be it for his business or profession.**
- **To enable the students to learn and understand the special contracts.**

UNIT –I (CASE STUDY) **(20 Hours)**

Business Law - Introduction – Nature of contract – Offer and Acceptance – Consideration – capacity to contract – Free consent

UNIT-II **(15 Hours)**

Legality of object – Void contracts – Contingent contracts – Performance of contract - Discharge of contract – Remedies for Breach of contract – Quasi contracts

UNIT- III **(15 Hours)**

Contract of Agency – Creation – classification of Agents – Principal Agent relationships – Delegation of authority – Personal liability of agent – Termination of agency

UNIT- IV **(13 Hours)**

Sale of goods – Conditions and warranties – Transfer of Property – Performance – Rights of Unpaid seller

UNIT –V **(12 Hours)**

Indemnity – Guarantee – Bailment – Pledge – Lien – Hypothecation – Charge – Mortgage

Reference Books:

1. N.D. KAPOOR, Elements of Mercantile Law, Sultan Chand &Co
2. N.D. KAPOOR, Business Laws, Sultan Chand & Co
3. KRISHNAN NAIR, Law of Contracts, Orient Longman Publishers.
4. Dr. M.R. Srinivasan, 2005, Business Law 2nd Ed Margham Publication, Chennai
5. P.C. Tulsian Business Laws, 2nd Ed, Tata McGraw Hill, New Delhi
6. R.S.N Pillai and Bhagavathi, 2004, Business Law, 3rd Ed., S. Chand & Co., New Delhi

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
SECTION B (Answer any 5 out of 7 questions) 8 marks each	SHORT ANSWERS (Answer any 5 out of 7 questions) 8 marks each (each in 300 words)	13-19	8	40
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	ESSAY (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each (1200 words)	20-22	20	40
Total				100

DISTRIBUTION OF QUESTIONS: (THEORY PAPAERS)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	3	
	2	2	
	3	3	
	4	2	
	5	2	
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	1	
	2	1	
	3	2	
	4	2	
	5	1	
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1(Q20)	1	
	2	1	
	3	1	
	4	-	
	5	-	

CORE XI: BUSINESS MATHEMATICS

SUBJECT CODE: 19UMAT340	THEORY & PROBLEMS	MARKS 100
SEMESTER: III	CREDITS: 4	TOTAL HOURS: 75

COURSE OBJECTIVES:

- **To enhance their knowledge in basics of mathematics**
- **To familiarize the students with the mathematical concepts and their application in general business operations**
- **To prepare them to face the competitive exams**

Unit – I **(15 Hours)**

Theory of Sets-Set Theory – Definition, Elements and Types of Sets, Operations on Sets, Relations and Functions of Sets

Unit – II **(20 Hours)**

Binominal Theorem, Exponential and Logarithmic Series.

Unit – III **(15 Hours)**

Limits and Continuity. Basic concepts of Differential Calculus (excluding trigonometric functions)

Unit – IV **(10 Hours)**

Algebra-Ratio,Proportion,Permutation and Combination

Unit – V **(15 Hours)**

Interest and Annuity – Banker's Discount – Binary Number System – Matrices-Meaning and operations-matrix inversion-solution to linear equations.

Reference Books:

1. Business Mathematics – P.R.Vittal
2. Business Mathematics – D.C. Sancheti and V.K. Kapoor
3. Business Mathematics – B.M. Agarwal
4. Business Mathematics – R.S. Soni

WEBSITES:

1. www.freetechbooks.com/mathematics-f38.html
2. www.e-booksdirectory.com
3. www.freebookcenre.net/SpecialCat/Free-Mathematics-Books-Download.html

Note: No Theory Questions to be asked

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
SECTION B (Answer any 5 out of 7 questions) 8 marks each	SHORT ANSWERS (Answer any 5 out of 7 questions) 8 marks each (each in 300 words)	13-19	8	40
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	ESSAY (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each (1200 words)	20-22	20	40
Total				100

DISTRIBUTION OF QUESTIONS: (PROBLEM PAPERS)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer all 10 questions) 2 marks each	1		2
	2		2
	3		2
	4		2
	5		2
SECTION B (Answer any 5 out of 8 questions) 8 marks each	1		2
	2		1
	3		2
	4		1
	5		2
SECTION C (Question 19 is Compulsory. Answer any 1 out of Q20 & Q21) 20 marks each	1		
	2		
	3		
	4		
	5		

CORE XII: FINANCIAL SERVICES

SUBJECT CODE: 19UHON311	THEORY	MARKS 100
SEMESTER: III	CREDITS: 4	TOTAL HOURS: 75

COURSE OBJECTIVES:

- **To understand the meaning and significance of the financial services available in India.**
- **To expose the students with the role of financial services in the development of the capital market and the economy of the country.**

UNIT- I – Financial Services: An Overview (Case Study) (15 Hours)

Financial Services: Concept, functions – financial services market – growth of financial services in India – Credit cards: origin and history, concept, features, facilities and services – classification of credit cards – credit card frauds – credit cards and e-commerce –Credit Information Bureau (CIB) – benefits and drawbacks of credit cards – Debit Cards: concept and mechanism – dangers and precautions in the use of debit cards – smart cards

UNIT- II – Credit rating, commercial bill financing and consumer finance (20 Hours)

Credit rating: concept, origin, features and advantages – growth factors for credit rating system – major issues – credit rating agencies – regulatory framework – major factors incredit rating – equity rating – Commercial Bill Financing: meaning of commercial bills, features and advantages of commercial bill financing. Consumer finance: meaning, types, mode, factors, - Consumer finance practice in India

UNIT- III –Factoring and leasing (12 Hours)

Factoring: definition, mechanism, characteristics, types, advantages and disadvantages – players in factoring services – functions of a factor –factoring costs –factoring Vs. bills discounting – RBI guidelines on factoring – cost-benefit analysis of factoring – forfaiting – factoring Vs. forfaiting – Leasing: concept, characteristics, and types.

UNIT- IV – Merchant banking and mutual funds (15 Hours)

Merchant banking: definition, functions, code of conduct, regulatory framework –Mutual- funds: definition, products and schemes – managing mutual funds in India – SEBI's Requirements on AMC – functions of AMC - AMFI –book-building: concept, characteristics\

UNIT- V – Securitization (13 Hours)

Securitization: definition – pass through certificates – features, need – SPV –Mechanism, purposes, asset characteristics, application, benefits, economic functions, Limitations – securitization and financial intermediation

Books for reference

1. GURUSAMY S, Financial Services, Tata McGraw Hill
2. GURUSAMY S, Merchant Banking and Financial Services, Tata McGraw Hill
3. Khan M Y, Financial Services, Tata McGraw Hill
4. Kothari, Vinod Lease financing & Hire Purchase including consumer credit, WadhwaandCompany
5. Lee, S J, Venture Capital Manual, Warren Gorham and Lamont Inc., Boston
6. Machiraju, Merchant Banking, Wiley Eastern, New Age International

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
SECTION B (Answer any 5 out of 7 questions) 8 marks each	SHORT ANSWERS (Answer any 5 out of 7 questions) 8 marks each (each in 300 words)	13-19	8	40
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	ESSAY (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each (1200 words)	20-22	20	40
Total				100

DISTRIBUTION OF QUESTIONS: (THEORY PAPERS)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	2	
	2	3	
	3	3	
	4	2	
	5	2	
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	1	
	2	1	
	3	2	
	4	2	
	5	1	
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1(Q20)	1	
	2	1	
	3	1	
	4	-	
	5	-	

CORE XIII: LOGISTICS AND SUPPLY CHAIN MANAGEMENT

SUBJECT CODE: 19UHON312	THEORY	MARKS 100
SEMESTER: III	CREDITS: 4	TOTAL HOURS: 75

COURSE OBJECTIVES:

- **To expose the students to the concept, evolution and importance of logistics and supply chain management**
- **To familiarize the various mode of transportation network**
- **To provide an insight on emerging technologies, scope, challenges and issues of logistics management**

UNIT- I **(15 Hours)**

Concepts of Logistics – Evolution – Nature and Importance – Components of Logistics Management – Competitive advantages of Logistics – Functions of logistics management – Principles –Logistics Network – Integrated Logistics system - Supply chain management – Nature and Concepts –Value chain – Functions – Supply chain effectiveness – Outsourcing – 3PLs and 4PLs – Supply chain relationships – Customer services.

UNIT- II **(15 Hours)**

Elements of Logistics and Supply chain management – Inventory carrying – Ware housing - Material handling – Order Processing - Demand Forecasting – Impact of Forecasts on Logistics and Supply chain management – Performance measurements.

UNIT- III **(15 Hours)**

Transportation - Position of Transportation in Logistics and Supply chain management –Road, Rail, Ocean, Air, Transport - Multi model transport – containerization – CFS – ICDS - Selection of transportation mode – Transportation Network and Decision – Insurance Aspects of logistics.

UNIT- IV **(15 Hours)**

Logistical Information system (LIS) – Operations – Integrated IT solution for Logistics and Supply chain management – Emerging technologies in Logistics and Supply Chain management - Components of logistic system - ships – types, measurement of capacity of ships –shipping information.

UNIT- V **(15 Hours)**

Issues and challenges for developing countries – Multi Model transportation – Role of containerization –Problems – Legal aspects of shipping – The Indian carriage of Goods by Sea Act, 1925 – Multi Model Transportation of Goods Act, 1993 - Characterizing practices-Port Procedures – Exporting General Merchandise – Containerized cargo for export through Inland container Depots – Bill of lading -Infrastructure development – Air Transport and Comparative evaluation of transport system – Decision Criteria – Insurance aspects of logistics.

Reference Books:

1. Krishnaveni Muthiah, 'Logistics Management and Seaborne Trade' Himalaya Publishing House.
2. D.K. Agarwal, 'Textbook of Logistics and Supply Chain Management', Mac Millan India Ltd.
3. Martin Christopher, 'Logistics and Supply Chain Management' Pearson Education, 2003.
4. Ronald H. Ballou, 'Business Logistics and Supply Chain Management' Pearson Education, 2004

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
SECTION B (Answer any 5 out of 7 questions) 8 marks each	SHORT ANSWERS (Answer any 5 out of 7 questions) 8 marks each (each in 300 words)	13-19	8	40
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Total				100

DISTRIBUTION OF QUESTIONS: (THEORY PAPER)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	3	
	2	3	
	3	2	
	4	2	
	5	2	
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	1	
	2	1	
	3	2	
	4	2	
	5	1	
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1(Q20)	1	
	2	1	
	3	1	
	4	-	
	5	-	

CORE XIV: INTERNATIONAL TRADE

SUBJECT CODE: 19UHON313	THEORY	MARKS 100
SEMESTER: III	CREDITS: 4	TOTAL HOURS: 60

COURSE OBJECTIVES:

- **To help the students to have an insight into the interactive relationship among various countries**
- **To offer the students an understanding of international marketing and its Environment.**
- **To impart the students the overseas market research, sources of marketing Information and the guidelines on how to identify foreign markets.**
- **To guide the students for product planning adaptation for exports.**

UNIT- I **(12 Hours)**

International Trade – Importance of International Trade, Theories of Foreign Trade: - Theories of Adam Smith, Ricardo, Haberler, Hecksher–Ohlin

UNIT- II **(12 Hours)**

Balance of Trade - Balance of Payment – Concepts – Causes of Disequilibrium, Methods to Correct Disequilibrium – Fixed and Floating Exchange Rates – Euro-Dollar Marketing (An Over View)

UNIT- III **(CASE STUDY)** **(12 Hours)**

Export Management – Export Procedure and Documents – Export Finance – Export Promotion – Export Pricing.

UNIT- IV **(12 Hours)**

Import Management – Import Procedure and Documents – Import Finance

UNIT- V **(12 Hours)**

International Economic Organizations and its Functions -IMF, IDA, IFA, IBRD, ADB, UNCTAD, UNIDO

Reference Books:

1. Francis Cherunilam, International Trade and Export Management - Himalaya Publishing House -Mumbai – 04.
2. Paul.R.Krugman and Maurice Obstfeld, International Economics (Theory and Policy) – Pearson Education Asia - Addison Wesley Longman (P) Ltd. - Delhi – 92.
3. Robert J.Carbaugh, International Economics - Thomson Information Publishing Group - Wadsworth Publishing Company - California.
4. H.G. Mannur, International Economics – Vikas Publishing House (P) Ltd - New Delhi - 14.

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
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Total				100

DISTRIBUTION OF QUESTIONS: (THEORY PAPERS)

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		THEORY	PROBLEMS
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	2	3	
	3	3	
	4	2	
	5	2	
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	1	
	2	1	
	3	1	
	4	2	
	5	2	
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1	-	
	2	1	
	3(Q20)	1	
	4	1	
	5	-	

SEMESTER - IV

CORE XV: BUSINESS STATISTICS AND OPERATIONS RESEARCH

SUBJECT CODE: 19UMAT347	THEORY & PROBLEMS	MARKS 100
SEMESTER: IV	CREDITS: 4	TOTAL HOURS: 75

COURSE OBJECTIVES:

- **To introduce basic concepts of Statistics.**
- **To provide Statistical techniques for business data analysis.**
- **To familiarize the students with introduction to operations research and its application**

UNIT –I **(15 Hours)**

Introduction-Meaning and definitions of statistics-Measure of central tendency-Arithmetic mean, median, mode, harmonic mean and geometric mean, Measure of Variation-Standard deviation,meandeviation,Quartile deviations(Simple Problems Only)

UNIT-II **(20 Hours)**

Karl's Pearson Correlation-Rank Correlation, Regression. Hypothesis Testing-Small sample test - F chi square test (Without proof) (Simple problems only)

UNIT – III **(15 Hours)**

Analysis of Time Series –Method of measuring trend – Seasonal Variation.
Index Numbers –Consumer price index and cost of living indices-Statistical Quality control.

UNIT -IV **(15 Hours)**

Introduction to OR-Meaning and Scope-Characteristics-model in OR – LPP – formulation- graphical method-simplex method (less than constraints)

UNIT -V **(10 Hours)**

Assignment and Transportation Problems

REFERENCE BOOKS

1. Statistical Methods – S.P. Gupta, Sultan 2000.
2. Introduction to Operations Research – Dr. P.R. Vittal, Margham Publications
3. Statistics - Elhance
4. Operations Research – Hira and Gupta, S. Chand
5. Operations Research – Handy and A. Taha, Macmillan Publishers

WEBSITES:

4. www.freetechbooks.com/mathematics-f38.html
5. www.e-booksdirectory.com
6. www.freebookcenre.net/SpecialCat/Free-Mathematics-Books-Download.html

Note: No theory questions should be asked.

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
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Total				100

DISTRIBUTION OF QUESTIONS: (PROBLEM PAPERS)

SECTIONS	UNITS	No.of QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer all 10 questions) 2 marks each	1	-	2
	2		2
	3		2
	4		2
	5		2
SECTION B (Answer any 5 out of 8 questions) 8 marks each	1		2
	2		1
	3		2
	4		1
	5		2
SECTION C Question 20 is Compulsory. Answer any 1 out of Q20 & Q21) 20 marks each	1		
	2		
	3		
	4		
	5		

CORE XVI: INSURANCE AND RISK MANAGEMENT

SUBJECT CODE: 19UHON314	THEORY	MARKS 100
SEMESTER: IV	CREDITS: 4	TOTAL HOURS: 60

COURSE OBJECTIVES:

- **To understand the nature of insurance and the principles that governs general insurance.**
- **To gain an insight on the nature of life insurance, fire insurance and marine insurance and to know the procedures for making claims against different kinds of insurance policies**
- **To understand the functions and organizations of insurance industry, claim valuation and changes in insurance sector.**

UNIT I **(12Hours)**

Risk and risk management process - risk identification - evaluation - risk management techniques -selecting and implementing risk management techniques.

UNIT II **(12Hours)**

Commercial risk management applications - property – liability-commercial property insurance - different policies and contracts - business liability and risk management insurance - workers' compensation and risk financing.

UNIT III **(12Hours)**

Personal risk management applications - property – liability - risk management for auto owners -risk management for home owners.

UNIT IV **(CASE STUDY)** **(12Hours)**

Risk management applications - loss of life - loss of health - retirement planning and annuities - employee benefits - financial and estate planning

UNIT V **(12 Hours)**

Risk management environment - industry - functions and organization of insurers - Government regulation of insurance sector - IRA - Privatization of insurance business in India - changes in Insurance Act -Insurance intermediaries insurance products pricing, claim valuation - Foreign insurers in India.

Reference Books:

1. Rejda, George E., "Principles ofRisk Management and Insurance", 6th Edn, Addison Wesley, Longman, 1998.
2. McNamara, "Principles of Risk Management and Insurance", Addison-Wesley
3. Dorfman, "Introduction to Risk Management and Insurance", Prentice Hall, 1998.

4. Williams; Heins, “Risk Management and Insurance”, McGraw Hill Pub.
5. James S. Treischmann; Sandra G. Gustavson, “Risk Management and Insurance”, South-Western Thomson Learning.
6. SenguptaMrinal Chandra, Insurance Finance, Progressive Publishers, New Delhi, 1997.
7. StewaralDdoss VS Kaveri Total Quality assessment in Insurance, Akanksha publishing house, New Delhi, 2002.

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
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Total				100

DISTRIBUTION OF QUESTIONS: (THEORY PAPERS)

SECTIONS	UNITS	No. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	3	
	2	2	
	3	2	
	4	2	
	5	3	
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	1	
	2	1	
	3	2	
	4	2	
	5	1	
SECTION C Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1	-	
	2	1	
	3	1	
	(Q20)	1	
	5	-	

CORE XVII: SPECIAL ACCOUNTS

SUBJECT CODE: 19UHON315	THEORY & PROBLEMS	MARKS 100
SEMESTER: IV	CREDITS: 4	TOTAL HOURS: 75

COURSE OBJECTIVES:

- **To familiarize students with the accounting treatment forissue shares and debenture to run the company with long term source of funds.**
- **To enable students to prepare the financial statements of Joint Stock Companies.**
- **To understand the procedure for valuing the goodwill and shares of Companies to acquire a business.**

UNIT- I **(10 Hours)**

Valuation of Goodwill & Shares

UNIT- II **(15 Hours)**

Accounting for Mergers and Amalgamation- Absorption

UNIT- III **(18 Hours)**

Holding Companies – consolidation of Balance sheet – treatment of mutual Owings, contingent liabilities –unrealized profit – revaluation of assets – bonus issue and payment of dividend (intercompany holdings excluded)

UNIT –IV **(16 Hours)**

Banking Company Accounts

UNIT- V **(16 Hours)**

Insurance Company Accounts – Life Insurance and General Insurance under IRDA 2000

Reference Books:

1. R.L.Gupta and M. Radhaswamy Advanced Accounting
2. T.S.Reddy&A.Murthy Corporate Accounting
3. S.P.Jain and K.L. Narang Corporate Accounting
4. M.C. Shukla and T.S. Grewal Advanced Accounting
5. M.A.Arulanandam and K.S.Raman Corporate Accounting
6. S.N. Maheswari Advanced Accountancy

Note: No theory questions should be asked.

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
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Total				100

DISTRIBUTION OF QUESTIONS: (PROBLEM PAPERS)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1		3
	2		2
	3		2
	4		3
	5		2
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1		2
	2		1
	3		2
	4		1
	5		1
SECTION C question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1		1
	2		-
	3		1
	4 (Q 20)		1
	5		-

CORE XVIII: COMPANY LAW

SUBJECT CODE: 19UHON316	THEORY	MARKS 100
SEMESTER: IV	CREDITS: 4	TOTAL HOURS: 75

COURSE OBJECTIVES:

- **To make the students understand the significant provisions of the Companies Act**
- **To introduce the formalities in the formation of a company.**
- **To expose the students to the main charter of a company and the raising of capital in a company.**

UNIT – I (CASE STUDY) (25 Hours)

Introduction – Definition of Company – Characteristics – Is Company a Citizen? – Lifting of the Corporate Veil – Illegal Association - Kinds of Company - Formation of Company – Incorporation – Documents to be filed with Registrar – Certificate of Incorporation – effects of registration – Promoter – Preliminary Contracts — Memorandum of Association – Articles of Association – contents – alterations -Doctrine of Constructive Notice – Doctrine of Indoor Management – Ultra vires.

UNIT – II (10 Hours)

Prospectus – Contents – red herring prospectus – shelf prospectus - Misstatement in prospectus and their consequences – Statement in lieu of Prospectus – Deemed Prospectus - Commencement of Business

UNIT – III (10 Hours)

Share Capital – Meaning – Kinds – Alteration of Capital – Reduction of Capital — dematerialization and re-materialization of securities - Transfer and Transmission of shares.

UNIT – IV (20 Hours)

Membership in company – Member and shareholders – Who can become a member - Cessation of membership – Rights and liabilities of members – Meetings of members – types & class of meeting - Extra ordinary – AGM- Provisions relating to conduct of meeting

UNIT – V (10Hours)

Management & Administration – Directors- Appointment & Removal – Rights & Duties including KMP

Reference Books:

1. N.D.Kapoor – Company Law
2. P.P.S.Gogna – A Text Book of Company Law
3. A.K. Majumdar and G.K. Kapoor Company Law & Practice, Taxman Publications
4. P.K.Ghosh&Dr.V.Balachandran – Outline of Company Secretary Practice

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
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Total				100

DISTRIBUTION OF QUESTIONS: (THEORY PAPERS)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	2	
	2	2	
	3	2	
	4	3	
	5	3	
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	1	
	2	1	
	3	1	
	4	2	
	5	2	
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1 Q 20)	1	
	2	1	
	3	-	
	4	1	
	5	-	

CORE XIX: FINANCIAL MANAGEMENT

SUBJECT CODE: 19UHON317	THEORY &PROBLEMS	MARKS 100
SEMESTER: IV	CREDITS: 4	TOTAL HOURS: 75

COURSE OBJECTIVES:

- **To introduce the students to the fundamentals of finance.**
- **To develop an understanding of tools that is used to evaluate investment projects.**
- **To provide knowledge on concepts, methods & procedures involved in using financial management for managerial decision making.**

UNIT –I **(10 Hours)**

Financial management –Introduction, scope-finance and other related disciplines-Financial Functions - Financial Goals: Profit Maximization vs. Wealth Maximization – Concept of time value of money -Sources of financing - Short term and Long-term Capitalization - over and under Capitalization. (Theory)

UNIT-II **(20 Hours)**

Concept of Cost of Capital - Measures of Specific and Overall cost of capital (Simple problems only) - Financing Decision – Leverage-Operating, Financial and combined (Simple problems only) - Determinants of Capital structure (Theory)

UNIT-III **(15 Hours)**

Capital Budgeting- Estimating cash flows- EvaluationTechniques, Traditional and Discounted cash flow techniques (Risk analysis Excluded). (Simple problems only)

UNIT IV **(20 Hours)**

Dividend Decision: Factors determining dividend policy- stable dividend policy-stock dividend –Working Capital Management: Need for working capital –Determinants of working capital-computation of working capital-management of cash, Inventory, Accounts Receivable and Accounts Payable (Simple problems only)

UNIT V **(10 Hours)**

Financial markets - Money market - capital market - Recent Trends in capital market - Mutual Funds -Factories - Forecasting – Depositories. (Theory)

Reference Books:

1. M.Y.Khan and P.K.Jain - Basic Financial Management
2. I.M.Pandey– Financial Management
3. S.M.Maheswari- Financial Management

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
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Total				100

DISTRIBUTION OF QUESTIONS: (PROBLEM PAPER)

SECTIONS	UNITS	No. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	1	2
	2	1	2
	3	1	1
	4	1	1
	5	1	1
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	1	-
	2	1	-
	3	-	2
	4	-	2
	5	1	-
SECTION C stion 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1	1	-
	2	-	1
	3 (Q 20)	-	1
	4	-	-
	5	-	-

CORE XX: ENTREPRENEURIAL DEVELOPMENT

SUBJECT CODE: 19UHON318	THEORY	MARKS 100
SEMESTER: IV	CREDITS: 4	TOTAL HOURS: 60

COURSE OBJECTIVES:

- **To create awareness about competencies of entrepreneurship and small business management, types of enterprises and Source of finance.**
- **To familiarize students with the requisites needed for being a successful entrepreneur.**
- **To identify the stages involved in the setting up of a small business unit and to motivate the students to start self-employment.**

UNIT- I **(12 Hours)**

Concept of entrepreneurship – definition – traits – types – classification of entrepreneurs – factors influencing entrepreneurship.

UNIT- II **(12 Hours)**

Women entrepreneurs – definition – problems – development of women entrepreneurship – rural Entrepreneurship – problems – relationship between rural and urban markets - Strategic Approaches: Niche strategy – Networking - Geographic Concentration

UNIT-III **(CASE STUDY)** **(12 Hours)**

Search for business idea - sources of project identification – formalities of setting up a unit – projects election – project formulation – feasibility analysis – projects report

UNIT- IV **(12 Hours)**

Institutional finance to entrepreneurs – commercial banks – IDBI- IFCI –IIBI – SIDBI –LIC – SIC.

UNIT- V **(12 Hours)**

Entrepreneurial development program me – Role and Relevance – role of government – NGO – SIPCOT, DIC, SIDC, NIESBUD – MSME – TCO –Self-employment programs – SIDO – micro finance - SHG –venture capital

Reference Books:

1. C.B.GUPTA and S.P.SRINIVASAN, Entrepreneurial Development
2. S.S. KHANKA, Entrepreneurial Development

QUESTION PAPER PATTERN:

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Total				100

DISTRIBUTION OF QUESTIONS: (THEORY PAPERS)

SECTIONS	UNITS	No. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	2	
	2	3	
	3	3	
	4	2	
	5	2	
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	1	
	2	1	
	3	2	
	4	1	
	5	2	
SECTION C ion 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1	1	
	2	1	
	3(Q20)	1	
	4	-	
	5	-	

EVS: ENVIRONMENTAL STUDIES

SUBJECT CODE: 19UEVS401	THEORY	MARKS 100
SEMESTER: IV	CREDITS: 2	TOTAL HOURS: 30

COURSE OBJECTIVES:

To create awareness among the Students community about the Environmental Issues, Causes and Remedies.

UNIT 1: Multidisciplinary nature of environmental studies (4 Hours)

Definition, scope and Importance-Need for public awareness.

UNIT 2: Natural Resources: (5 Hours)

Renewable and non-renewable resources: Natural resources and associated problems.
a) **Forest resources**: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people.
b) **Water resources**: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
c) **Mineral resources**: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
d) **Food resources**: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
e) **Energy resources**: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Case studies.
f) **Land resources**: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

UNIT 3: Ecosystems (4 Hours)

Concept of an ecosystem.
• Structure and function of an ecosystem.
• Producers, consumers and decomposers.
• Energy flow in the ecosystem.
• Ecological succession.
• Food chains, food webs and ecological pyramids.
• Introduction, types, characteristic features, structure and function of the following ecosystem: -
a. Forest ecosystem
b. Grassland ecosystem
c. Desert ecosystem
d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

UNIT 4: Biodiversity and its conservation **(3 Hours)**

- Introduction – Definition: genetic, species and ecosystem diversity.
- Bio geographical classification of India
- Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic And option values
- Biodiversity at global, National and local levels.
- India as a mega-diversity nation, Hot-sports of biodiversity.
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts.
- Endangered and endemic species of India
- Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

UNIT 5: Environmental Pollution **(4 Hours)**

Definition

- Cause, effects and control measures of:-

a. Air pollution
b. Water pollution
c. Soil pollution
d. Marine pollution
e. Noise pollution
f. Thermal pollution
g. Nuclear hazards

- Solid waste Management: Causes, effects and control measures of urban and Industrial wastes.
- Role of an individual in prevention of pollution.
- Pollution case studies.
- **Disaster management: floods, earthquake, cyclone and landslides**.

UNIT 6: Social Issues and the Environment **(4 Hours)**

- From Unsustainable to Sustainable development
- Urban problems related to energy
- Water conservation, rain water harvesting, watershed management
- Resettlement and rehabilitation of people; its problems and concerns. Case Studies
- Environmental ethics: Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear Accidents and holocaust. Case Studies.
- Wasteland reclamation.
- Consumerism and waste products.
- Environment Protection Act.
- Air (Prevention and Control of Pollution) Act.
- Water (Prevention and control of Pollution) Act
- Wildlife Protection Act
- Forest Conservation Act
- Issues involved in enforcement of environmental legislation.
- Public awareness.

UNIT 7: Human Population and the Environment **(3 Hours)**

- Population growth, variation among nations.
- **Population explosion – Family Welfare Program me. Environment and human health.**
- Human Rights.
- Value Education.
- **HIV/AIDS**.
- Women and Child Welfare.
- Role of Information Technology in Environment and human health. Case Studies

UNIT 8: Field work **(3 Hours)**

- Visit to a local area to document environmental assets- river/forest/grassland/hill/mountain
- Visit to a local polluted site-Urban/Rural/Industrial/Agricultural
- Study of common plants, insects, birds.
- Study of simple ecosystems-pond, river, hill slopes, etc.

SEMESTER - V

CORE XXI: COST ACCOUNTING

SUBJECT CODE: 19UHON319	THEORY	MARKS 100
SEMESTER: V	CREDITS: 4	TOTAL HOURS: 90

COURSE OBJECTIVES:

- **To enlighten the importance of cost ascertainment, reduction and control**
- **To understand the pricing of material issues and ascertainment of labour cost**
- **To study the various distribution of overheads**
- **To ascertain the operating cost for service industries**
- **To articulate the association between cost and financial statement**

UNIT-I **(18 Hours)**

Nature and significance of Cost Accounts – Financial vs. Cost Accounts – Definition of Cost Accounting –Meaning, scope, objectives, importance, advantages and limitations of Cost Accounting – Cost classification and cost concepts – Elements of cost – Preparation of cost sheets – Tenders and quotations.

UNIT-II **(18 Hours)**

Material – Bin card– Stores ledger – FIFO, LIFO, simple average, weighted average - Labour –Time Rate, Piece rate – Differential piece rate– Taylor, Merits – Bonus plan (Halsey, Halsey-Weir, Rowan)

UNIT-III **(18 Hours)**

Overheads –Primary and secondary distribution- Classification – Allocation – Apportionment and absorption of overheads - Machine Hour Rate.

UNIT-IV **(18 Hours)**

Operating Costing – Meaning – Preparation of Operating cost Sheet – Transport costing – cinema theatre - power Supply Costing

UNIT-V **(18 Hours)**

Contract Costing – ascertainment of profit from incomplete contracts- Reconciliation of cost and financial accounts

Reference Books:

1. S.P. Jain and K.L. Narang, Cost Accounting, Kalyani Publishers
2. Dr A Murthy and Dr S GURUSAMY, Cost Accounting, Tata McGraw Hill
3. T.S.Reddy and Y. Hari Prasad Reddy, Cost Accounting, Margham Publications
4. Dr. S.N. Maheswari, Principles of Cost Accounting, Sultan Chand & Sons
5. V.K.Saxena and C.D. Vashist, Cost Accounting, Sultan Chand & Sons
6. R.S.N. Pillai and V. Bagavathi, Cost Accounting, S.Chand.

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Total				100

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	4	1	1
	5	1	1
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	3	-	1
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	5	-	2
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	4	-	-
	5	-	-

CORE XXII: CORPORATE ETHICS AND GOVERNANCE

SUBJECT CODE :19UHON320	THEORY	MARKS 100
SEMESTER: V	CREDITS: 4	TOTAL HOURS: 60

COURSE OBJECTIVES:

- **To create an understanding of the importance of Corporate culture for Business Management and strategies**
- **To provide the macro socio-cultural factors that influence corporate culture.**
- **To facilitate the students to have knowledge of the need for corporate governance**
- **To enable the students to understand the parameters of accountability to the stakeholders**

UNIT – I (CASE STUDY) (12 Hours)

Concept of ethics – sources – ethics and morals – justice – fairness – values – normative ethical theory –relevance of business ethics – arguments for and against – business values for 21st century – ethics in Indian business

UNIT – II (12 Hours)

Ethical management – strengthening of personal and organizational integrity – complexity and group dynamic – spiritual core of leadership – leaders and the value references - Does ethics pay – ethical pitfalls of investment industry – corporate scams and its effects – law as an instrument of ethics

UNIT – III (12 Hours)

Corporate social responsibility – meaning – promoting – stakeholders' satisfaction – corporate responsiveness – managing socially responsible business - Environment responsibility – ethics and ecology– work ethics and professional responsibility

UNIT – IV (12 Hours)

Corporate Governance – meaning scope- models and benefits – transparency -green governance – E- Governance - Independent Directors- whistle blowing

UNIT – V (12 Hours)

Corporate governance– governance committees - Shareholders grievances committee - investor protection – Management discussion analysis –Role of accountants and auditors –accountability – professional Codes & values

Reference Books:

1. R.C.Sekhar – Ethical Choices in Business – Response Books, 2002
2. Corporate Governance and business Ethics by All India Management Association – Excel Books
3. William H. Shaw, Business Ethics – Thomson Publications
4. N. Balasubramanyan, Corporate boards and Governance – Sterling publishers
5. Reference on corporate governance and directors' duties and responsibilities – publication of
Institute of Company Secretaries
6. Neville Bain & David Band, "Winning Ways through corporate governance" – Macmillan
Publishers
7. Naresh Chandra committee report published in charted secretary, Feb 2003 – VI.33, No.2.
8. SEBI report on corporate governance published in Economic Developments in India, Vol: 20, 1999
9. John Harper, "Chairing the Board", Kogan press

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	4	2	
	5	2	
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	4	2	
	5	1	
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	4	1	
	5	-	

CORE XXIII: INCOME TAX LAW AND PRACTICE-I

SUBJECT CODE :19UHON321	THEORY & PROBLEMS	MARKS 100
SEMESTER: V	CREDITS: 4	TOTAL HOURS: 90

COURSE OBJECTIVES:

- **To introduce the students to the concepts of Income tax.**
- **To give an insight into the different heads of income and the authorities under the Act.**
- **To help the students in computation of income tax.**

UNIT I **(20 Hours)**

Income Tax- Important Definitions under Income Tax Act – Agricultural income – Assesse- Person – Assessment Year – Previous Year – Exceptions to previous year – Income – definition - features – Gross Total Income – Total Income. (Theory)– Residential status (Simple problems) – Scope of total income (Simple problems) - Incomes exempt from tax (Theory).

UNIT II **(20 Hours)**

Salaries –Characteristics- Computation of Salary Income- Provident Fund- Allowances – Perquisites and their valuation –Profits – In –Lieu of salary- Payments exempted u/s 10 – Leave Travel – Gratuity – Pension – Commutation of pension – Leave salary – Deductions u/s 16. (Simple problems)

UNIT III **(15 Hours)**

Income from House Property – Definition of Annual Value – Types of rental values - Determination of Annual value - Deduction from Annual value – Computation of Income under different circumstances (simple problems)

UNIT IV **(20 Hours)**

Income from Business– Definition, Computation of Business Income - Allowable and Not Allowable expenses. Income from Profession – Definition – Computation of Professional income for Doctors, Lawyers and Chartered Accountants. Depreciation u/s 32 – rates – computation of depreciation (simple problems).

UNIT V **(15 Hours)**

Assessment of individuals (covering incomes under salary, house property, business or profession) (Simple problems) – Filing of returns – Permanent Account Number (PAN) and its usage. (Theory)

Reference Books:

1. Dr. Vinod, K.Singhania, Students Guide to IncomeTax,Taxmann Publications Pvt.Ltd, New Delhi.
2. P.Gaur,D.B.Narang, Income Tax Law and Practice, Kalyani Publications.
3. T.S.Reddy, Y.HariPrasad Reddy, Income Tax Theory Law and Practice,MarghamPublication,Chennai.
4. Dr.H.C.Mehrotra, Dr.S.P.Goyal, Income Tax Law and Practice, SahityaBhawan Publications, Agra.

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	4	-	1
	5	-	-

CORE XXIV: ACCOUNTING STANDARDS

SUBJECT CODE :19UHON322	THEORY & PROBLEMS	MARKS 100
SEMESTER: V	CREDITS: 4	TOTAL HOURS: 60

COURSE OBJECTIVES:

- **To impart the basic knowledge and understand the concepts of accounting standards**
- **To know various Accounting standards and relate relevant accounting standards at various situations**

UNIT- 1 **(15 Hours)**

Introduction to Accounting standards - meanings-objectives-setting process-Benefits & Limitation-Need for Convergence towards Global Standards-Introduction to International Accounting Standard Board- Meaning of IFRS.

UNIT- II **(10 Hours)**

Enterprises to which the accounting standards apply-Implication of mandatory status-Financial items to which the accounting standards apply-Applicability of Accounting Standards -List of Accounting Standards. Disclosure of Accounting Policies (AS 1)-Accounting assumptions-conventions-manner of disclosure-Disclosure of Changes in Accounting Policies- Disclosure of deviations from fundamental accounting assumptions.

UNIT- III (COMPULSORY QUESTION – CASH FLOW ONLY) (15 Hours)

Valuation of Inventory (AS 2)- meaning of Containers & Empties, Costs of inventory, Costs of purchase- measurement of inventories- - meaning of Costs of purchase- Costs of Conversion- Exclusions from the cost of inventories. Fund Flow and Cash Flow Statement (AS 3) [Simple Problems only] - meaning- Classification Cash Flows-Cash flow reporting-disclosures. Contingencies and Events Occurring after the Balance Sheet Date (AS 4)-meaning.

UNIT- IV **(10 Hours)**

Net Profit or Loss for the period, Prior Period Items and Changes in Accounting Policies (AS 5)-meaning. Depreciation Accounting (AS6)- meaning-methods- Revenue Recognition (AS 9)- Accounting for Fixed Assets (AS 10)- identification of fixed asset- Components of costs- Amount substituted for historical costs-Retirement and disposal.

UNIT –V **(10 Hours)**

Accounting for investments (AS 13) - Meaning of Fair value, market value, Forms of investment, Cost of investment, Disposal of investment. Accounting for Amalgamations (AS 14) - meaning- Types of amalgamations-methods of amalgamations-Treatment of reserves, goodwill in amalgamation-Disclosure. Intangible Assets (AS26) - meaning.Provisions,Contingent Liabilities and Contingent Assets (AS 29)-meaning.

Prescribed Books:

1. D.S Rawat, Taxmann Students guide to Accounting standards
2. Bhattacharya Indian Accounting Standards: Practices, Comparisons, and Interpretations Tata, McGraw Hill

Reference Books:

1. Financial Accounting study material from Institute of Chartered Accountants of India
2. DalalGaggarKshirsagar, Accounting Standards & Corporate Accounting Practices, WadhwaandCompany Nagpur.

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	5	1	-

CORE XXV: PRACTICAL AUDITING

SUBJECT CODE :19UHON323	**THEORY**	**MARKS 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 75**

COURSE OBJECTIVES:

- **To appreciate the role of auditing in business.**
- **To familiarize with provisions of the Companies Act, 1956 relating to the appointment, duties and liabilities of an auditor.**
- **To familiarize the students with the concepts of internal control.**

UNIT- I (CASE STUDY) (15 Hours)

Introduction – Definition – Utility of auditing – Types of audit, Objectives of audit

UNIT –II (15 Hours)

Planning and Conduct of Audit – Audit Note Book – Audit Working Papers -Audit Files Internal Control–Characteristics – Evaluation, Internal check – Principles, Advantages & Limitations – Internal check for Cash, Purchases and Sales Internal Audit – Functions – Distinction and interface between internal and statutory auditor

UNIT- III (15 Hours)

Audit Sampling, Vouching of cash transactions-Vouching of Trading Transaction (Purchases, Purchase return, Sales, Sales return) - Verification & Valuation of Assets & Liabilities.

UNIT –IV (15 Hours)

Internal Auditor – Qualification, Disqualification, Appointment, Rights, Duties, Ceiling Limit and Liabilities of an auditor, Professional Ethics

UNIT- V (15 Hours)

Audit Committee- Constitution -Audit Report-characteristics – types of opinion- Information System Audit.

Reference Books:

1. DinkarPagare, Principles and Practices of Auditing, Sultan Chand and Sons, New Delhi
2. S. Vengadamani, Practical Auditing, Himalaya Publishing House, Mumbai
3. Sharma T.R., Auditing Principles & Problems, Sahitya Bhawan, Agra
4. Kamal Gupta and Ashok Arora, Fundamentals of Auditing, Tata McGraw Hill Publishing CompanyLtd., New Delhi
5. B.L.Tandon, Auditing, Sultan Chand& Sons, New Delhi.

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CORE XXVI: RESEARCH METHODOLOGY

SUBJECT CODE: 19UHON324	THEORY	MARKS 100
SEMESTER: V	CREDITS: 4	TOTAL HOURS: 75

COURSE OBJECTIVES:

- **To help the students to identify the research problems and the concept of hypothesis.**
- **To familiarize the students with data collection, various testing tools and its application.**
- **To enhance their knowledge in analysing, interpretation, and drafting research reports.**
- **To expose them to SPSS applications**

UNIT- I **(15 Hours)**

Introduction to research methodology – meaning and purpose – Types of Research - Research design –steps in selection & formulation of a research problem – steps in research

UNIT- II **(CASE STUDY)** **(15 Hours)**

Hypothesis – Types – concept and procedures of testing of Hypothesis – sampling techniques – sampling error and sample size

UNIT- III **(15Hours)**

Measurement & scaling techniques – Data collection – methods – testing validity and reliability

UNIT- IV **(15 Hours)**

Processing of data – Editing, coding, classification & tabulation, analysis of data – outline of statistical analysis – elements of processing through computers (Application of SPSS)

UNIT –V **(15 Hours)**

Interpretation and Report Writing – meaning & precautions in interpretation, types of reports – style &conventions in reporting – steps in drafting of report

Reference Books:

1. Dr M Ranganatham, Business Research Methods, Himalayas Publishing
2. William C Emory, Business Research Methods, R.D. Irwin. Inc.
3. Robert G Murdock, Business Research – Concepts & Practice, International text book Company
4. Kothari C.R., Research Methodology, Vikas Publishing Ltd.
5. Ravilochanan, Research Methodology

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	5	-	

PART- IV: VALUE EDUCATION

SUBJECT CODE: 19UVED301	THEORY	MARKS 100
SEMESTER: V	CREDITS: 2	TOTAL HOURS:

COURSE OBJECTIVES:

- **Values are socially accepted norms to evaluate objects, persons, and situations that form part and parcel of sociality.**
- **A value system is a set of consistent values and measures.**
- **Knowledge of the values are inculcated through education.**
- **It contributes in forming true human being, who is able to face life and make it meaningful.**

Unit I **(6 Hours)**

Value education-its purpose and significance in the present world – Value system – The role of culture and civilization-Holistic living – Balancing the outer and inner –Body, Mind and Intellectual level- Duties and responsibilities.

Unit II **(6 Hours)**

Salient values for life- Truth, commitment, honesty and integrity, forgiveness and love, empathy and ability to sacrifice, care, unity , and inclusiveness, Self-esteem and self- confidence, punctuality – Time, task and resource management– Problem solving and decision making skills- Interpersonal and Intra personal relationship – Team work – Positive and creative thinking

Unit III: **(6 Hours)**

Human Rights – Universal Declaration of Human Rights – Human Rights violations – National Integration – Peace and non-violence – Dr. A P J Kalam's ten points for enlightened citizenship – Social Values and Welfare of the citizen – The role of media in value building

Unit IV **(6 Hours)**

Environment and Ecological balance –interdependence of all beings – living and non-living. The binding of man and nature – Environment conservation and enrichment

Unit V **(6 Hours)**

Social Evils – Corruption, Cyber-crime, Terrorism –Alcoholism, Drug addiction – Dowry – Domestic violence –untouchability – female infanticide – atrocities against women-How to tackle them

Books for Reference

1. M.G.Chitakra: Education and Human Values, A.P.H.Publishing Corporation, New Delhi, 2003.
2. Chakravarthy, S.K.: Values and ethics for Organizations: Theory and Practice, Oxford University Press, New Delhi, 1999.
3. Satchidananda, M.K.: Ethics, Education, Indian Unity and Culture, Ajantha Publications, Delhi, 1991
4. Das, M.S. & Gupta, V.K. : Social Values among Young adults: A changing Scenario, M.D. Publications, New Delhi, 1995
5. Bandiste, D.D.: Humanist Values: A Source Book, B.R.Publishing Corporation, Delhi, 1999
6. Ruhela, S.P. : Human Values and education, Sterling Publications, New Delhi, 1986
7. Kaul, G.N.: Values and Education in Independent Indian, Associated Publishers, Mumbai, 1975
8. NCERT, Education in Values, New Delhi, 1992
9. Swami Budhananda (1983) How to Build Character Primer : Ramakrishna Mission, New Delhi
10. A Cultural Heritage of India (4 Vols.), BharatiyaVidya Bhawan, Bombay. (Selected Chapters only)
11. For Life, For the future : Reserves and Remains –UNESCO Publication
12. Values, A Vedanta Kesari Presentation, Sri Ramakrishna Math, Chennai, 1996
13. Swami Vivekananda, Youth and Modern India, Ramakrishna Mission, Chennai
14. Swami Vivekananda, Call to the Youth for Nation Building, AdvaitaAshrama, Calcutta
15. Awakening Indians to India, Chinmayananda Mission, 2003

SEMESTER -VI

CORE: XXVII
MANAGEMENT ACCOUNTING

SUBJECT CODE :19UHON325	THEORY & PROBLEMS	MARKS 100
SEMESTER: VI	CREDITS: 4	TOTAL HOURS: 90

COURSE OBJECTIVES:

- **To understand marginal costing techniques in decision making**
- **To study the financial statement analysis and interpret the results**
- **To learn the various tools and techniques in ratio analysis**
- **To acquire knowledge in Budgetary Control technique for managerial decision**

UNIT- I **(18 Hours)**

Management Accounting - meaning & nature of management accounting, scope of management accounting, distinction between management accounting, financial accounting & cost accounting

UNIT- II **(18 Hours)**

Marginal costing techniques- feature of marginal costing – advantages and limitation of marginal costing – Marginal and absorption costing - Break even analysis and break-even point – cost volume profit (CVP) analysis

UNIT- III **(18 Hours)**

Analysis of financial statements, users of financial statements- tools of financial statement analysis – Comparative statements, common size statements and trend analysis.

UNIT- IV **(18 Hours)**

Ratio Analysis: meaning, scope, advantages and limitations- Types of ratios - Profitability, Turnover, and Solvency - Construction of balance sheet.

UNIT- V **(18 Hours)**

Budgetary Control – Meaning – Preparation of various Budgets – Sale Budget - Production Budget – Flexible Budget - Cash Budget

Reference Books:

1. S.N.Maheswari, Management Accounting – Sultan Chand & Sons.
2. Dr A Murthy and Dr S GURUSAMY, Cost Accounting, Tata McGraw Hill
3. RSN Pillai &Bagavati, Management Accounting – S Chand & Co Ltd – New Delhi.
4. HorngrenSunderu Stratton, Introduction to Management Accounting – Pearson Education.
5. T. S. Reddy and Hari Prasad Reddy, Management Accounting, Margham Publication.

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	3	-	1
	4	-	1
	5	-	2
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1	-	-
	2 (Q 20)	-	1
	3	-	-
	4	-	1
	5	-	1

CORE XXVIII: HUMAN RESOURCE MANAGEMENT

SUBJECT CODE :19UHON326	THEORY	MARKS 100
SEMESTER: VI	CREDITS: 4	TOTAL HOURS: 75

COURSE OBJECTIVES:

- **To understand the nature of human resources and its significance to the organization.**
- **To familiarize students with the various techniques in HRM that contribute to the overall effectiveness of an Organization.**
- **To bring to the attention of the students the latest trends in managing human resources in an organization.**

UNIT- I (CASE STUDY) **(15 Hours)**

Human Resource Management – Nature and Scope of the HRM – Managerial and Operating Functions –Difference between Personnel management and HRM – Human Resource Planning – Recruitment – Selection – Methods of Selection – Use of various Tests – interview techniques in Selections.

UNIT- II **(15 Hours)**

Placement and Induction – Training – Methods – Techniques – Identification of Training Needs – Development – Methods – Performance Appraisal – Methods – Promotions and Transfers

UNIT- III **(15 Hours)**

Remuneration – Factors determining remuneration – Components of Remuneration – Incentives – Benefits– Motivation – Welfare and Social Security Measures

UNIT- IV **(15 Hours)**

Collective Bargaining – Worker's participation in Management – Types – Quality Circles – Management by Objectives – Environment of HRM – HRM as a Profession.

UNIT- V **(15 Hours)**

Human Resource Audit – Nature – Benefits – Scope – Approaches

Reference Books:

1. V.S.P.Rao – Human Resource Management
2. Ashwathappa – Human Resource Management
3. Gary Deseler – Human Resource Management
4. L.M.Prasad – Human Resource Management
5. Tripathi –Human Resource Management

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
SECTION B (Answer any 5 out of 7 questions) 8 marks each	SHORT ANSWERS (Answer any 5 out of 7 questions) 8 marks each (each in 300 words)	13-19	8	40
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	ESSAY (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each (1200 words)	20-22	20	40
Total				100

DISTRIBUTION OF QUESTIONS: (THEORY PAPERS)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	3	
	2	3	
	3	2	
	4	2	
	5	2	
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	1	
	2	1	
	3	2	
	4	2	
	5	1	
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1(Q20)	1	
	2	1	
	3	1	
	4	-	
	5	-	

CORE XXIX: SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

SUBJECT CODE: 19UHON327	THEORY	MARKS 100
SEMESTER: VI	CREDITS: 4	TOTAL HOURS: 60

COURSE OBJECTIVES:

- **To appreciate the importance of time value of money in the context of investment decisions.**
- **To analyses the various investment options available in terms of risk and return.**
- **To identify avenues for the investment of Personal funds.**

UNIT- I (case study) **(12 Hours)**

Nature and scope of investment management – investment objectives, constraints – factors – Investment process – investment management and portfolio management

UNIT- II **(13 Hours)**

Understanding the investment environment – sources of investment information – approaches of security analysis – market indicators – security price movements –fundamental analysis – technical analysis– Dow Theory – Random walk theory – efficient market hypothesis – various forms of market efficiency.

UNIT- III **(11 Hours)**

Company analysis components – non-financial aspects - Risk return – market risk – interest rate risk – purchasing power risk – business risk – financial risk – measurement of risk.

UNIT- IV **(12 Hours)**

Portfolio – portfolio management – portfolio theory – meaning and objectives, traditional and Modern portfolio theory - Diversification – Markowitz's approach – portfolio management process – portfolio planning-portfolio analysis-portfolio selection –portfolio evaluation –portfolio revision – various steps involved in the development of portfolio.

UNIT- V **(12 Hours)**

Capital market theory – assumptions – risk, – capital asset pricing model (CAPM) - securities market line - arbitrage pricing theory-options pricing model-put and call -Indian stock market and the institutional investors.

Reference Books:

1. Elton, Edwin J., Gruber, Martin J., Brown, Stephen J., Goetz Mann, William N., "Modern Portfolio Theory and Investment Analysis", 6th Edn, Wiley, 2003.
2. Prasanna Chandra, "Managing Investments", Tata McGraw Hill, New Delhi, 1999.
3. Lee, Cheng F., "Advances in Investment Analysis and Portfolio Management", Publisher: Science& Technology Books.
4. Sidney Cottle, Grahaan&Dadd's Security Analysis, Tata McGraw Hill, 1989.
5. DC Fisher & RJ Jordan, Security Analysis & Portfolio Management, Prentice Hall of India, 1999.

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
SECTION B (Answer any 5 out of 7 questions) 8 marks each	SHORT ANSWERS (Answer any 5 out of 7 questions) 8 marks each (each in 300 words)	13-19	8	40
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	ESSAY (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each (1200 words)	20-22	20	40
Total				100

DISTRIBUTION OF QUESTIONS: (THEORY PAPERS)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	3	
	2	3	
	3	2	
	4	2	
	5	2	
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	1	
	2	1	
	3	2	
	4	2	
	5	1	
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1(Q20)	1	
	2	1	
	3	1	
	4	-	
	5	-	

CORE XXX: INCOME TAX LAW AND PRACTICE-II

SUBJECT CODE :19UHON328	THEORY & PROBLEMS	MARKS 100
SEMESTER: VI	CREDITS: 4	TOTAL HOURS: 90

COURSE OBJECTIVES:

- **To introduce the students to the concepts of Income tax.**
- **To give an insight into the different heads of income and the authorities under the Act.**
- **To help the students in computation of income tax.**

UNIT I **(20 Hours)**

Income under Capital Gains –short-term, long-term capital gains-certain transactions not included as transfer-cost of acquisition –cost of improvement –indexation of cost- Capital gains under different circumstances-Exempted capital gains computation of capital gains (simple problems)

UNIT II **(20 Hours)**

Income from Other Sources –their computation –grossing up – deduction in computing income under the head (Simple problems)

UNIT III **(20 Hours)**

Clubbing of Income –Deemed Incomes –Provisions of the Act relating to clubbing of income –Set off – Carry forward and Set off of losses. (Simple problems)

UNIT IV **(20 Hours)**

Permissible deductions from gross total income–Sec.80C, 80CCC, 80D, 80G, - Assessment of Individual (Covering Capital Gains, Income from Other Sources). (Simple problems)

UNIT V **(10 Hours)**

Income Tax Authorities –Powers of the central Board of Direct Taxes (CBDT) Commissioners of Income Tax and Income Tax officers –Assessment Procedures – Self Assessment –Best Judgment Assessment – Income Escaping Assessment (Re- assessment)-Advance payment of Tax –Meaning and Due dates – Deduction of Tax at source-Meaning. (Theory)

Reference Books:

1. Dr. Vinod K.Singhania, Students Guide to IncomeTax,Taxmann Publications Pvt.Ltd, New Delhi.
2. P.Gaur, D.B.Narang, Income Tax Law and Practice, Kalyani Publications.
3. T.S.Reddy, Y.HariPrasad Reddy, Income Tax Theory Law and Practice, Margham Publication, Chennai.
4. Dr.H.C.Mehrotra, Dr.S.P.Goyal, Income Tax Law and Practice, Sahitya Bhawan Publications, Agra.

QUESTION PAPER PATTERN:

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
SECTION B (Answer any 5 out of 7 questions) 8 marks each	SHORT ANSWERS (Answer any 5 out of 7 questions) 8 marks each (each in 300 words)	13-19	8	40
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	ESSAY (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each (1200 words)	20-22	20	40
Total				100

DISTRIBUTION OF QUESTIONS: (PROBLEM PAPERS)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	1	2
	2	1	1
	3	1	1
	4	1	1
	5	2	1
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	-	2
	2	-	2
	3	-	1
	4	-	1
	5	1	-
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1 (Q 20)	-	1
	2	-	1
	3	-	-
	4	-	-
	5	1	-

CORE XXXI: BUSINESS TAXATION

SUBJECT CODE: 19UHON329	THEORY	MARKS 100
SEMESTER: VI	CREDITS: 4	TOTAL HOURS: 60

COURSE OBJECTIVES:

- **To familiarize students with the basic concepts of GST & Customs**
- **To enable the students to understand the procedure for computation of various goods on GST and Customs.**

UNIT –I **(CASE STUDY)** **(12 Hours)**

Constitutional framework of Indirect Taxes before GST (Taxation Powers of Union & State Government); Rationale for GST; Structure of GST (SGST, CGST, UTGST & IGST); GST Council, GST Network, State Compensation Mechanism, Registration.

UNIT- II **(12 Hours)**

Taxable event- "Supply" of Goods and Services; Exemption from GST related to small supplies and Composition Scheme; Classification of Goods and Services: Composite and Mixed Supplies.

UNIT-III **(12 Hours)**

Eligible and Ineligible Input Tax Credit; Apportionments of Credit and Blocked Credits; Tax Credit in respect of Capital Goods; Recovery of Excess Tax Credit; Availability of Tax Credit in special circumstances; Transfer of Input Credit (Input Service Distribution)

UNIT –IV **(12 Hours)**

Payment of Taxes; Refund; Tax Invoice, Credit and Debit Notes, Returns, Audit in GST, Assessment: Self-Assessment, Summary and Scrutiny.

UNIT -V **(12 Hours)**

Customs - Basic Concepts, Territorial Waters, High Seas, Types of Custom Duties, Valuation, Baggage Rules & Exemptions.

Reference Books:

1. Dr. Vinod K Singhania, Monica Singhania, Students Guide to Income Tax, Taxmann Publications Pvt Ltd., New Delhi.
2. Girish Ahiya, Dr. Ravi Gupta, Systematic Approach to Income Tax and CST, Bharat Law House Pvt. Ltd. New Delhi.
3. Dr.Sanjeev Kumar, Systematic Approach to Indirect Taxes with Practical problems and solutions,Bharat Law House Pvt. Ltd., New Delhi.
4. T.S.Reddy and Y.Hari Prasad Reddy, Indirect Taxes, Margham Publishers-

QUESTION PAPER PATTERN

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
SECTION A (Answer any 10 out of 12 questions) 2 marks each	DEFINITION / PRINCIPLE Answer all the questions (each in 50 words)	1-12	2	20
SECTION B (Answer any 5 out of 7 questions) 8 marks each	SHORT ANSWERS (Answer any 5 out of 7 questions) 8 marks each (each in 300 words)	13-19	8	40
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	ESSAY (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each (1200 words)	20-22	20	40
Total				100

DISTRIBUTION OF QUESTIONS: (THEORY PAPERS)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	3	
	2	2	
	3	2	
	4	2	
	5	3	
SECTION B (Answer any 5 out of 7 questions) 8 marks each	1	2	
	2	1	
	3	1	
	4	2	
	5	1	
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1(Q20)	1	
	2	1	
	3	-	
	4	1	
	5	-	

PROJECT & VIVA VOCE

SUBJECT CODE: 16UHON330	**PROJECT & VIVA VOCE**	**100 MARKS**
SEMESTER: VI	**CREDITS: 8**	**TOTAL HOURS: 75**

Students have to undergo a project in the VI semester. Project-based learning not only provides opportunities for students to collaborate and drive their own learning, to apply the desired skills such as problem solving, helps to develop additional skills integral to their future like critical thinking and time management. It also provides some real-world learning experiences.

GURU NANAK COLLEGE

(AUTONOMOUS)

VELACHERY ROAD, CHENNAI – 600042
(Re-Accredited at 'A-Grade' by NAAC)
(Affiliated to the University of Madras)

B.COM INFORMATION SYSTEM MANAGEMENT

(SEMESTER PATTERN WITH CHOICE BASED CREDIT SYSTEM)

SYLLABUS

(For the candidates admitted for the Academic year 2019-20 and onwards)

VISION

- To evolve into a research department in the field of Information System Management

MISSION

- To enable the students to have an edge over the usage of technology and informatics in the field of management and commerce.
- Deepen and extend knowledge about the formation and utilization of human capabilities.
- To provide high quality technological education, strongly integrated with human values of Equality, Compassion, Sharing a social responsibility.

PROGRAMME OUTCOME

- This program could provide Industries, Information Technology companies, financing companies, Human Resource Agencies, Marketing Companies etc., well trained professionals to meet the requirements.
- After completing graduation, students can get skills regarding various aspects like Marketing Manager, Selling Manager, Finance Manager ,HR Manager, Project Manager and overall Administration abilities of a Company.
- Capability of the students to make decisions at personal & professional level will increase after completion of this course.
- Students can independently start up their own Business.
- Students can get thorough knowledge of finance, commerce and computer programming languages.
- The knowledge of different specializations in accounting, costing, systems and finance with the practical exposure helps the students to stand in organization.

PROGRAMME SPECIFIC OUTCOMES

- The students can get the knowledge, skills and attitudes during the end of the B.com degree course.
- By goodness of the preparation they can turn into a Manager, Accountant, Management Accountant, Cost Accountant, Systems Manager, and Computer Programmer, Web developer, Teacher, Professor, Entrepreneur and Government employees.
- Students will prove themselves in different professional exams like C.A., CMA, UPSC, as well as higher education courses like MBA,MCA,MSW,M.Com,etc.
- The students will acquire the knowledge, skill in different areas of communication, decision making, innovations and problem solving in day to day business activities.
- Students will gain thorough systematic and subject skills within various disciplines of finance, accounting, management, communication, computer programming and systems.
- Students can also get the practical skills to work as accountant, audit assistant, HR trainee, computer operator, Web Developer as well as other financial supporting services.
- Students will learn relevant Advanced accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.
- Students will be able to do their higher education and can make research in the field of finance and commerce.

COURSE STRUCTURE
B.Com (INFORMATION SYSTEM MANAGEMENT)

2019-20 Batch onwards

Semester	Part	Course Component	Subject Code	Subject Name	Credits	Hours	Internal	External	Total
Semester - I	I	Language	17UTAMF01	Tamil - I	3	6	50	50	100
	II	English	19UENG221	English - I	3	6	50	50	100
	III	Core Paper-I	19UCAF301	Financial Accounting (Common to B.Com (Bm), B.Com (Mm), B.Com (A&F)), B.Com (Ism), B.B.A.,)	4	5	50	50	100
	III	Core Paper-II	19UBBA302	Principles of Management (Common to B.Com (BM), B.Com (MM), B.Com (A&F)), B.Com (ISM) & B.B.A)	4	5	50	50	100
	III	Allied-I	19UISM303P	Basic Computer Skills for Managers	5	6	50	50	100
	IV	Non Major Elective-I	17UNME01A	Analytical and Logical (Practicals)	2	2	50	50	100
	IV	Soft Skills-I	19UGSL401	Introduction to Study Skills	3	-	-	100	100
Total Credits: 24 / Total Hours per week: 30									
Semester - II	I	Language	17UTAMF02	Tamil – II	3	6	50	50	100
	II	English	19UENG222	English – II	3	6	50	50	100
	III	Core Paper-III	19UCAF303	Business Communication (Common to B.Com (A&F) & B.Com (ISM))	5	4	50	50	100
	III	Core Paper-IV	19UCMM314	Elements of Cost Accounting (Common to B.B.A. B.Com (MM))	5	4	50	50	100
	III	Allied-II	19UISM306P	HTML Programming	6	5	50	50	100
	IV	Non Major Elective-II	17UNME02G	Importance of Emotional Intelligence	2	2	50	50	100
	IV	Soft Skills-II	19UGSL402	Life Skills	3	-	-	100	100
Total Credits: 24 / Total Hours per week: 30									

Semester - III	III	Core Paper V	19UBBA305	Management Accounting (Common to B.Com(ISM), B.Com (MM), B.Com (BM), B.Com (A&F))	4	6	50	50	100
	III	Core Paper-VI	19UBBA307	Marketing Management (Common to B.Com(ISM), B.Com (A&F), B.Com (MM), & BBA)	4	5	50	50	100
	III	Core Paper-VII	19UMAT339	Business Statistics and Operation (Common to B.Com (BM), B.Com (MM), B.Com (ISM), & B.B.A)	5	6	50	50	100
	III	Core Paper-VIII	19UISM309	Programming in C	4	6	50	50	100
	III	Allied-III	19UISM310P	Programming in C – Practical	4	5	50	50	100
	IV	Soft Skills-III	19UGSL403	Job-Oriented Skills	3	-	-	100	100
Total Credits: 24 / Total Hours per week: 30									
Semester - IV	III	Core Paper-IX	19UBBA310	Entrepreneurial Development (Common to B.Com(BM), B.Com(MM), B.B.A, B.Com(ISM) & B.Com(A&F))	4	5	50	50	100
	III	Core Paper-X	19UISM312	OOPS with C++ (Theory)	4	5	50	50	100
	III	Core Paper-XI	19UISM313P	OOPS with C++ (Practical)	4	5	50	50	100
	III	Core Paper-XII	19UCMM312	Research Methods in Business (Common to B.Com(MM) B.Com(ISM))	4	5	50	50	100
	III	Allied-IV	19UMAT343	Business Statistics and OR-II (Common To B.B.A, B.Com (BM), B.Com (MM) & B.Com (ISM))	5	6	50	50	100
	IV		19UEVS401	Environmental Studies	2	2	-	100	100
	IV	Soft Skills-IV	19UGSL407	Quantitative Aptitude	3	2	-	100	100
Total Credits: 26 / Total Hours per week: 30									

Semester - V	III	Core Paper-XIII	19UBBA312	Management Information System (Common to B.B.A.,B.Com (ISM))	4	5	50	50	100
	III	Core Paper-XIV	19UBBA308	Financial Management (Common To B.Com (BM), B.Com(ISM), B.Com(MM) & B.B.A)	4	6	50	50	100
	III	Core Paper-XV	19UISM317	Web Technology (Theory)	4	6	50	50	100
	III	Core Paper-XVI	19UISM318P	Web Technology (Practical)	4	6	50	50	100
	III	Elective-I (Interdisciplinary Elective)	19UIDE320	Essentials of Office Automation Tools and E-Mail Etiquette Practical)	5	6	50	50	100
	IV		19UVED401	Value Education	2	1	-	100	100
Total Credits: 23 / Total Hours per week: 30									
Semester - VI	III	Core Paper-XVII	16UISMC17	E-Business (Common to B.B.A, B.Com (MM) & B.Com(ISM))	4	6	50	50	100
	III	Core Paper-XVIII	18UISMC18	Database Management System	4	6	50	50	100
	III	Core Paper-XIX	18UISMC19	Human Resource Management (Common to B.B.A., B.Com(MM) & B.Com(ISM))	4	6	50	50	100
	III	Elective-II	18UISME02P	(A) Accounting Package (B) Accounting Package	5	6	50	50	100
	III	Elective-III	16UISME03	Project Work	5	6	-	100	100
	V			Community Service	1	-	-	100	100
Total Credits: 23 / Total Hours per week: 30									
Grand Total Credits: 144 / Total Hours per week: 180									

SEMESTER – I

CORE 1 - FINANCIAL ACCOUNTING

SUBJECT CODE: 19UCAF301	**THEORY & PROBLEM**	**MARKS: 100**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 75 HOURS**

(Common to B.Com (BM), B.Com (MM), B.Com (ISM), B.Com (A&F), B.B.A)

COURSE OBJECTIVES:

- To build the conceptual understanding developed in simple financial accounting.
- To get the basic skills in financial accounting for the beginners.

UNIT I: **(15 Hours)**

Meaning and scope of Accounting, Basic Accounting Concepts and Conventions – Objectives of Accounting – Accounting Transactions – Double Entry Book Keeping – Journal, Ledger, Preparation of Trial Balance – Preparation of Cash Book.

UNIT II: **(25 Hours)**

Preparation of Final Accounts of a Sole Trading Concern – Adjustments Receipts and Payments Account, Income & Expenditure Account and Balance Sheet of Non Trading Organizations

UNIT III: **(15 Hours)**

Classification of errors – Rectification of errors – Preparation of Suspense Account - Bank Reconciliation Statement (Simple Problems Only)

UNIT IV: **(18 Hours)**

Depreciation – Meaning, Causes, Types – Straight Line Method – Written Down Value Method. Insurance claims – Average Clause (Loss of stock)

UNIT V: **(17 Hours)**

Single Entry – Meaning, Features, Defects, Differences between Single Entry and Double Entry System – Statement of Affairs Method – Conversion Method

Prescribed Texts

1. T.S. Reddy &A.Murthy, Financial Accounting - Margham Publications Chennai – 5/e
2. Financial Accounting – Dr. S. Manikandan and R.Rakesh Shankar –3rd Edition- SCITECH Publisher

Reference Books

1. Jain &Narang, Financial Accounting - Kalyani Publishers. New Delhi. 2014
2. R.L.Gupta&V.K.Gupta, Advanced Accounting - Sultan Chand & Sons. New Delhi.
3. Shukla&Grewal, Advanced Accounting – S Chand New Delhi 18th Edition.
4. Dalston L. Cecil and Jenitra L. Merwin, Financial Accounting, Learn Tech press, Trichy, 1st Edition 2015
5. S.Parthasarathy and A.Jaffarulla, Financial Accounting - Kalyani Publishers –New Delhi.

Web References

1. **http://www.accountingcoach.com**
2. **http://www.learnaccountingforfree.com Question Paper Pattern:**

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
A	Unit – 1	2	1
	Unit – 2	1	2
	Unit – 3	1	1
	Unit – 4	1	1
	Unit – 5	1	1
B	Unit – 1	1	1
	Unit – 2		1
	Unit – 3		1
	Unit – 4	1	1
	Unit – 5		1
C	Unit – 1		1
	Unit – 2		1
	Unit – 3		
	Unit – 4		1
	Unit – 5		1

CORE 2 – PRINCIPLES OF MANAGEMENT

SUBJECT CODE: 19UBBA302	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 75 HOURS**

(Common to B.Com (MM), B.Com (BM), B.B.A, B.Com (ISM), B.Com (A&F))

COURSE OBJECTIVES:

• To enable the students to acquire knowledge on principles, concepts and functions of Management and inherit the importance of decision making.

UNIT I **(25 Hours)**

Management: Importance – Definition – Is Management art or science or –Is Management a profession – Functions of Management: *POSDCORB framework by Luther* Gulick and Lyndall Urwick - Role and Functions of Managers - Managerial skills – Levels of Management – Application of management in various functional areas – Production, Accounting, Finance, Marketing and Personnel Management Administrative Management by Henri Fayol – Scientific Management by F.W.Taylor - Bureaucratic Management by Max Weber - Human Relations Management by Elton Mayo - Modern Management by Peter Drucker Approaches to Management - Systems Approach & Contingency Approach

UNIT II **(10 Hours)**

Planning – Definition, Objectives of planning - Importance of planning – Types of plans – Decision making: Nature and significance- Process of Decision making – Types of Decisions.

UNIT III **(20 Hours)**

Organizing – Meaning and definition of Organizing, Importance of Organizing, and Principles of Organizing Delegation and Decentralization-Span of control:Meaning,Factors affecting span of control Types of organizational structure-Line organizational structure –Staff organizational structure- line and staff – Departmentation -Bases of Departmentation -Departmentation by functions, Departmentation by products, Departmentation by territories, Departmentation by customers, Departmentation by process, Departmentation by numbers and Combined Base Departmentation

UNIT IV **(10 Hours)**

Staffing & Recruitment –Meaning, Directing-Meaning-Importance of DirectingLeadership-Styles of leadership - Authoritative leadership (Autocratic), Participative leadership (Democratic) - Delegative leadership (Laissez-faire)

UNIT V **(10Hours)**

Co-ordination: What is co-ordination, Need for co-ordination, Types of co-ordination, Essential requisites for excellent co-ordination- Controlling: Meaning and Importance, Functions of controlling, Process of control and types of Control.

Prescribed Texts:

1. C.B.Gupta, Management Theory & Practice - Sultan Chand & Sons - New Delhi, 16TH Edition.
2. L.M.Prasad, Principles & Practice of Management - Sultan Chand & Sons - New Delhi, 8th Edition.

Recommended Texts:

1. P.C. Tripathi& P.N Reddy, Principles of Managements - Tata Mc.Graw Hill - New Delhi, 5th Edition
2. Weihrich and Koontz, Management – A Global Perspective, 8th Edition.
3. N.Premavathy, Principles of Management - Sri Vishnu Publication – Chennai8th Edition
4. J.Jayashankar, Business Management – Margham Publications - Chennai

Web References:

1. http://www.12manage.com
2. http://www.businessballs.com
3. https://www.tutorialspoint.com/management_principles/management_principles_tutor ial.pdf

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	3	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

ALLIED 1 - BASIC COMPUTER SKILLS FOR MANAGER

SUBJECT CODE: 19UISM303P	**THEORY**	**MARKS : 100**
SEMESTER: I	**CREDITS: 5**	**TOTAL HOURS: 75 HOURS**

COURSE OBJECTIVES:

- To familiarize student with the basic office applications
- To understand the Word Processing Basics
- To learn aesthetics of presentations.
- To comprehend and implement various spreadsheet features
- To understand Database Basics
- To generate reports

UNIT – I **(15 Hours)**

Word: Text Manipulations -Usage of Numbering, Bullets, Footer and Headers-Usage of Spell check, Find & Replace-Text Formatting -Picture insertion and alignment -Creation of documents, using templates-Creation templates -Mail Merge Concepts -Copying Text & Pictures from Excel

UNIT II **(15 Hours)**

Power point Presentation: Creation of Slide, Working with Design Templates, Working with Images, Creation of Slide Master, Creation of Custom themes, Use of Action Buttons and Hyperlinks, embedding videos in slides, Custom Animation, Use of Timer.

UNIT III **(15 Hours)**

Excel: Cell Editing -Usage of Formulae and Built-in Functions -File Manipulations -Data Sorting (both number and alphabets)-Data Filters – Charts and Graphs -Usage of Auto Formatting-pivot tables-macros-hyperlinks

UNIT IV **(15 Hours)**

Microsoft Access: Creation and working with database-Creation and linking of tables customizing fields-customizing tables- creating forms using wizard-creating queries using wizard

UNIT V **(15 Hours)**

Microsoft Access: Creation of reports using report wizard-summary report-design viewmodify existing report - beautifying forms and reports.

Prescribed Text:

1. A first Course in Computers, Sanjay Saxena, Vikas Publishing House Pvt. Ltd.,
2. Microsoft Office in Easy steps, Stephen Copestake, Comdex Computer

Reference Books

1. Teach yourself, MS Office for Windows, Corey Sandler, Tom Bedgelt, Jan Weingarten, BPB Publication.
2. HTML & CSS: The Complete Reference, Fifth Edition by Thomas Powel
3. MS-Office Access 2007 –Curtis D.frye-PHI -2007

Web Refernces:

1. **http://msdn.microsoft.com**
2. **http://www.gcflearnfree.org/**

NME 1 –ANALYTICAL AND LOGICAL REASONING

SUBJECT CODE: 17UNME01A	**THEORY**	**MARKS : 100**
SEMESTER: I	**CREDITS: 2**	**TOTAL HOURS: 30 HOURS**

(Common to B.Com (MM), B.Com (BM), B.B.A, B.Com (ISM), B.Com (A&F))

COURSE OBJECTIVE:

- To enable students to learn to describe the problem-solving process
- To make the students identify various problem-solving techniques and apply these in solving business problems
- To Understand thinking models and practice exercises to help in thinking outside-thebox and generate a larger solution space
- To Understand creativity and blocks to creativity
- To Arrive at objective, well-reasoned decisions in a reasonable time

UNIT-I **(6 Hours)**

Logical reasoning Introduction- Number Series – Verbal classification – Analogies: Number, relations and picture analogies

UNIT-II **(6 Hours)**

Statement and assumptions – Statement and conclusion- Letter and symbol series

UNIT-III **(6 Hours)**

Verbal reasoning – Coding and Decoding- Reasoning Blood Relationship

UNIT-IV **(6Hours)**

Cubes and Dice – Direction Sense Test – Data sufficiency

UNIT-V **(6 Hours)**

Venn Diagrams – Ranking Tests – Image Series

Reference Books

1. Logical and Analytical Reasoning – A.K. Gupta – Ramesh publishing house – 2016 Paper Back edition
2. A Modern Approach to verbal and non-verbal reasoning – Revised edition by R.S.Agarwal – Publisher – S.Chand and Company Pvt. Ltd.

Web References:

1. **http://www.careerguide.co.in/search/label/Reasoning**
2. **http://www.indiabix.com/logical-reasoning**

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	Multiple choic Questions	1-50	2	**100**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Problems
Section A	Unit – 1	10
	Unit – 2	10
	Unit – 3	10
	Unit – 4	10
	Unit – 5	10

SEMESTER – II

CORE 3 - BUSINESS COMMUNICATION

SUBJECT CODE: 19UCAF303	**THEORY**	**MARKS : 100**
SEMESTER : II	**CREDITS : 4**	**TOTAL HOURS: 30 HOURS**

(Common to B.Com (A&F), B.Com (ISM))

COURSE OBJECTIVES:

- To enable the students to acquire knowledge about the importance of communication
- In today's competitive business environment

UNIT I **(20 Hours)**

Concept of Communication – Meaning, Definition, Process, Need, Feedback, Principles of effective Communication – Barriers to Communication: Physical, Semantic/Language, Socio-Cultural and Psychological Barriers - Ways to overcome these Barriers. Types of Communication: Verbal, Non-verbal – Characteristics of Verbal communication and Non-
Verbal communication Merits and Demerits of Verbal and Non-verbal communication.

UNIT II **(25 Hours)**

Channels of Communication: Formal and Informal—Vertical, Horizontal, Diagonal, Grapevine. Business Letters and Layout: Parts, Structure, Layouts— Full Block, Modified Block, Semi – Block, Principles of Effective Letter Writing.

UNIT III **(10 Hours)**

P**ersonnel correspondence**- Job Application Letter and Resume Letter of Acceptance of Job Offer, Inter-Office-Memo, Letter of Resignation.

UNIT IV **(10 Hours)**

Business Correspondence: Trade Letters –Inquiry, Order, Credit and Status Enquiry, Complaints, Claims, Sales Letters, promotional leaflets and fliers.

UNIT V **(10 Hours)**

Modern Forms of Communication: Fax – E-mail – Video Conferencing – Benefits and Perils of Communication through social media: Website and Apps.

Prescribed Texts:

1. N.S. Raghunthan, B. Santhanam – Margham Publications,Chennai,3rd Edition
2. C.B. Gupta, Business communication,Organisation and Management, 2014.

Reference Books:

1. Rajendra Pal & J.S. Korlahalli, Essentials of Business Communication - Sultan Chand & Sons - New Delhi.
2. Shirley Taylor, Communication for Business - Pearson Publications - New Delhi.
3. Bovee, Thill, Schatzman, Business Communication Today - Peason Education Private Ltd. - New Delhi.
4. Penrose, Rasbery, Myers, Advanced Business Communication - Bangalore.
5. Mary Ellen Guffey, Business Communication – Process and Product - International Thomson Publishing - Ohio.

Web References:

1. http://www.businesscommunication.org
2. http://www.iabc.com
3. http://www.etiquettetrainer.com

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	3	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

CORE 4 –ELEMENTS OF COST ACCOUNTING

SUBJECT CODE: 19UCMM314	**THEORY& PROBLEMS**	**MARKS : 100**
SEMESTER : III	**CREDITS : 4**	**TOTAL HOURS: 90 HOURS**

COURSE OBJECTIVES:

- To acquaint the students with basic concepts used in cost accounting.
- To introduce various methods involved in cost ascertainment and cost accounting book keeping systems.

UNIT I **(10 Hours)**

Introduction to Cost Accounting-Meaning, definition, scope and objectives of cost accounting, Cost accounting Vs. Financial accounting- Difference between Cost accounting and Management accounting – Requisites of good costing system.

UNIT II **(15 Hours)**

Elements of cost – Classification of overheads- cost sheet- Cost Sheet Vs. production statement-Stock of Raw materials – Specimen cost sheet with inventories.

UNIT III **(25 Hours)**

Meaning of material control – Essentials, objectives, advantages- Store Keeping and inventory control- Economic Ordering Quantity (EOQ)- pricing of material issues (LIFO, FIFO, Simple Average and Weighted Average method) material losses.

UNIT IV **(20 Hours)**

Computation and control of labour – Labour turnover –Time keeping department – Payroll department- Remuneration and incentives – Time rate system, Piece rate system – Premium and bonus plan.

UNIT V **(20 Hours)**

Meaning and definition - Importance-Classification – Primary Distribution of overheads, Secondary distribution of overheads – Absorption of overheads

Prescribed Text

1. T.S. Reddy and Y. Hariprasad Reddy – Cost Accounting ; Margham Publications
2. N.K. Prasad and V.K. Prasad – Cost Accounting

Reference Books:

1. Jain S.P. and Narang K.L. – Cost Accounting.
2. Khanna B.S., Pandey I.M. Ahuja G.K. and Arora M.N. – Practical costing.

Web Reference:

1. http://www.accountingcoach.com/
2. https://www.wiziq.com/tutorials/cost-accounting

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer ANY 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	1	1
	Unit – 4	1	1
	Unit – 5	2	1
Section B	Unit – 1	1	
	Unit – 2	1	1
	Unit – 3		1
	Unit – 4		1
	Unit – 5		2
Section C	Unit – 1		
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit - 5		1

ALLIED 2 - HTML PROGRAMMING

SUBJECT CODE: 19UISM306P	**PRACTICAL**	**MARKS : 100**
SEMESTER : II	**CREDITS : 5**	**TOTAL HOURS: 75 HOURS**

COURSE OBJECTIVES:

- To familiarize student with the basic web page development
- To make the student aware of Internet basics and learn aesthetics of web designing.

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UNIT-I **(15 Hours)**

Introduction to HTML-HTML Tags-Paired Tags-Singular Tags-The structure of an HTML program-Titles and Footers-Text Formatting–Emphasizing Material in a web page-Text Styles-Other Text Effects-Lists-Types of Lists-Unordered Lists- Ordered Lists-Definition Lists.

UNIT-II **(15 Hours)**

Adding Graphics to HTML-Using the Border Attribute , Width and Height Attribute-Align Attribute-The ALT Attribute-Tables-The caption Tags-Using the width Attribute-Cell PaddingCell Spacing Attribute-Using the Background Color Property-Using the Row span and Colspan
Attributes.

UNIT-III **(15 Hours)**

Linking Documents-Links-External Document References-Internal document referencesHyper Linking to a HTML File-Linking to a particular location in a separate document-Images as Hyperlinks-Image Maps-Frames-The Frameset Tags-The Frame Tags-Targeting Named frames.

UNIT-IV **(15 Hours)**

Dynamic HTML-Cascading Style Sheets- CLASS-Using SPAN Tags-External Style Sheets-Using the Div Tags- Introduction to Java script – JavaScript basic syntax – JS Variables – JS literals – JS statements (operators, comments, expressions and basic keywords)

UNIT-V **(15 Hours)**

Working with Forms-Introducing HTML Form Tags and Elements-Form Elements-Text Box-Text Area-Password-Radio Button-Checkbox-The Combo Box or Drop Down List BoxHidden Field-Image-Submit and Reset Button-Adding Elements to a Form.

Prescribed Texts:

Mastering HTML, CSS & JavaScript Web Publishing; Laura Lemay (Author), Rafe Colburn (Author), Jennifer Kyrnin (Author) – BPB Publications- July 2016

HTML &CSS: The Complete Reference: Fifth Edition; Thomas Powell ; Mar 2010

Reference Books:

1. HTML 5 Black Book, Covers CSS 3, JavaScript, XML, XHTML, AJAX, PHP and jQuery; by DT Editorial Services; DreamTech Press; Second Edition;April 2016
2. HTML 5 in Simple Steps Paperback – 5 Oct 2010 by Kogent Learning Solutions Inc. (Author)

Web Reference:

1. http://www.w3schools.com
2. https://www.codecademy.com

NON MAJOR ELECTIVE – II
IMPORTANCE OF EMOTIONAL INTELLIGENCE

SUBJECT CODE : 17UNME02G	**THEORY**	**MARKS : 100 (50 CIA + 50 ESE)**
SEMESTER : II	**CREDITS : 2**	**TOTAL HOURS: 30 HOURS**

(Common to BBA, B.Com (A&F), B.Com (BM), B.Com (MM), B.Com(ISM))

COURSE OBJECTIVES:

- To evoke knowledge amongst students on Emotional Intelligence
- To make students understand the importance of self-awareness and self-development

UNIT I- **(6 Hours.)**

Introduction -Emotional Intelligence –Meaning, Benefits, Importance of emotions - Self-awareness and Competencies Psychological Needs. EQ vs IQ.

UNIT II - **(6 Hours.)**

Personality Analysis -Distinct Personality Type-Hand writing Analysis, Colour preference, listening, Profile, Self Esteem, Will power, Confidence

UNIT III- **(6 Hours.)**

Negative Traits - Anger Management -Negative Syndrome and Attitude-Negative thinking Guilt Quotient Stress and Emotion, Adapting to Loneliness

UNIT IV- **(6 Hours.)**

Positive Traits-Humor and Happiness- Empathetic ability-Sensitivity profile-Empowered personality, Self-Empowerment

UNIT V- **(6 Hours.)**

Self-analysis: Psychological growth and adjustment- Personal Development plan-Successful negotiator Personal SWOT Analysis, Celebrating Life

Prescribed Text

1. What's Your Emotional IQ, Dr.AparnaChattopadhyay, PustakMahal, May 2004.
2. Emotional Intelligence ina Week, JillDann, Hodder& Stoughton, 10Editions, 2007.

Reference Books

1. Emotional Intelligence: Why It Can Matter More Than IQ Paperback – September 27, 2005by Daniel Goleman

Web Reference:

1. www.psychology.ccsu.edu/engwall/Emotional%20Intelligence.ppt
2. www.personality_project.org
3. www.donblake.com/module5/resources/emotionalintelligence.doc
4. www.visionrealization.com/Resources/.../Emotional_intelligence_handout.pdf

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	Descriptive Questions Answer any 5 out of 8	1-8	10	**50**
TOTAL MARKS				**50**

Distribution of Questions:

Sections	Units	No. of Questions Theory
Section A	Unit – 1	1
	Unit – 2	2
	Unit – 3	2
	Unit – 4	2
	Unit – 5	1

SEMESTER – III

CORE 5 - MARKETING MANAGEMENT

SUBJECT CODE: 19UBBA307	**THEORY**	**MARKS : 100**
SEMESTER : III	**CREDITS : 4**	**TOTAL HOURS: 75 HOURS**

(Common to B.Com (MM), B.B.A, B.Com (ISM), B.Com (A&F))

COURSE OBJECTIVES:

- To understand the role and importance of marketing.
- To Identify the factors influencing consumer behavior and purchase decision
- To understand the facets of 4 P's in marketing
- To understand the modalities of sales distribution and control

UNIT I **(10 Hours)**

Fundamentals of marketing - Role of Marketing - Relationship of Marketing with other functional areas - concept of marketing mix-Marketing approaches - Various Environmental factors affecting the marketing functions.

UNIT II **(10 Hours)**

Buyer Behavior - Consumer goods and Industrial goods - Buying motives - Factors influencing buyer Behavior, Market segmentation - Need and basis of Segmentation -Targeting - positioning.

UNIT III **(20 Hours)**

The Product - Characteristics - benefits - classifications - consumer goods - industrial goods - New Product Development process - Product Life Cycle - Branding –Packaging- Labeling– Pricing: Meaning, Objectives and Types of Pricing

UNIT IV **(20 Hours)**

Promotion –Meaning, Objectives – Types - A brief overview of: Advertising - Publicity - Public Relations - personal Selling - Direct selling and Sales promotion.

UNIT V **(15 Hours)**

Physical Distribution: Importance – Channels of Distribution: Distribution of consumer goods, Distribution of industrial goods and Distribution of Agriculture goods – Levels of channels: Zero level, one level, two level and three level channel - distribution issues.

Prescribed Texts:

1.Marketing Management by Sontakki C.N; Kalyani Publishers; 2009 2. R.S.N. Pillai and Bagavathi ,Modern Marketing , S.Chand& Co , New Delhi.
3. Jayasankar, Marketing, Margham publications, Chennai.

Reference Books:

1. Philip Kotler, 2003, Marketing Management, 11th edition, Pearson Education (Singapore) Pte Ltd, New Delhi.
2. Crrainfield, Marketing Management, Palgrave Macmillan

Web Reference:

1. http://www.marketing91.com/marketing-management/
2. https://www.managementstudyguide.com/marketing-management-articles.htm

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	3	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

CORE 6 - MANAGEMENT ACCOUNTING

SUBJECT CODE : 19UBBA305	THEORY & PROBLEM	MARKS : 100
SEMESTER : III	CREDITS : 4	TOTAL HOURS: 75 HRS

(Common to B.Com (GEN), B.Com (CS), B.Com (AF), B.Com (BM), B.Com (MM), B.Com (ISM), BBA)

COURSE OBJECTIVES:

- To enable the students to acquire sound knowledge of concepts, methods and techniques of management accounting.
- To apply the analytical skills associated with the interpretation of accounting reports.
- To evaluate the results of profitability, liquidity, solvency and efficiency levels in the business.
- To communicate the knowledge about fund flow and cash flow statements under (AS-3) and also the concept of budgetary control.
- To evaluate the classification of budgets.

UNIT I **(15 Hours)**

Management Accounting: Meaning- nature, scope and functions of management accounting- role of management accounting in decision making; management accounting vs. financial accounting- tools and techniques of management accounting. Financial statements- meaning and types of financial statements - objectives and methods of financial statements analysis comparative, common size statements and Trend analysis.

UNIT II **(20 Hours)**

Ratio Analysis – Interpretation, benefits and limitations - Classification of ratios – Liquidity, Profitability and turnover ratios.

UNIT III **(20 Hours)**

Funds flow statement - objectives - uses and limitations - preparation of funds flow statement - schedule of changes in working capital – non fund items - adjusted profit and loss account.

UNIT IV **(20 Hours)**

Cash flow statement – significance preparation of cash flow statement as per IND AS3- Cash from Operating, Investing and Financing activities.

UNIT V **(15 Hours)**

Budgets and Budgetary Control- Meaning-objectives-advantages-Limitations-Installations of Budgetary control system-Classifications of Budgets based on Time, Functions and Flexibility. Preparation of Budgets (Sales, Production, Flexible, Cash, Master Budget and Raw Material Purchase Budget)

THEORY: 20% PROBLEMS: 80%

RECOMMENDED TEXTBOOKS

1. Maheswari, D. S, “Principles of Management Accounting” Sultan Chand & Sons. Delhi-53, 17th Edition
2. Reddy, T. S., & Murthy, A, Financial accounting. Margham Publication, 15th Edition.

REFERENCE BOOKS

1. Gupta, S. K., & Sharma, R. K., Management Accounting: Principles and Practice.
2. Hingorani, R. (2005). Grewal. Management Accounting.
3. Khan, M. Y., & Jain, P. K. (2017). Management Accounting and Financial Analysis.
4. Murthy, A. & Gurusamy, S. Management Accounting Theory and Practice, Vijay Nicole
5. Srinivasan, N. P., & Murugan, M. S,. Accounting for management. S. Chand.

E-LEARNING RESOURCES

1. https://www.wallstreetmojo.com/ratio-analysis/
2. https://books.google.co.in/books?isbn=0070620237
3. https://books.google.co.in/books?isbn=1853963836
4. https://books.google.co.in/books?isbn=8131731782

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	1	1	1	-	-
II	1	2	-	1	-	1
III	1	1	-	1	-	1
IV	1	1	-	1	-	1
V	1	1	1	1	-	1
TOTAL	6	6	2	5	-	4
SECTION A - 12			**SECTION B - 7**		**SECTION C - 4**	

CORE 7 - PROGRAMMING IN 'C'

SUBJECT CODE: 19UISM309	**THEORY**	**MARKS : 100**
SEMESTER : III	**CREDITS : 4**	**TOTAL HOURS: 90 HOURS**

COURSE OBJECTIVES:

- To brief basic concepts of algorithms, flowcharting, pseudocode and programming in C
- Give them an insight into C techniques.
- To create and solve modular programs.

UNIT I **(20 Hours)**

C fundamentals - Character set - Identifiers and keywords – Basic Data types- User defined Data types - Constants - variables - Declaration - Expressions - Statements - Operators - Arithmetic, Unary, relational, Logical, Assignment and conditional Operator- Library functions.

UNIT II **(20 Hours)**

Flow of control - Control structures –If statement, If Else Statement, Nested If Statement, Else If Ladder -While Statement - Do-While Statement - For Loop - Switch Case – break - continue- go to statements - Comma Operator.

UNIT III **(15 Hours)**

Input/output functions-Printf function- Scanf function - Simple C programs - Functions - Defining, Declaration, Accessing functions - Function prototypes - Passing arguments to functions - Call by Value- Call by reference – Recursion.

UNIT IV **(20 Hours)**

Arrays - Definition and Declaration - Passing arrays to function – Array Types - One-dimensional array- Two-dimensional arrays - Multidimensional arrays – Arrays.

UNIT V **(15 Hours)**

String functions - Storage classes: Private- Public- Automatic- Extern- Static storage classes.

RECOMMENDED TEXTBOOKS

1. Programming in C by E.Balaguruswamy; Tata Mc Graw Hill Publication; 2008
2. Programming in C by V. Raja Raman; Prentice Hall, New Delhi; July 2006

REFERENCE BOOKS:

1. Gottfried B.S - Programming with C - second edition TMH Pub. Co. Lt., - New Delhi – 1996
2. Kanetkar Y - : Let us C - BPB Pub. - New Delhi – 1999
3. E. Balagurusamy - Programming in ANSI C

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	3	-	2	-	1	-
II	3	-	2	-	2	-
III	2	-	2	-	1	-
IV	2	-	1	-	1	-
V	2	-	1	-	1	-
TOTAL	12	-	8	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

CORE 8 - PROGRAMMING IN 'C' PRACTICAL

SUBJECTCODE: 19UISM310P	**PRACTICAL**	**MARKS : 100**
SEMESTER : III	**CREDITS : 4**	**TOTAL HOURS: 90 HOURS**

COURSE OBJECTIVE:

- To enable students to learn practical programming in C

COURSE OUTCOME:

1. To find max and min of numbers
2. To generate Fibonacci series
3. Simple Interest
4. Compound Interest
5. Factorial with and without recursion
6. Sum of n natural numbers
7. Matrix addition and subtraction
8. Matrix Multiplication
9. Sorting – bubble sort
10. Prime number check
11. Odd or Even Number
12. Reverse a string and check for palindrome
13. Linear Search
14. Array addition/Subtraction
15. Swapping of variables using pointers

ALLIED PAPER - 3
BUSINESS STATISITICS – I

SUBJECTCODE: 19UMAT339	**THEORY& PROBLEM**	**MARKS: 100**
SEMESTER: III	**CREDITS: 5**	**TOTAL HOURS: 90 HOURS**

(Common to B.Com (GEN), B.Com (CS), B.Com (AF), B.Com (BM), B.Com (MM), B.Com (ISM), BBA)

COURSE OBJECTIVES

- To communicate the origin and basics about the statistics.
- To demonstrate the classifications, tabulation of data including diagrammatic and graphical methods.
- To analyze the knowledge of measures of central tendency – Mean, Median, Mode, Geometric Mean and Harmonic Mean.
- To explain the characteristics of the range, Quartile deviation, mean deviation, variance, and the standard deviation.
- To evaluate the measures of skewness – Karl Pearson's coefficient of skewness and Bowley's Coefficient of Skewness.

UNIT I **(18Hours)**

Origin Meaning, Definition and Characteristics of Statistics – Uses and Limitations - Sources of Statistical data – Primary and Secondary – Collection of Primary Data – Direct Personal, Indirect Oral, Mailed Questionnaire and Schedule Methods – Editing of Secondary Data-Scatter diagram.

UNIT II **(18Hours)**

Measures of Central Tendency / Averages – Arithmetic Mean, Median, Quartiles, Deciles, and Percentiles,Mode, Geometric Mean, Harmonic Mean, Combined Mean and Weighted Mean.

UNIT III **(18Hours)**

Measures of Dispersion – Range, Quartile Deviation, Mean Deviation and Standard Deviation – Co-efficient of Variation.

UNIT IV **(18Hours)**

Measures of Skewness – Meaning, Definition and Types – Karl Pearson's coefficient of Skewness and Bowley's Coefficient of Skewness.

UNIT V **(18Hours)**

Probability – Addition and Multiplication Theorem – Conditional probability – Bayer's Theorem (without proof) – Simple problems.

THEORY: 20% PROBLEMS: 80%

RECOMMENDED TEXTBOOKS

1. S.P.Gupta ,Statistical Methods ,Sultan Chand & Sons, 2011
2. P.R.Vital ,Business Statistics, Margham Publications.

REFERENCEBOOKS

1. E.L.Lehmann , Elements of Statistical Hypothesis , Johu Wiley & Sons.
2. R.S.N.Pillai & B.Bhagavathi, Practical Statistics,S.Chand& Company.

E-LEARNING RESOURCES

1. https://books.google.co.in/books?isbn=0764142399
2. https://books.google.co.in/books?isbn=8122400116
3. https://books.google.co.in/books?isbn=8131726029

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	-	2	-	-	-
II	2	-	-	1	-	1
III	1	3	-	2	-	1
IV	1	1	-	1	-	1
V	1	1	-	1	-	1
TOTAL	7	5	2	5	-	4
SECTION A - 12			**SECTION B - 7**		**SECTION C - 4**	

SEMESTER – IV

CORE 14- ENTREPRENEURIAL DEVELOPMENT

SUBJECT CODE: 19UBBA310	**THEORY**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 75 HOURS**

(Common to B. Com (GEN), B. Com (CS), B. Com (AF), B. Com (BM), B. Com (MM), B. Com (ISM), BBA)

COURSE OBJECTIVES:

- To discuss the concept of entrepreneurship and its importance.
- To analyze the scope of various financial institutions for the enhancement of small entrepreneurs.
- To utilize the various technical tools for the business premises and encounter business ventures.
- To communicate the important values of EDP's and the government role played in.
- To design the valuable approaches in the changing economic scenario and to apply the same for the improvement of small-scale entrepreneurs.

UNIT I **(13 Hours)**

Entrepreneurship – Meaning – Types – Qualities of an Entrepreneur – Classification of Entrepreneurs – Factors influencing Entrepreneurship – Functions of Entrepreneurs.

UNIT II **(20 Hours)**

Entrepreneurial Development Agencies - Commercial Banks – District Industries Centre – National Small Industries Corporation – Small Industries Development Organisation – Ministry of Micro, Small & Medium Enterprises (MSME)- Prime Minister Employment Generation Programme - Pradhan Mantri Yuva Yojana - All India Financial Institutions – IDBI – IFCI – ICICI – IRDBI.

UNIT III **(15 Hours)**

Project Management: Business idea generation techniques – Identification of Business opportunities – Feasibility study – Marketing, Finance, Technology & Legal Formalities -Preparation of Project Report – Tools of Appraisal.

UNIT IV **(12 Hours)**

Entrepreneurial Development Programmes (EDP) – Role, relevance and achievements – Entrepreneurship Development Institute of India (EDII), Role of Government in organizing EDPs – Critical evaluation.

UNIT V **(15 Hours)**

Economic development and entrepreneurial growth – Role of entrepreneur in economic growth- Strategic approaches in the changing economic scenario for small scale entrepreneurs- Networking, Niche play, Geographic concentration, Franchising / Dealership – Development of Women entrepreneurship - problems – steps taken by government- Women and Self Help Groups. (SHGs)

RECOMMENDED TEXTBOOKS

1. Gupta, D. C., & Srinivasan, D. N. Entrepreneurship Development in India Sultan Chand & Sons, (2001).
2. Khanka, S. S. Entrepreneurial development. S. Chand Publishing, (2006).

REFERENCE BOOKS

1. Desingu Setty, E., & Krishna Moorthy, P. Strategies for developing women entrepreneurship. Akansha Pub. House, (2010).
2. Drucker, P. F. Innovation and Entre-preneurship: Practice and Principles. Harper & Row, (1986).
3. Gupta, M. Entrepreneurial Development Raj Publishing House, (2006).
4. Shankar, R.Entrepreneurship Theory & Practice Vijay Nicole Imprints Private Ltd
5. Suresh, J. Entrepreneurial Development Margham Publications, (2002).

E-LEARNING RESOURCES

1. http://www.yourarticlelibrary.com/entrepreneur/entrepreneurshipcharacteristicsimportancetyps-and-functions-of-entrepreneurship/5228
2. https://landor.com/thinking/eight-principles-of-innovation
3. http://www.simply-strategic-planning.com/innovation-and-entrepreneurship.html
4. https://www.slideshare.net/sahilkamdar1/institutional-support-in-entrepreneurship
5. https://www.businessmanagementideas.com/entrepreneurship-2/institutional-supportsystem-
6. for-entrepreneurs/18184
7. https://www.entrepreneur.com/article/323660
8. https://www.entrepreneur.com/article/314723

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	3	-	2	-	1	-
II	3	-	2	-	2	-
III	2	-	1	-	1	-
IV	2	-	2	-	1	-
V	2	-	1	-	1	-
TOTAL	12	-	8	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

CORE 09 – OBJECT ORIENTED PROGRAMMING WITH C++

SUBJECT CODE: 19UISM312	**THEORY**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 75 HOURS**

COURSE OBJECTIVES:

- This course covers object-oriented programming principles and techniques using C++. The aim is to help students to gain a better understanding of OO design and program implementation by using Object Oriented language features.

Unit – I **(15 Hours)**

Principles of Object Oriented Programming (OOP) – Software Evaluation - OOP Paradigm - Basic Concepts of OOP - Benefits of OOP - Application of OOP- Scope Resolution Operator- Structure of C++ program.

Unit – II **(15 Hours)**

Introduction to C++ - Tokens - Keywords - Identifiers – Variables- Constants- Basic Data types- User-defined Data types - Operators - Manipulators - Expressions and their Types- Control Structures.

Unit – III **(15 Hours)**

Classes and Objects – Introduction- Defining Member Functions - C++ program with Classes- Private Member functions- Static Member Functions- Inline Functions - Friend Functions - Function Overloading.

Unit – IV **(15 Hours)**

Arrays within class - arrays of objects - Constructors - Parameterized constructors - Multiple constructors- Copy constructors-Dynamic Constructors- Destructors -- Type Conversions.

Unit – V **(15 Hours)**

Operator overloading - Inheritance - Types of Inheritance- Single – Multiple- Multilevel- Hierarchical- Hybrid - Virtual Functions and Polymorphism.

Prescribed Texts:

1. E. Balagurusamy - Object Oriented Programming with C++ - TMH.
2. Robert Lafore - Object Oriented Programming in Microsoft C++ - Galgotia.

- Pointers - Functions - Function Prototyping Parameters Passing in Functions - Values Return by Functions

Reference Books:

1. Object Oriented Programming Using C++ and Java Paperback – 2011 by Ramesh Vasappanavara

Web Reference:

1. **www.w3schools.in/cplusplus/intro**

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer ANY 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

CORE 11- OBJECT ORIENTED PROGRAMMING WITH C++ PRACTICAL

SUBJECT CODE: 19UISM313P	**PRACTICAL**	**MARKS: 100**
SEMESTER: IV	**CREDITS : 4**	**TOTAL HOURS: 75 HOURS**

COURSE OBJECTIVE:

To enable students to learn practical programming in C ++

1. Sum of square of N natural numbers.
2. Fibonacci series
3. Manipulators
4. Class and Objects.
5. Friend functions
6. Inline functions
7. Function overloading
8. Arrays within objects.
9. Constructor & Destructor
10. Copy Constructor
11. Parameterized constructor.
12. Operator overloading
13. Practical on use of classes, objects in C++
14. Single Inheritance
15. Multiple Inheritance

CORE 12 – RESEARCH METHODS IN BUSINESS

SUBJECT CODE: 19UCMM312	**THEORY**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 75 HOURS**

(Common to B.Com (MM), B.Com (ISM))

COURSE OBJECTIVES:

- To make students aware about the importance of research in business
- To make students acquire skills to locate problem areas in organisation settings, and plan, organize, design, and conduct research to help solve the identified problems.

Unit I **(10 Hours)**

Fundamentals of Research: Meaning, Objectives and Significance. Types of Research: - Descriptive vs. Analytical, Applied vs Fundamental, Quantitative vs. Qualitative, Conceptual vs.Empirical. **Approaches to Research-** Quantitative approach, Qualitative approach.

Unit II **(20 Hours)**

Defining the research problem, Selecting the problem; technique involved in selecting a problem. Research design – Meaning, need, features of good research design. **Sample design** – Meaning- Steps in sampling design – Characteristics of Good Sample Design – Classification of Sampling design: Brief about Probability sampling, Non- probability sampling, restricted, un-restricted sampling. Types: Quota sampling, Cluster sampling, Area sampling, Multi stage sampling, convenience sampling and purposive sampling.

Unit III **(15 Hours)**

Sources and Methods of data collection - Primary and Secondary data. Meaning and Definition of Primary sources - Observation, Interview and Questionnaire. Meaning and definition of Secondary sources - Data processing – Tabulation – Data analysis and Interpretation.

Unit IV **(20 Hours)**

Meaning, definition and importance of Hypothesis –Types: Simple hypothesis, Null hypothesis, alternate hypothesis and complex hypothesis. Formulation of hypothesis and various methods of testing of hypothesis - (Theoretical explanation only) Chi-square test, Correlation Co-efficient and Regression analysis.

Unit V **(10 Hours)**

Report writing – layout of research report – Steps in report writing- Importance of research in management decisions- Application of research in various areas - Marketing Research, Government policies and economic systems, Social relationship.

Prescribed Texts:

1. Research Methodology by Dr.P.Ravilochanan – Margham Publications (2012)
2. Research Methodology: Methods and Techniques Paperback – Abridged, Audiobook, Box set by C R Kothari

Reference Books:

1. Research Methodology: A Step by Step Guide for Beginners, 2e – 2005 –by Ranjit Kumar – Pearson.

Web Reference:

1. http://study.com/academy/lesson/research-methodology-approaches-techniques-quiz.html

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer ANY 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	3	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

ALLIED PAPER - 4
BUSINESS STATISITICS – II

SUBJECT CODE: 19UMAT343	**THEORY & PROBLEM**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 5**	**TOTAL HOURS: 90 HOURS**

(Common to B.Com (GEN), B.Com (CS), B.Com (AF), B.Com (BM), B.Com (MM), B.Com(ISM), BBA)

COURSE OBJECTIVES:

- To discuss the scope of correlation and use of regression analysis to estimate the relationship between two variables and its applications
- To analyse the use of time series models for forecasting and the limitations of the methods
- To utilize the necessary set of skills in using statistical tool and technique of index number for price level changes.
- To communicate the methods of interpolation & extrapolation.
- To compile the various methods of statistical tools of quality monitoring including control charts

UNIT I **(18 Hours)**

Correlation Analysis – Meaning, Definition, Significance and Types of Correlation, Karl Pearson's Coefficient of Correlation – spearman's Rank Correlation.

UNIT II **(19 Hours)**

Regression Analysis- Meaning and Importance – Regression Lines and Regression equations- X on Y, Y on X, and Properties of Regression Coefficients – Uses of Regression – Difference between Correlation & Regression.

UNIT III **(19 Hours)**

Time Series Analysis – Meaning, Need and Components of Time Series – Different Methods – Simple Average Method- Free Hand, Semi Average, Moving Average and Least Square Method- Seasonal Indices.

UNIT IV **(19 Hours)**

Index Numbers – Definition Usage, Methods of Construction of Index Numbers – Types – Unweighted and weighted Index Numbers Simple, Aggregate, Price Relative Methods- Laspeyres, Paasche's , Bowley's and Fisher's Index Numbers – Time and Factor Reversal Tests – Cost of Living Index.

UNIT V **(15 Hours)**

Meaning of Sampling - Probability sampling Methods: Simple Random sampling -Stratified sampling-Systematic sampling-Cluster Sampling-Multi stage Sampling, Non-probability sampling methods: Convenience Sampling -Judgmental Sampling-Quota Sampling -Snowball Sampling-Sampling error and standard error relationship between sample size and standard error.

THEORY: 20% PROBLEMS: 80%

RECOMMENDED TEXTBOOKS

1. Statistical Methods- S.Gupta – Sultan Chand & Sons
2. Statistics –P.R.Vital- Margham Publications.

REFERENCE BOOKS

1. Elements of Statistical Hypothesis – E.L.Lehmann – Johu Wiley &Sons.
2. Practical Statistics – R.S.N.Pillai & B.Bhagavathi – S.Chand & Company.

E-LEARNING RESOURCES

1. https://books.google.co.in/books?isbn=8122415229
2. https://books.google.co.in/books?isbn=8131301362
3. https://books.google.co.in/books?isbn=8122415229

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	1	1	1	-	1
II	1	1	-	1	-	1
III	1	1	-	2	-	1
IV	1	1	-	1	-	1
V	2	1	1	-	-	-
TOTAL	7	5	2	5	-	4
SECTION A 12			**SECTION B 7**		**SECTION C 4**	

SKILL: 4 QUANTITATIVE APTITUDE

SUBJECT CODE: 19UGSL407	PROBLEM	100 MARKS
SEMESTER: IV	CREDITS: 2	TOTAL HOURS: 30 HOURS

COURSE OBJECTIVES:

- To make students familiarize in quantitative aptitude.
- To train students to face competitive exams and other entrance level tests conducted as part of recruitment drive by employers both in public and private sector.

Unit-1 **(6 Hours)**

Divisibility – HCF and LCM

Unit-II **(6 Hours)**

Averages – Percentage – Ratio and Proportions

Unit-III **(6 Hours)**

Time and work – Time and Distance.

Unit-IV **(6 Hours)**

Simple Interest – Compound Interest – Profit and Loss

Unit-V **(6 Hours)**

Area – Volume and surface Areas.

Prescribed Text

1. R.S. Aggarwal, Quantitative Aptitude, S. Chand & Company, New Delhi, 2012

Reference Books

1. Govind Prasad Singh and Rakesh Kumar, Text Book of Quickest Mathematics (for all Competitive Examinations), Kiran Prakashan, 2012

2. R.S. Aggarwal, Objective Arithmetic, S. Chand & Company, New Delhi, 2005

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	50 MCQs	1-50	2	**100**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Problems
Section A	Unit – 1	10
	Unit – 2	10
	Unit – 3	10
	Unit – 4	10
	Unit – 5	10

SEMESTER – V

CORE 15 – MANAGEMENT INFORMATION SYSTEM

SUBJECT CODE: 19UBBA312	**THEORY**	**MARKS: 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 75 HOURS**

(Common to B.B.A)

COURSE OBJECTIVES:

- To emphasize the importance of information system in today's world.
- To create an understanding about the importance and implications of information system in business.

UNIT I **(15 Hours)**

Definition of Management Information System - MIS support for planning, organizing and controlling - Structure of MIS - Information for decision - making.

UNIT II **(15 Hours)**

Concept of System - Characteristics of System - Systems classification - Categories of Information Systems - Strategic information system and competitive advantage

UNIT III **(15 Hours)**

Computers and Information Processing - Classification of computer - Input Devices - Output devices - Storage devices, - Batch and online processing. Hardware – Software Database management Systems.

UNIT IV **(15 Hours)**

System Analysis and design - SDLC - Role of System Analyst - Functional Information system - Personnel, production, material, marketing.

UNIT V **(15 Hours)**

Decision Support Systems - Definition. Group Decision Support Systems - Business Process Outsourcing - Definition and function

RECOMMENDED TEXTBOOKS

1. Sadagopan , "Management Information Systems" - Prentice- Hall of India
2. CSV Murthy -"Management Information Systems" Himalaya publishing House.

REFERENCE BOOKS:

1. Mudrick&Ross , "Management Information Systems", Prentice - Hall of India
2. Dr. S.P. Rajagopalan ,"Management Information Systems and EDP " , Margham Publications , chennai .

WEB REFERENCE:

1. www.tutorialspoint.com/management_information_system
2. http://www.academia.edu/4246296/Management_Information_Systems_Tutorial

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**40**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	1	1	1	-	1
II	1	2	-	2	-	1
III	1	1	-	1	-	1
IV	1	1	-	1	-	1
V	2	-	1	-	-	-
TOTAL	7	5	2	5	-	4
SECTION A 12			**SECTION B 8**		**SECTION C 4**	

CORE 10 -- FINANCIAL MANAGEMENT

SUBJECTCODE: 19UBBA308	**THEORY & PROBLEM**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 75 HOURS**

(Common to B. Com (GEN), B. Com (CS), B. Com (AF), B. Com (BM), B. Com (MM), B. Com (ISM), BBA)

COURSE OBJECTIVES:

- To understand how crucial financial decisions are taken in a firm and gain insight into wealth maximization and profit maximization.
- To understand the cost of capital, importance of leverage and capitalization.
- To Demonstrate the Theories of capital structure.
- To formulate dividend decisions in a firm.
- To select and apply techniques for short term financial needs of the firm using working capital management concepts.

UNIT I **(12 Hours)**

Financial Management – Introduction – Scope – Finance and other related disciplines –Function of Finance – Functions of Finance Manager in 21st Century. Financial Goals: Profit Maximization Vs Wealth Maximization – Time value of money-perpetuity –CMI Amortization.

UNIT II **(17 Hours)**

Cost of Capital – Significance of the cost of Capital – Determining Component costs of Capital – Cost of Equity - Cost of Preference share capital – Cost of Debt - Cost of Retained Earnings – Weighted Average cost of capital.

UNIT III **(17 Hours)**

Capital structure – Importance – Factors affecting Capital structure - Determining Debt – Equity proportion – Theories of capital structure –Net Income Approach – Net Operating Income Approach – M.M Approach & Traditional Approach - Leverage concept –Operating Leverage – Financial Leverage and Combined Leverage.

UNIT IV **(12 Hours)**

Dividend policy – Objective of Dividend Policies - Types of Dividend Policies - Factors Affecting Dividend Policy – Dividend Theories: Walter's - Gordon's – M.M Hypothesis – Forms of Dividend

UNIT V **(17 Hours)**

Working Capital – Components of working Capital – Operating Cycle – Factors influencing working capital – Determining working capital requirements. Capital Expenditure Capital Budgeting Techniques: Discounted Cash flow technique: Net Present Value - Internal Rate of Return- Profitability Index, Non – Discounted Cash flow Techniques: Pay back methods – Accounting Rate of Return

THEORY: 20% PROBLEMS: 80%

RECOMMENDED TEXTBOOKS

1. M.Y.Khan and P.K.Jain Basic Financial Management, Tata McGraw-Hill Education
2. Dr. A. Murthy, Financial Management, Margham Publications

REFERENCE BOOKS

1. Pandey I.M.: Financial Management, Vikas Publishing House Pvt Ltd
2. Maheswari . S.M.: Financial Management, Sultan Chand & Sons
3. Prasanna Chandhra :Financial management theory and practice, McGraw-Hill Education
4. Dr. Rustagi P R, Fundamentals of Financial management , Taxman's publication,14th edition
5. Paramasivan C & Subramanian T, Financial Management, New Age International Publishers

E-LEARNING RESOURCES

1. https://www.managementstudyguide.com/financial-management.htm
2. https://corporatefinanceinstitute.com/resources/knowledge/finance/cost-of-capital/
3. https://www.investopedia.com/terms/c/capitalbudgeting.asp
4. https://efinancemanagement.com/dividend-decisions
5. https://cleartax.in/s/working-capital-management-formula-ratio
6. https://books.google.co.in/books?isbn=812591658X
7. https://books.google.co.in/books?isbn=8174465863

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	1	1	-	-	-
II	2	1	-	1	-	1
III	1	1	1	1	-	1
IV	1	1	-	1	-	1
V	1	1	-	2	-	1
TOTAL	7	5	2	5	-	4
SECTION A 12			**SECTION B 7**		**SECTION C 4**	

CORE: 13 WEB TECHNOLOGY

SUBJECT CODE: 19UISM317	**THEORY**	**MARKS : 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 90 HOURS**

COURSE OBJECTIVES:

- The course aims to introduce fundamental concepts of web applications using ASP.NET.

UNIT I **(20 Hours)**

ASP.NET Basics- ASP.NET Language structure- Page Structure-Page load event- Page unload event- Ispostback property- Isvalid property- Compiler directives-@Page directive- @Import directive- @Outputcatch directive.

UNIT II **(20 Hours)**

Basic web server controls (Label, Textbox, Button, Linkbutton, Checkbox, Radio Button, HyperLink, Image Controls). Server controls- Anchor Control- Table - Form and Form Input Controls- InputFile Control-Data List Web Server Controls- Checkbox List Control- RadioButtonList Control- Dropdown List Control- List Box Control.

UNIT III **(20 Hours)**

Repeater Control- Other Web Server Controls-Calendar Control- Ad Rotator Control. Validation Controls (RequiredFieldValidator, Compare Validator, RangeValidtator, Custom Validator, Validation Summary Control) Request Object- Query String Collection- Form Collection- Browser Object- Server Variables Collection- Accept Types Collection- Headers Object- Visitor and Referrer Information- Saves Method.

UNIT IV **(15 Hours)**

Response Object- Cookies.Working with Data- System. Data and System.Data.OLEDB Namespaces- OLEDBConnection Class- OLEDB Command Class- OLEDBTransaction Class- OLEDBDataAdapter Class- Data Set Class. System.Data.SQLClient Namespace- Connecting to a SQL Server Database- Manipulating Data in a Server Database-Retrieving Data from a SQL Server Database.

UNIT V **(20 Hours)**

Advanced Issues- E-mail-Sending a sample E-mail message- SmtpMail and MailMessage Classes- Attaching a File- Sending an HTML E-mail Message- File Request Sample Site Page- Product Info Sample Site Page.

Prescribed Texts:

1. ASP.NET Developers Guide by Greg Buczek; Tata Mc Graw Hill Publication;

Reference Books:

1. Beginning ASP.NET 4.5.1 in C# and VB Paperback – 22 May 2014 by Imar Spaanjaars

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (Each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

CORE 16 –WEB TECHNOLOGY PRACTICAL

SUBJECT CODE: 19UISM318P	**PRACTICAL**	**MARKS : 100**
SEMESTER: V	**CREDITS : 4**	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES:

- The course aims to introduce fundamental concepts of web applications using ASP.NET.

EXERCISES

1. Write an Asp.Net program to implement link and hyperlink button control.
2. List the headers sent by the Request Objects.
3. Implement Request and Response object using Asp.Net.
4. Create a Login form using Asp.Net.
5. Load a webpage whenever a mouse moves over a link.
6. Create a web page Image with mouse event.
7. Create an employee database using Asp.net controls.
8. Create on line library using calendar.
9. Check in and Checkout program using Asp.net.
10. Create a web page using student database.
11. Create a web site student mark list preparation.
12. Checking e-mail id with validation control.
13. Checking voter eligibility with validation control.
14. Create digital clock with timer control.
15. Create banner with adrotator control.
16. Select favorite food with checkbox control.
17. Select favorite movie with drop down list box control.
18. Select favorite book with radio button control.
19. Create an online application form with calendar control.
20. Display greater number with if condition.

ELECTIVE 1 -INTER DISCIPLINARY ELECTIVE
ESSENTIALS OF OFFICE AUTOMATION TOOLS AND E-MAIL ETIQUETTE

SUBJECT CODE: 19UIDE320	**PRACTICAL**	**MARKS : 100**
SEMESTER : V	**CREDITS : 5**	**TOTAL HOURS: 90 HOURS**

COURSE OBJECTIVES:

- This course will equip students to familiarize with office automation tools practically and help them understand the importance and intricacies of E-Mail Etiquette.

UNIT I **(15 Hours)**

Word Processing: - Creation of documents, Editing, formatting and printing documents, using tools such as spelling check, thesaurus, etc., in work processors (MS Word), Formatting with pictures, mail merge, use of references tools, document style management, change tracking, custom template creation.

UNIT 2 **(15 Hours)**

Electronic Spreadsheet, Structure of spreadsheet Concept of absolute and relative cell reference; using graphics and formatting of worksheet; Managing multiple panes and windows

UNIT 3 **(20 Hours)**

Advanced spreadsheet functions: built in functions, statistical and mathematical functions, Data Validation tool, pivot table and charting, Goal seeking and solver tools

UNIT 4 **(20 Hours)**

Creation of presentation using presentation tools such as MS-power point. Designing master slides, custom layouts, use of timer and animation for effective presentation

UNIT 5 **(20 Hours)**

Creation of E-Mail ID, drafting of formal and informal e-mails, importance of CC and BCC, essentials of e-mail etiquette.

Prescribed Text:

1. A first Course in Computers, Sanjay Saxena, Vikas Publishing House Pvt. Ltd.,
2. Teach yourself, MS Office for Windows, Corey Sandler, Tom Bedgelt, Jan Weingarten, and BPB Publication

Reference Text

1. Internet Complete Reference-Margrett Levine Young-Millennium edition-TMGH 2001

Web Reference:

1. www.w3schools.com

SEMESTER – VI

CORE 17– E- BUSINESS

SUBJECT CODE: 16UISMC17	**THEORY**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 4**	**TOTAL HOURS: 90 HOURS**

(Common to B.B.A, B.COM (ISM))

COURSE OBJECTIVES:

- This course provides a foundation to prepare students, to play leading roles in the application and management of e-business system construction.

UNIT I **(20 Hours)**

Definition of E-Business, Origin of E- Business, History of the Internet, E- Business Opportunities for Businesses, Working of E- Business, E- Business Vs the Traditional Business Mechanism, Advantages of E- Business, Disadvantages of E- Business, Main Goals of E-Business. Network Infrastructure for E- Business -Local Area Network (LAN), Metropolitan Area Network (MAN) Protocols, Wide Area Network (WAN).

UNIT II **(20 Hours)**

The Internet – Intranet and Extranet – Common Gateway Interface – Need for intelligent website – Types of Security Threats: Hacking, e-mail impersonation, denial of service attack, phishing, virus and worms. Types of protection mechanisms: data and message security and firewalls, cryptography -encryption, decryption, digital signature and virtual private network.

UNIT III **(15 Hours)**

Internet payment systems: Features of payment methods, electronic money, payment gateway, SET protocol for credit card payment, electronic payment media: e-cash, e-wallet, e-check, and credit card, debit card, smart card, EFT and ACH

UNIT IV **(20 Hours)**

Business to Business e-commerce: Meaning, benefits and opportunities in B2B, B2B building blocks and their relationship to supply chain management, key B2B models and their main functions Consumer oriented e-commerce: traditional retailing and e-retailing, benefits and key success factors for e-retailing, models for e-retailing like specialized and generalized e- stores e-mall, direct selling by manufacturer, matchmaking services, information selling on the web, entertainment services and e-auction services.

UNIT V **(15 Hours)**

Overview of M-Commerce – Definition and working of Wireless Application Protocol (WAP), Generations of Mobile Wireless Technology, Components of Mobile Commerce, Networking Standards for Mobiles

Prescribed Text:

1. E-Commerce – A Managerial Perspective- Prentice Hall- Joseph PT
2. The Compelete Idiot's Guide to E-Commerce – Smith Rob, Thompson Mark – Year 2000

Reference Books

1. Kosivr, David - Understanding E-Commerce
2. Garry P Schneider and James T Perry - Electronic Commerce, Course technology, Thomson Learning, 2000
3. Diwan, Prag and Sunil Sharma - E-Commerce - Managers guide to E-Business

Web Reference:

1. www.tutorialspoint.com/e_commerce/
2. www.ecommercetutorial.net

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE 18– DATABASE MANAGEMENT SYSTEM

SUBJECT CODE: 18UISMC18	**THEORY**	**100MARKS**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS: 90 HOURS**

COURSE OBJECTIVES:

After Studying this course, the students should be able to:

- Develop an understanding of the classic data models in Database
- Become familiar with the concepts of managing databases.
- Implement a DBMS
- Learn new ways to model data

UNIT-I **(20 Hours)**

Database Concepts - Database System Applications - Data Models -Database Languages - Database users and Administrator - Transaction Management - Database system structure - Application Architecture .

UNIT-II **(20 Hours)**

Database System Architecture, Centralized and Client Server architecture, Server system architecture, parallel system, distributed systems, Network types.

UNIT-III **(20 Hours.)**

Transactions-concept-transaction state-Implementation of Atomicity and Durability-concurrent executions-serialisability-recoverability

UNIT-IV **(15 Hours)**

Concurrency control-lock based protocol-timestamp-based protocol-validation based protocol-deadlock handling

UNIT-V **(15 Hours.)**

Recovery System- Failure classification-storage structure-recovery and atomicity-log based recovery.

Prescribed Text:

1. Abraham Silberschatz, Henry F. Korth, S.Sudarshan, “Database System Concepts”,
   McGrawHill, 5th Edition

Reference Books:

1. SilberschatzKorthSudarshanDatabase System Concepts, , McGraw – Hill 4th Edition 1988
2. Distributed Databases: Concepts and Systems by Stefano Ceri

Web Reference:

1. www.tutorialspoint.com/dbms/
2. www.studytonight.com/dbms

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer ANY 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

ELECTIVE 2 - HUMAN RESOURCE MANAGEMENT

SUBJECT CODE: 18UISMC19	THEORY	MARKS : 100
SEMESTER : VI	CREDITS : 5	TOTAL HOURS: 90 HOURS

(Common to B.Com (GEN), B.Com (CS), B.Com (AF), B.Com (BM), B.Com (MM), B.Com (ISM), BBA)

COURSE OBJECTIVES:

- To explain the importance of Human Resource Management and its Processes concerned with various management activities and to run an effective organization.
- To outline different methods and techniques of Training and Performance Appraisal that are used in an organization
- To assess the different methods and techniques relating to administration and to retain the human resources.
- To discuss the various mechanisms in HR environment that are capable of applying the principles and techniques as professionals for developing human resources in an organization.
- To predict the different faces of executives and preparing policies and practices based on it and Human Resource audit

UNIT I **(16 Hours)**

HRM Concepts and Functions, Role, Status and competencies of HR Manager - HR Policies – Emerging Challenges of Human Resource Management - Workforce diversity; Empowerment – Differences between personnel management and HRM

UNIT II **(20 Hours)**

Human Resource Planning – Job Analysis – Job Description, Job Specification and Job Evaluation – Recruitment and Selection – meaning - Process of Recruitment – Sources of Recruitment –Internal Sources – External Sources - Meaning and Process of Selection – Selection Tests And Interviews - Placement

UNIT III **(18 Hours)**

Induction – Mentoring – Concepts and Importance of Training and Development Needs- Training and Development Methods - on the Job Training – off the Job Training – Evaluating Training Effectiveness – Career Development.

UNIT IV **(20 Hours)**

Objectives and importance of Performance Appraisal - Methods and techniques of Performance Appraisal – Potential Appraisal, Type of transfers and promotions – Problems in Performance Appraisal – Essentials of Effective Appraisal System – Termination of Services.

UNIT V **(16Hours)**

Compensation – Concept and Policies - Wage and Salary Administration – Methods of Wage Payments and Incentive Plans - Fringe Benefits – Performance linked compensation – Monetary and Non-Monetary benefits.

RECOMMENDED TEXTBOOKS

1. Aswathappa, K. (2013). *Human resource management: Text and cases*. Tata McGraw-Hill Education.
2. Gupta, C. B. (2011). Human Resource Management: New Delhi. Sultan Chand & sons Educational publishers.

REFERENCE BOOKS

1. DeCenzo, D. A., Robbins, S. P., & Verhulst, S. L. (2016). *Fundamentals of Human Resource Management,* John Wiley & Sons.
2. Dessler, G., & Varrkey, B. (2005). *Human Resource Management, 15e*. Pearson Education India.
3. Durai, P. (2009). Human Resource Management (Publisher: Dorling Kindersley (India) Pvt. *Limited:*
4. Prasad, L. M. (2006). Human Resource Management (Sultan Chand & Sons.
5. Rao, P. S. (2009). *Personnel and human resource management* (pp. 236-345). Himalaya Publishing House.

E-LEARNING RESOURCES

1. https://bohatala.com/impact-of-internal-and-external-environment-on-human-resourcemanagement
2. https://studiousguy.com/human-resource-planning/
3. https://corehr.wordpress.com/2013/12/04/transfer-and-promotion/
4. https://hrmpractice.com/employee-welfare/
5. https://www.mbaskool.com/business-concepts/human-resources-hr-terms/2390-quality-ofwork-life-qwl.html

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	3	-	1	-	1	-
II	3	-	2	-	2	-
III	2	-	2	-	1	-
IV	2	-	2	-	1	-
V	2	-	1	-	1	-
TOTAL	12	-	6	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

ELECTIVE 2- ACCOUNTING PACKAGE
(Lab Based Practical Paper)

SUBJECT CODE: 18UISME02P	**PRACTICAL**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 5**	**TOTAL HOURS: 90 HOURS**

COURSE OBJECTIVES:

- To use accounting software to compile accounts of business concerns.
- To give an understanding of the practical applications of the branches of accounting

UNIT I **(20 Hours)**

Tally-origin- General Features- Accounting features-Inventory feature-Starting TALLY Start up screen component-Processing icons –Multilingual feature of TALLY- Quit TALLY

UNIT II **(20 Hours)**

Company creation –creating, selecting, deleting, shutting a company –altering company details-changing data directory –auto selection of company

UNIT III **(20 Hours)**

Pre-defined groups in TALLY- Primary groups-sub groups- creation of user defined primary groups – display- alteration of groups-Ledger Accounts-creations, display, alteration, deletion

UNIT IV **(15 Hours)**

Tally vouchers-Meaning-Payment vouchers-Receipt vouchers-entering, deleting, Canceling, printing a voucher- Postdated vouchers

UNIT V **(15 Hours)**

Security Control- Meaning, need- creation, Display, alteration of security –TALLY Audit-features-conduct

Recommended Books:

1. Tally Bible by V. Sundaramoorthy

2. Tally – V. Palanivel , Margham Publications, Chennai

ELECTIVE 3–PROJECT WORK

SUBJECT CODE: 16UISME03	**PROJECT**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 5**	**TOTAL HOURS: 90 HOURS**

COURSE OBJECTIVES:

- To give a hands on practicum to the students in the fields of management, marketing, information systems, human resources, finance or software project management, thus enabling them to learn the nuances of working both as an individual and as a team.
- The team size shall not be more than 3 students, incase if the students opt for software development project otherwise the students must pursue the project individually. The project work shall be submitted to the college 20 days before the end of the final year and the college has to certify the same and submit to the Examination.
- The project shall be evaluated externally. The external examiner shall be from the panel of examiners suggested by the board of studies from time to time.
- Those who fail in the project work will have to redo the project work and submit to the college for external examination.

GURU NANAK COLLEGE (AUTONOMOUS) – CHENNAI -42
B.COM (Marketing Management)
SEMESTER SYSTEM WITH CREDITS - COURSE STRUCTURE
W.E.F. ACADEMIC YEAR 2019-2020

SEM	PART	SUBJECT NAME	HOURS	CREDITS
I	I	LANGUAGE-I	6	3
	II	ENGLISH-I	4	3
	III	CORE PAPER 1-FINANCIAL ACCOUNTING	5	4
		CORE PAPER 2- PRINCIPLES OF MANAGEMENT	5	4
		ALLIED PAPER 1- CORPORATE COMMUNICATION (Common to B.Com MM, BM ISM&BBA)	6	5
	IV	NON MAJOR ELECTIVE I- ANALYTICAL & LOGICAL REASONING	2	2
		SOFT SKILL-I	2	3
		TOTAL	***30***	***24***
II	I	LANGUAGE -II	6	3
	II	ENGLISH-II	4	3
	III	CORE PAPER 3- BUSINESS AND CORPORATE LAWS	5	4
		CORE PAPER 4- MANAGEMENT ACCOUNTING	5	4
		ALLIED PAPER 2- BUSINESS ECONOMICS	6	5
	IV	NON MAJOR ELECTIVE II - IMPORTANCE OF EMOTIONAL INTELLIGENCE	2	2
		SOFT SKILL-II	2	3
		TOTAL	***30***	***24***
III	III	CORE PAPER 5-CORPORATE ACCOUNTING (Common to B.Com General, CS, A&F, BM, & MM)	6	4
		CORE PAPER 6- BANKING	6	4
		CORE PAPER 7- MARKETING MANAGEMENT (Common to B.Com General, CS, A&F, MM, ISM & BBA)	5	4
		CORE PAPER 8- E BUSINESS (Common to B.Com MM & BBA)	5	4
		ALLIED PAPER 3-BUSINESS STATISTICS I (Common to B.Com General, CS, MM, BM, ISM & BBA)	6	5
	IV	SOFT SKILL- III	2	3
		TOTAL	***30***	***24***

IV	III	CORE PAPER 9- SUPPLY CHAIN MANAGEMENT	6	4
		CORE PAPER 10- FINANCIAL MANAGEMENT (Common to B.Com General, CS, A&F, MM, BM, ISM & BBA)	5	4
		CORE PAPER 11- RESEARCH METHODS IN BUSINESS (Common to ISM)	5	4
		CORE PAPER 12- INTERNATIONAL MARKETING	5	4
		ALLIED PAPER-4 BUSINESS STATISTICS II (Common to B.Com General, CS, MM, BM, ISM & BBA)	6	5
	IV	ENVIRONMENTAL STUDIES	2	2
		SPECIAL SKILL-COMPUTING SKILL	1	3
		TOTAL	***30***	***26***
V	III	CORE PAPER 13-COST ACCOUNTING (Common to B.Com General, CS, A&F, MM, & BM)	6	4
		CORE PAPER 14- ENTREPRENEURIAL DEVELOPMENT (Common to B.Com General, CS, A&F, MM, BM, ISM & BBA)	5	4
		CORE PAPER 15- RETAIL MARKETING	6	4
		CORE PAPER 16- PRACTICAL AUDITING (Common to B.Com General, CS, A&F, MM, & BM)	5	4
		EKECTUVE 1- IDE – TOURISM MANAGEMENT	6	5
	IV	VALUE EDUCATION	2	2
		INTERNSHIP	-	2
		TOTAL	***30***	***25***
VI	III	CORE PAPER 17- SALES AND DISTRIBUTION MANAGEMENT	6	4
		CORE PAPER 18- ADVERTISING MANAGEMENT AND SALES PROMOTION (Common to BBA and MM)	6	4
		CORE PAPER 19- SERVICE MARKETING (Common to BBA and MM)	6	4
		ELECTIVE 2- HUMAN RESOURCES MANAGEMENT (Common to B.Com General, A&F, MM, BM, ISM & BBA)	6	5
		ELECTIVE 3-PROJECT	6	5
	IV	COMMUNITY SERVICE	-	1
		TOTAL	***30***	***23***
		GRAND TOTAL	***180***	***146***

SEMESTER I

CORE PAPER - 1

FINANCIAL ACCOUNTING

SUBJECT CODE:	THEORY & PROBLEM	MARKS: 100
SEMESTER: I	CREDITS: 4	NO.OF HOURS PER WEEK: 5

COURSE OBJECTIVES

1. To study the basic concepts and Accounting Standards.
2. To understand the procedures of Accounting under Single entry system.
3. To foster knowledge on Depreciation Accounting.
4. To get exposure to insurance claims and Bank reconciliation statement.
5. To acquire knowledge and applicability of Departmental accounts.

UNIT I: **(15 Hours)**

Meaning and scope of Accounting, Basic Accounting Concepts and Conventions – Objectives of Accounting – Accounting Transactions – Double Entry Book Keeping – Journal, Ledger, Preparation of Trial Balance – Preparation of Cash Book.

UNIT II: **(15 Hours)**

Preparation of Final Accounts of a Sole Trading Concern – Adjustments Receipts and Payments Account, Income & Expenditure Account and Balance Sheet of Non Trading Organizations

UNIT III: **(15 Hours)**

Classification of errors – Rectification of errors – Preparation of Suspense Account - Bank Reconciliation Statement **(Simple Problems Only)**

UNIT IV: **(15 Hours)**

Depreciation – Meaning, Causes, Types – Straight Line Method – Written Down Value Method. Insurance claims – Average Clause (Loss of stock)

UNIT V: **(15 Hours)**

Single Entry – Meaning, Features, Defects, Differences between Single Entry and Double Entry System – Statement of Affairs Method – Conversion Method

RECOMMENDED TEXTBOOKS

1. Gupta .R.L & Gupta .V.K, 2005, Financial Accounting, Sultan Chand & Sons, New Delhi, 6th edition.
2. Reddy T.S & Murthy.A, 2007, Financial Accounting, Margham Publications, Chennai, 5th edition.
3. Dr.S.Manikandan, Financial Accounting, Scitech Publications, Chennai.

REFERENCE BOOKS

1. Goel.D.K and Shelly Goel, 2018, Financial Accounting, Arya Publications, 2nd edition.
2. Jain .S.P & Narang .K, 1999, Financial Accounting, Kalyani Publishers, Ludhiana, 4th edition.
3. Rakesh Shankar. R & Manikandan.S, Financial Accounting, SCITECH, 3rd edition.
4. Shukla & Grewal, 2002, Advanced Accounting, Sultan Chand & Sons, New Delhi, 15th edition.
5. Tulsian P.C., 2006, Financial Accounting, Pearson Education.

E-LEARNING RESOURCES

1. https://www.accountingtools.com/articles/2017/5/15/basic-accounting-principles

2. https://en.wikipedia.org/wiki/Single-entry_bookkeeping_system
3. https://www.profitbooks.net/what-is-depreciation/
4. https://books.google.co.in/books?isbn=8126909935
5. https://books.google.co.in/books?isbn=9966254455
6. https://books.google.co.in/books?isbn=0470635290

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	1	1	1	-	1
II	1	2	-	1	-	1
III	1	1	-	1	-	-
IV	1	1	1	1	-	1
V	1	1	-	1	-	1
TOTAL	6	6	2	5	-	4
SECTION A - 12			**SECTION B - 7**		**SECTION C - 4**	

CORE PAPER - 2

PRINCIPLES OF MANAGEMENT

SUBJECT CODE:	THEORY	MARKS: 100
SEMESTER: I	CREDITS: 4	NO.OF HOURS PER WEEK: 5

COURSE OBJECTIVES:

1. To enable the students to acquire knowledge on principles of management
2. To know the concepts and functions of management
3. To learn the importance, types, process and techniques of decision making
4. To understand the Organisation structure and its importance
5. To develop the knowledge in coordination and controlling techniques

UNIT I - **(25 Hours)**

Management: Importance – Definition – Is Management art or science or –Is Management a profession –Functions of Management: POSDCORB framework - Role and Functions of a Manager- Managerial skills – Levels of Management – Application of management in various functional areas – Production, Accounting and Finance, Marketing and Personnel Management-Administrative Management:Henri Fayol,Scientific Management:F.W.Taylor, Bureaucratic management: Max Weber, Human relations management :Elton Mayo, Modern Management:Peter Drucker-Approaches to Management:Systems approach & contingency approach.

UNIT II - **(10 Hours)**

Planning: Defenition- Objectives of planning- Importance of planning – Types of planning- Decision making: Nature and significance- Process of Decision making – Types of Decision making.

UNIT III - **(20 Hours)**

Organizing – Meaning and definition of Organizing, Importance of Organizing, and Principles of Organizing-Delegation and Decentralisation-Span of control:Meaning,Factors affecting span of control-Types of organisational structure-Line organisational structure – Staff organisational structure- line and staff conflicts- Departmentation-Bases of Departmentation:Departmentation by functions-Departmentation by products-Departmentation by territories-Departmentation by customers-Departmentation by process-Departmentation by numbers-Departmentation:combined base.

UNIT IV - **(10 Hours)**

Staffing-Meaning-Recruitment-Meaning-Directing-Meaning-Importance of directing-Leadership-Styles of leadership:Authoritarian leadership(autocratic), Participative leadership(democratic)-Delegative leadership (Laissez-faire)

UNIT V- **(10 Hours)**

Co-ordination: What is co-ordination, Need for co-ordination, Types of co-ordination, essential requisites for excellent co-ordination-Controlling: Meaning and Importance, Functions of controlling, Process of controlling and types of Control.

RECOMMENDED TEXTBOOKS

1. C.B.Gupta, Management Theory & Practice - Sultan Chand & Sons – New Delhi, 16th Edition.
2. L.M.Prasad, Principles & Practice of Mangement – Sulatan Chand & Sons – New Delhi, 8th Edition.

REFERENCE BOOKS

1. P.C.Tripathi & P.N.Reddy, Principles of Managements – Tata Mc.Graw Hill – New Delhi, 5th Edition
2. Weihrich and Koontz, Management – A Global Perspective, 8th Edition.
3. N.Premavathy, Principles of Mangement – Sri Vishnu Publication – Chennai 8th Edition
4. J.Jayashankar, Business Management - Margham Publications -Chennai

E-LEARNING RESOURCES

1. http://www.12manage.com
2. http://www.businessballs.com
3. http://www.tutotrialspoint.com/management_principles/management_principlestutorial.pdf

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	3	-	2	-	2	-
II	2	-	1	-	1	-
III	3	-	2	-	1	-
IV	2	-	2	-	1	-
V	2	-	1	-	1	-
TOTAL	12	-	8	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

ALLIED I – CORPORATE COMMUNICATION

SUBJECT CODE :	THEORY	MARKS : 100
SEMESTER : I	CREDITS : 5	NO. OF HOURS PER WEEK : 6

(Common to B.Com (MM), B.Com (BM) and BBA)

COURSE OBJECTIVES:

- To enable the students to acquire knowledge about the importance of communication in today's competitive business environment

UNIT I - (20 Hours)

Concept of Communication – Meaning, Definition, Process, Need, Feedback, Principles of effective Communication – Barriers to Communication: Physical, Semantic/Language, Socio-Cultural and Psychological Barriers - Ways to Overcome these Barriers. Types of Communication: Verbal, Non-verbal – Characteristics of Verbal communication and Non-verbal communication Merits and Demerits of Verbal and Non-verbal communication.

UNIT II - (20 Hours)

Channels of Communication: Formal and Informal—Vertical, Horizontal, Diagonal, Grapevine.

Business Letters and Layout: Parts, Structure, Layouts— Full Block, Modified Block, Semi – Block, Principles of Effective Letter Writing.

UNIT III - (20 Hours)

P**ersonnel correspondence**- Job Application Letter and Resume Letter of Acceptance of Job Offer, Inter-Office-Memo, Letter of Resignation

Business Correspondence: Trade Letters –Inquiry, Order, Credit and Status Enquiry, Complaints, Claims, Sales Letters, promotional leaflets and fliers.

UNIT IV - (15 Hours)

Report Writing – Agenda, Minutes of Meeting – Memorandum – Office Order – Circular

Notes- Correspondence with share holders –Correspondence with directors.

UNIT V - (15 Hours)

Modern Forms of Communication: Fax – E-mail – Video Conferencing – Benefits and Perils of communication through social media: Website and Apps.

Prescribed Texts:

1. N.S. Raghunthan, B. Santhanam – Margham Publications,Chennai,3rd Edition
2. C.B. Gupta, Business communication,Organisation and Management, 2014.

Reference Books:

1. Rajendra Pal & J.S. Korlahalli, Essentials of Business Communication - Sultan Chand & Sons - New Delhi.
2. Shirley Taylor, Communication for Business - Pearson Publications - New Delhi.
3. Bovee, Thill, Schatzman, Business Communication Today - Peason Education Private Ltd. - New Delhi.
4. Penrose, Rasbery, Myers, Advanced Business Communication - Bangalore.
5. Mary Ellen Guffey, Business Communication – Process and Product - International Thomson Publishing - Ohio.

Web References:

1. http://www.businesscommunication.org
2. http://www.iabc.com
3. http://www.etiquettetrainer.com

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	3	-	2	-	1	-
II	2	-	2	-	1	-
III	2	-	2	-	2	-
IV	2	-	1	-	1	-
V	3	-	1	-	1	-
TOTAL	12	-	8	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

NON MAJOR ELECTIVE - 1

ANALYTICAL AND LOGICAL REASONING

SUBJECT CODE :	**PROBLEM**	**MARKS : 100**
SEMESTER : I	**CREDITS : 2**	**NO. OF HOURS PER WEEK : 2**

(Common to B.Com (A&F), B.Com (BM), B.Com (MM), B.Com (ISM), B.Com (Hons))

Course Objectives:

1. To enable students to learn to describe the problem-solving process
2. To make the students identify various problem-solving techniques and apply these in solving business problems
3. To Understand thinking models and practice exercises to help in thinking outside-the-box and generate a larger solution space
4. To Understand creativity and blocks to creativity
5. To Arrive at objective, well-reasoned decisions in a reasonable time

UNIT I **(6 Hours)**

Logical reasoning Introduction- Number Series

UNIT II **(6 Hours)**

Statement and assumptions – Statement and conclusion

UNIT III **(6 Hours)**

Verbal reasoning – Coding and Decoding (with alpha numeric characters) – Reasoning Blood Relationship

UNIT IV **(6 Hours)**

Direction Sense Test – Data Interpretation from bar chart, pie chart.

UNIT V **(6 Hours)**

Venn Diagrams – Image Series

RECOMMENDED TEXTBOOKS

1. Logical and Analytical Reasoning – A.K. Gupta – Ramesh publishing house – 2016 Paper Back edition

REFERENCE BOOKS

1. A Modern Approach to verbal and non-verbal reasoning – Revised edition by R.S.Agarwal – Publisher – S.Chand and Company Pvt. Ltd.

E-LEARNING RESOURCES

1. http://www.careerguide.co.in/search/label/Reasoning
2. http://www.indiabix.com/logical-reasoning

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Multiple Choice Questions	1-50	1	**50**

Break up of questions for problem

Sections	Units	No. of Problems
Section A	Unit – 1	10
	Unit – 2	10
	Unit – 3	10
	Unit – 4	10
	Unit – 5	10

SEMESTER II

CORE III- CORE III - BUSINESSAND CORPORATE LAWS

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER : II	**CREDITS : 4**	**NO. OF HOURS PER WEEK : 5**

(COMMON TO BBA, B.COM (A&F), B.Com (BM)& B.Com(MM)

COURSE OBJECTIVES:

1. To inherit the knowledge on the legal aspects involved in business.
2. To impart the performance of contract as per Indian Contract Act, 1872.
3. To create and demonstrate the knowledge about sale of goods Act 1930.
4. To demonstrate Memorandum and Articles of Association.
5. To make the students to understand Meetings of the company

UNIT I **(18Hours)**

Law of contract – Nature of contract- Classification - Offer and acceptance – capacity of parties to contract – Free consent – Consideration – Legality of object – Agreement Declared Void. –Contingent Contracts.

UNIT II **(20 Hours)**

Performance of contract – Discharge of contract – Remedies for breach of contract – Quasi contracts (General Contract – Sections 1 to 75) -Contract of Indemnity – Guarantee

UNIT III **(12 Hours)**

Sale of goods Act – Definition – Sale - Agreement to Sell – Distinction between sale and Agreement to Sell – Condition and Warranties – Distinction between conditions and Warranties-Rights and duties of an unpaid seller.

UNIT IV **(15 Hours)**

Company – Types of companies - Memorandum of Association – Articles of Association – Prospectus – Shares – Debentures – Classification of Shares – Distinction between Shares and Debentures – Company Meetings.

UNIT V **(10 Hours)**

Contract of Agency - Foreign Exchange Management Act 1999 (FEMA)

Prescribed Texts:

1. Business Laws – N.D. Kapoor, Sultan Chand Publications, 15th Edition
2. Legal Systems in Business – P. Saravanavel , S. Sumathi, Hiamalaya Publishing House, 2011.

Reference Books:

1. P.C.Tulsian, Business Laws, Tata Mc Graw Hill, 2nd Edition.
2. M.R. Sreenivasan, Business Laws – Margham Publications , Chennai
3. S.S. Gulshan and G.K. Kapoor, Business Law including Company Law, 12th Edition, New Age International (P) Ltd. Publishers.

E-LEARNING RESOURCES

- https://www.toppr.com/guides/principles-and-practices-of-accounting/intro-to-company-accounts
- https://accountlearning.com/classification-contracts-formation-performance-execution-contracts/
- https://www.toppr.com/guides/business-law/the-sale-of-goods-act-1930/

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	-	2	-	1	-
II	3	-	1	-	2	-
III	3	-	2	-	1	-
IV	2	-	1	-	1	-
V	2	-	2	-	1	-
TOTAL	**12**	**-**	**8**	**-**	**6**	**-**
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

CORE PAPER – 4

MANAGEMENT ACCOUNTING

SUBJECT CODE :	THEORY	MARKS : 100
SEMESTER : II	CREDITS : 4	NO. OF HOURS PER WEEK : 6

COURSE OBJECTIVES:

- To understand and analyze financial statement to help in managerial decision making.
- To prepare statements like Cash Flow, Fund Flow, Budgets etc., so as to assist the managements to take meaningful and correct decisions.
- To learn the various tools and techniques in cost control like variance analysis and budgetary control.

UNIT I - (15 Hours)

Management accounting – Meaning, nature, scope and functions, need, importance and limitations – Management Accounting vs. Cost Accounting. Management Accounting vs. Financial Accounting.

UNIT II - (15 Hours)

Analysis and Interpretation of financial statements – Nature, objectives, essentials and tools and Methods – Comparative Statements, Common Size statement and Trend analysis.

UNIT III - (15 Hours)

Ratio Analysis – Interpretation, benefits and limitations-Classification of ratios- Liquidity, Profitability, turnover ratios and construction of Balance sheet (simple problems only).- Capital Budgeting- meaning, objectives and process – ARR and IRR method-DCF methods- Profitability Index Method.

UNIT IV - (25 Hours)

Funds flow analysis- Meaning of Funds, Importance and uses of Fund flow statements –Preparation of working capital statement- funds from operations- Funds flow statements. Cash flow analysis- Meaning of Cash and cash equivalents- preparation of Cash flow statement (AS-3). Fund flow analysis VS Cash flow analysis.

UNIT V - (20 Hours)

Budget and Budgetary Control – Meaning, Importance, Merits and Demerits, Types of Budget – Cash and Flexible Budget. Marginal costing- Meaning, Features, Advantages and Limitations of Marginal Costing absorption costing VS Marginal costing- CVP analysis- Profit- Volume Ratio, Break even analysis, Margin of safety (Excluding decision making).

Recommended Texts

1. T. S. Reddy and Hari Prasad Reddy,Management Accounting, 2014 MarghamPulication.
2. SN Maheswari, Management Accounting - Sultan Chand & Sons.

Reference Books

1. RSN Pillai&Bagavati, Management Accounting - S Chand & Co Ltd - New Delhi.
2. HorngrenSunderu Stratton, Introduction to Management Accounting - Pearson

Education
3. Dalston L. Cecil and Jenitra L. Merwin, Management Accounting, Learn Tech press, Trichy, 3rd Edition 2015

Web References:

1. http://pakaccountants.com/courses/managementaccounting/
2. http://www.elearnuk.co.uk/course/management-accounting

Question Paper Pattern:

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-19	6	**30**
C	Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2		1			
II	1	1	1	1		1
III	1	2		1		1
IV	1	1		1		1
V	1	2		2		1
TOTAL	6	6	2	5		4
SECTION A 12			**SECTION B 7**		**SECTION C 4**	

ALLIED II– BUSINESS ECONOMICS

SUBJECT CODE:	THEORY	100 MARKS
SEMESTER: II	CREDITS: 5	NO. OF HOURS PER WEEK: 5

COURSE OBJECTIVES:

- To develop basic understanding about the economic concepts, tools and techniques for their applications in business decisions.
- To impart knowledge on National income and its application in business.
- To impart the knowledge about international trade, export management and to create awareness about the different international economic organizations and its functions.

UNIT I **(15 Hours)**

Introduction to Economics – Wealth, Welfare and Scarcity Views on Economics - Scope and Importance of Business Economics -Concepts: Production Possibility Frontiers – Opportunity Cost – Accounting Profit and Economic Profit – Incremental and Marginal Concepts – Time and Discounting Principles – Concept of Efficiency.

UNIT II **(15 Hours)**

Demand and Supply Functions - Meaning of Demand – Determinants and Distinctions of demand – Law of Demand – Elasticity of Demand – Demand Forecasting – Supply concept and Equilibrium.

UNIT III **(15 Hours)**

Consumer Behavior: Law of Diminishing Marginal utility – Equi-marginal Utility – Indifference Curve – Definition, Properties and equilibrium- Production: Law of Variable Proportion – Laws of Returns to Scale – Producer's equilibrium.

UNIT IV **(15 Hours)**

Production analysis – factors of production – production function- different types of production functions- cost analysis – types of costs – short run cost and long run cost – cost functions

UNIT V **(15 Hours)**

Market structures – nature of competitions – features of perfect competitions – monopoly – oligopoly and monopolistic competitions – price and output determination in different markets – pricing – types of pricing – Break Even Analysis and cost volume profit analysis – macroeconomic parametrics.

Prescribed Texts:

1. S.Shankaran, Business Economics - Margham Publications - Ch -17
2. P.L. Mehta, Managerial Economics – Analysis, Problems & Cases - Sultan Chand & Sons –NewDelhi – 02.

Reference Books:

1. Francis Cherunilam, Business Environment, Himalaya Publishing House -Mumbai – 04.
2. K. Jothi Sivagnanam & R. Srinivasan (2011) Business Economics, TATA McGraw Hill publishing company.
3. Chaudhary,C.M Business Economics , RBSA Publishers , Jaipur - 03.
4. H.L. Ahuja, Business Economics – Micro & Macro, Sultan Chand & Sons, New Delhi

5. Francis Cherunilam, International Trade and Export Management - Himalaya Publishing House - Mumbai – 04.
6. Paul.R.Krugman and Maurice Obstfeld, International Economics (Theory and Policy) - Pearson Education Asia - Addison Wesley Longman (P) Ltd -Delhi – 92.
7. Robert J.Carbaugh, International Economics - Thomson Information Publishing Group - Wadsworth Publishing Company - California.
8. H.G. Mannur, International Economics – Vikas Publishing House (P) Ltd - New Delhi

E-LEARNING RESOURCES

- https://www.investopedia.com/terms/b/business-economics.asp
- https://www.mindtools.com/pages/article/newSTR_69.htm

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	3	-	2	-	1	-
II	3	-	2	-	2	-
III	2	-	1	-	1	-
IV	2	-	2	-	1	-
V	2	-	1	-	1	-
TOTAL	12	-	8	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

NON MAJOR ELECTIVE – 2

IMPORTANCE OF EMOTIONAL INTELLIGENCE

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER : II	**CREDITS : 2**	**NO. OF HOURS PER WEEK : 2**

(Common to B.Com (AF), B.Com (MM), B.Com (ISM), B.Com (BM) and BBA)

COURSE OBJECTIVES

1. To evoke knowledge amongst students on Emotional Intelligence.
2. To make students understand the importance of self-awareness and self-development.
3. Outline the Students about Positive and Negative traits.
4. To demonstrate about self- Analysis.

UNIT I- **(6 Hours)**

Introduction -Emotional Intelligence –Meaning, Benefits, Importance of emotions - Self-awareness and Competencies Psychological Needs. EQ vs IQ.

UNIT II - **(6 Hours)**

Personality Analysis -Distinct Personality Type-Hand writing Analysis, Colour preference, listening, Profile, Self Esteem, Will power, Confidence

UNIT III- **(6 Hours)**

Negative Traits - Anger Management -Negative Syndrome and Attitude-Negative thinking-Guilt Quotient Stress and Emotion, Adapting to Loneliness

UNIT IV- **(6 Hours)**

Positive Traits-Humor and Happiness- Empathetic ability-Sensitivity profile-Empowered personality, Self-Empowerment

UNIT V- **(6 Hours)**

S**elf-analysis:** Psychological growth and adjustment- Personal Development plan-Successful negotiator Personal SWOT Analysis, Celebrating Life .

RECOMMENDED TEXTBOOKS

1. What's Your Emotional IQ, Dr.AparnaChattopadhyay,PustakMahal,May 2004.
2. Emotional Intelligence In A Week,JillDann,Hodder& Stoughton,10 Edition,2007.

REFERENCE BOOKS

1. Emotional Intelligence: Why It Can Matter More Than IQ Paperback – September 27, 2005by Daniel Goleman

E-LEARNING RESOURCES

1. www.psychology.ccsu.edu/engwall/Emotional%20Intelligence.ppt
2. www.personality_project.org
3. www.donblake.com/module5/resources/emotionalintelligence.doc

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Descriptive Questions Answer any 5 out of 8	1-8	10	**50**
TOTAL MARKS				**50**

Break up of questions for theory

Sections	Units	No. of Theory
Section A	Unit – 1	1
	Unit – 2	2
	Unit – 3	2
	Unit – 4	2
	Unit – 5	1

SEMESTER-III

CORE 5-CORPORATE ACCOUNTING

SUBJECT CODE:	**THEORY & PROBLEM**	**MARKS: 100**
SEMESTER: III	**CREDITS: 4**	**NO.OF HOURS PER WEEK: 6**

(Common to B.Com (GEN), B.Com (CS), B.Com (AF), B.Com (BM), B.Com (MM))

COURSE OBJECTIVES

1. To prepare the journal entries of issue of shares and compute underwriter's liabilities.
2. To demonstrate thorough knowledge of relevant accounting treatment of redemption of preference shares and the ability to find the profit prior to incorporation of companies.
3. To demonstrate thorough knowledge in preparation of financial statements of companies as per the provisions of Companies Act 2013.
4. To select the appropriate methods of valuation of shares and goodwill and perform the accounting treatment of the company.
5. To learn about the concepts of various procedures for alteration of share capital and accounting treatment in respect of internal reconstruction of a company

UNIT I **(22 Hours)**

Meaning of shares – Kinds of Shares – Issue of shares- Forfeiture and Reissue- Underwriting of shares-Determination of the liability of underwriters-Complete underwriting- partial underwriting- Firm underwriting.

UNIT II **(17 Hours)**

Redemption of preference shares- Revenue profit and capital profit – Minimum fresh issue of shares. Profit prior to incorporation, Treatment of Profit or Loss Prior to Incorporation in Financial Statement as per revised format of Companies Act 2013 – Basis of Apportionment of expenses (Simple problems only).

UNIT III **(20 Hours)**

Company final accounts- Preparation of statement of profit& loss and company balance sheet as per Revised format (Schedule VI) of companies Act.-Computation of Managerial Remuneration.

UNIT IV **(16 Hours)**

Valuation of Goodwill - Meaning – Nature – Factors affecting goodwill – Methods of valuation of goodwill - Valuation of Shares – Need – Methods of valuation of shares.

UNIT V **(15 Hours)**

Alteration of Share Capital – Different kinds of Alteration of Share Capital - Internal Reconstruction and Reduction of Share Capital (Simple Problems only)

THEORY: 20% PROBLEMS: 80%

RECOMMENDED TEXTBOOKS

1. Corporate Accounting : Gupta R.L and Radhaswamy M., Sultan Chand & Sons, New Delhi. (2013)
2. Corporate Accounting: Reddy T.S &.Murthy A, Volume 1 & 2, Sixth Edition , Margham Publications, Chennai. (2014)

REFERENCE BOOKS

1. Corporate Accounting: Arulanandam M.A. and Raman K.S-Himalaya Publishing House.
2. Corporate Accounting-I :Jain S.P, Narang K.L, Agrawal Simmi & Sehgal MonikaNinth Edition , Kalyani Publishers, Ludhiana (2018).
3. Advanced Accountancy : Maheswari S.N; Volume 1,10th Edition; Vikas Publishing.
4. Shukla M.C, Grewal T.S. and.Gupta S.C;),Corporate Accounting; S Chand & Sons, New Delhi.;

E-LEARNING RESOURCES

1. https://commerceatease.com/terms-of-issue-of-shares/
2 https://edurev.in/studytube/ICAI-Notes-of-Ch-9-3-Redemption-of-Preference-Shares/
4. https://blog.ipleaders.in/rules-share-capital-alteration/
5. https://books.google.co.in/books?isbn=8131754510
6. https://books.google.co.in/books?isbn=8120346270
7. https://books.google.co.in/books?isbn=8126908394

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	1	1	1	-	1
II	1	1	-	1	-	-
III	1	1	-	1	-	1
IV	2	1	1	1	-	1
V	1	1	-	1	-	1
TOTAL	7	5	2	5	-	4
SECTION A - 12			**SECTION B - 7**		**SECTION C - 4**	

CORE 6 - BANKING

SUBJECT CODE :	THEORY	MARKS : 100
SEMESTER : III	CREDITS : 5	NO. OF HOURS PER WEEK : 6

COURSE OBJECTIVES:

- To expose the students to various concepts in the Banking system.
- To make the students understand the working of the banks and the banking instruments used in the system.

UNIT –I **(17 hours)**

Banking Regulation Act, 1949 (Definition of Banking, Licensing, opening of branches, Functions of Banks, Inspection) – Role of RBI and their functions.

UNIT –II **(18 hours)**

Relationship between Banker and Customer – KYC norms - Opening of an Account – Types of Deposit Account – Types of Customers (individuals, firms, Trusts, and Companies) – Closure of an account.

UNIT –III **(20 hours)**

Commercial Banks – Functions – Accepting Deposits – Lending of Funds, E-Banking, ATM Cards , Debit Cards, Personal Identification Number – Online Enquiry and update facility- Electronic Fund Transfer- Electronic Clearing System.

UNIT-IV **(17 hours)**

CRM – Meaning - Importance of customer relations – Customer grievances and redressal – Ombudsman – Functions, Powers & Duties.

UNIT-V **(18 hours)**

Negotiable Instruments: Promissory Notes – Bills of Exchange, Cheque, Draft – Definitions, Features – Crossing – Endorsement – Material Alteration – Paying Banker – Rights and Duties – Statutory Protection – Dishonour of Cheques - Role of Collecting Banker**(15 hours)**

RECOMMENDED TEXTBOOKS

1. Varshney and Sundaram, 2000, Banking and financial system of India, Sultan Chand Publishers,
2. Sekar, 1999, Banking theory & practice, Vikas Publishing House,

REFERENCE BOOKS:

1. Vasant Desai, 1997, Indian banking, Book well Publishers, New Delhi,
2. Mathur, 2000 Indian Banking, Performance, Problems and Challenges, Book well Publishers, New Delhi,
3. B. Santhanam, Banking and Financial Systems, Margham Publishers.
4. S.N. Maheswari, Banking Law, Theory and Practice, Kalyani Publications.

E-LEARNING RESOURCES

- https://www.advocatekhoj.com/library/bareacts/bankingregulation/index.php?Title=Banking%20Regulation%20Act,%201949.
- https://www.investopedia.com/articles/investing/112614/increasing-importance-reserve-bank-india.asp
- https://testbook.com/blog/functions-of-reserve-bank-of-india-gk-notes-pdf/

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	-	2	-	1	-
II	3	-	2	-	1	-
III	2	-	1	-	2	-
IV	2	-	2	-	1	-
V	3	-	1	-	1	-
TOTAL	12	-	8	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

CORE 7 - MARKETING MANAGEMENT

SUBJECT CODE:	THEORY	MARKS: 100
SEMESTER: III	CREDITS: 4	NO.OF HOURS PER WEEK: 5

(Common to B.Com (GEN), B.Com (CS), B.Com (AF), B.Com (MM), B.Com (ISM), BBA)

COURSE OBJECTIVES

1. To develop an understanding about the basic concepts of marketing.
2. To determine the various methods of promotion in marketing.
3. To provide an insight on the various marketing channels along with modern technology.
4. To understand the consumer behavior process & marketing ethics.
5. To demonstrate the concept of product life cycle and pricing.

UNIT I **(14 Hours)**

Fundamentals of Marketing – Role of Marketing – Relationship of Marketing with other functional areas – concept of marketing mix-marketing approaches – various Environmental factors affecting the marketing functions.

UNIT II **(14 Hours)**

Consumer – Customer – Buying Process – Introduction to Buyer Behavior – Factors influencing buyer Behaviour, Market segmentation – Need and basis of Segmentation – Targeting – Positioning – CRM and Customer Satisfaction.

UNIT III **(17 Hours)**

The Product – Goods - Services – Ideas - Characteristics – benefits – Classifications – Consumer goods – Industrial goods- Difference between Consumer goods and Industrial goods New Product Development process – Product life Cycle – Introduction ,Growth , Maturity, Decline. Branding – Packaging & Labeling – Pricing – Meaning, Objectives and Types of Pricing.

UNIT IV **(16 Hours)**

Physical Distribution: Importance – Channels of Distribution of consumer goods, Distribution of industrial goods and Distribution of Agricultural goods – Levels of channels: Zero level, one level, two levels and three level channel- Distribution issues-online Marketing-Green Marketing.

UNIT V **(14 Hours)**

Promotion – Meaning, Objective, Types – A brief overview of Advertising – Different types of Advertising - Publicity – Public Relations – personal selling – Direct selling and Sales promotion –Dealer Promotion –Customer Promotion

RECOMMENDED TEXTBOOKS

1. Kotler, P. (2007). Marketing Management–The Millennium Edition Prentice Hall of India Private Limited. *New Delhi*, 35-8.
2. Pillai & Bagavathi, R. S. N. (1999). Marketing Management. *S. chand& Co. Ltd*.

REFERENCE BOOKS

1. Joshi, G. (2009). *Information Technology for retail*. Oxford University Press, Inc..
2. Mullins, J., Walker, O. C., & Boyd Jr, H. W. (2012). *Marketing management: A strategic decision-making approach*. McGraw-Hill Higher Education.
3. Pradhan, S. (2011). *Retailing management: Text and cases*. Tata McGraw-Hill Education.
4. Ramaswamy, V. S., & Namakumari, S. (2009). *Marketing management: Global perspective, Indian context*. Macmillan.
5.Withey, F. (2006). *Marketing Fundamentals. The Official CIM Coursebook 06/07*.Taylor & Francis.

E-LEARNING RESOURCES

1. https://iedunote.com/marketing-definition-functions-importance-process
2. http://www.yourarticlelibrary.com/marketing/top-10-advantages-of-marketing/53152
3. http://www.notesdesk.com/notes/marketing/the-marketing-mix-4-ps-of-marketing/
4. https://www.enotesmba.com/2013/03/marketing-notes-marketing-mix.html
5. https://www.marketingtutor.net/consumer-decision-making-process-stages/
6. https://courses.lumenlearning.com/boundless-marketing/chapter/ethics-in-marketing/
7. https://www.youtube.com/watch?v=Mco8vBAwOmA

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	3	-	2	-	1	-
II	2	-	1	-	1	-
III	2	-	2	-	2	-
IV	2	-	2	-	1	-
V	3	-	1	-	1	-
TOTAL	12	-	8	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

CORE 8 - E- BUSINESS

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 4**	**NO. OF HOURS PER WEEK : 5**

(Common to B.COM (ISM), B.Com (MM) and BBA)

COURSE OBJECTIVES:

- This course provides a foundation to prepare students, to play leading roles in the application and management of e-business system construction.

UNIT I **(15 Hours)**

Definition of E-Business, Origin of E- Business, History of the Internet, E- Business Opportunities for Businesses, Working of E- Business, E- Business Vs the Traditional Business Mechanism, Advantages of E- Business, Disadvantages of E- Business, Main Goals of E- Business. Network Infrastructure for E- Business -Local Area Network (LAN), Metropolitan Area Network (MAN) Protocols, Wide Area Network (WAN).

UNIT II **(20 Hours)**

The Internet – Intranet and Extranet – Common Gateway Interface – Need for intelligent website – Types of Security Threats: Hacking, e-mail impersonation, denial of service attack, phishing, virus and worms. Types of protection mechanisms: data and message security and firewalls, cryptography -encryption, decryption, digital signature and virtual private network.

UNIT III **(19 Hours)**

Internet payment systems: Features of payment methods, electronic money, payment gateway, SET protocol for credit card payment, electronic payment media: e-cash, e-wallet, e-check, credit card, debit card, smart card, EFT and ACH

UNIT IV **(18 Hours)**

Business to Business e-commerce: Meaning, benefits and opportunities in B2B, B2B building blocks and their relationship to supply chain management, key B2B models and their main functions

Consumer oriented e-commerce: traditional retailing and e-retailing, benefits and key success factors for e-retailing, models for e-retailing like specialized and generalized e- stores, e-mall, direct selling by manufacturer, matchmaking services, information selling on the web, entertainment services and e-auction services.

UNIT V **(18 Hours)**

Overview of M-Commerce – Definition and working of Wireless Application Protocol (WAP), Generations of Mobile Wireless Technology, Components of Mobile Commerce, Networking Standards for Mobiles

Prescribed Text:

1. E-Commerce – A Managerial Perspective- Prentice Hall- Joseph PT
2. The Compelete Idiot's Guide to E-Commerce – Smith Rob, Thompson Mark – Year 2000

Reference Books:

1. Kosivr, David - Understanding E-Commerce
2. Garry P Schneider and James T Perry - Electronic Commerce, Course technology, Thomson Learning, 2000
3. Diwan, Prag and Sunil Sharma - E-Commerce - Managers guide to E-Business

Web Reference:

1. www.**tutorials**point.com/**e_commerce/**
2. **www.ecommercetutorial.net**

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	3	-	2	-	1	-
II	3	-	1	-	1	-
III	2	-	1	-	1	-
IV	2	-	2	-	2	-
V	2	-	2	-	1	-
TOTAL	12	-	8	-	6	-
Section A-12			**Section B-8**		**Section C-6**	

ALLIED PAPER - 3

BUSINESS STATISITICS - I

SUBJECT CODE:	THEORY& PROBLEM	MARKS: 100
SEMESTER: III	CREDITS: 5	NO. OF HOURS PER WEEK : 6

(Common to B.Com (GEN), B.Com (CS), B.Com (AF), B.Com (BM), B.Com (MM), B.Com (ISM), BBA)

COURSE OBJECTIVES

1. To communicate the origin and basics about the statistics.
2. To demonstrate the classifications, tabulation of data including diagrammatic and graphical methods.
3. To analyze the knowledge of measures of central tendency – Mean, Median, Mode, Geometric Mean and Harmonic Mean.
4. To explain the characteristics of the range, Quartile deviation, mean deviation, variance, and the standard deviation.
5. To evaluate the measures of skewness – Karl Pearson's coefficient of skewness and Bowley's Coefficient of Skewness.

UNIT–I **(15Hours)**

Origin Meaning, Definition and Characteristics of Statistics – Uses and Limitations - Sources of Statistical data – Primary and Secondary – Collection of Primary Data – Direct Personal, Indirect Oral, Mailed Questionnaire and Schedule Methods – Editing of Secondary Data-Scatter diagram.

UNIT–II **(20 Hours)**

Measures of Central Tendency / Averages – Arithmetic Mean, Median, Quartiles, Deciles, and Percentiles,Mode, Geometric Mean, Harmonic Mean, Combined Mean and Weighted Mean.

UNIT–III **(20 Hours)**

Measures of Dispersion – Range, Quartile Deviation, Mean Deviation and Standard Deviation – Co-efficient of Variation.

UNIT–IV **(15Hours)**

Measures of Skewness – Meaning, Definition and Types – Karl Pearson's coefficient of Skewness and Bowley's Coefficient of Skewness.

UNIT–V **(20 Hours)**

Probability – Addition and Multiplication Theorem – Conditional probability – Bayer's Theorem (without proof) – Simple problems.

THEORY: 20% PROBLEMS: 80%

RECOMMENDED TEXTBOOKS

1. S.P.Gupta ,Statistical Methods ,Sultan Chand & Sons, 2011
2. P.R.Vital ,Business Statistics, Margham Publications.

REFERENCE BOOKS

1. E.L.Lehmann , Elements of Statistical Hypothesis , Johu Wiley & Sons.
2. R.S.N.Pillai & B.Bhagavathi, Practical Statistics,S.Chand& Company.

E-LEARNING RESOURCES

https://books.google.co.in/books?isbn=0764142399
https://books.google.co.in/books?isbn=8122400116
https://books.google.co.in/books?isbn=8131726029

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	-	2	-	-	-
II	2	-	-	1	-	1
III	1	3	-	2	-	1
IV	1	1	-	1	-	1
V	1	1	-	1	-	1
TOTAL	7	5	2	5	-	4
SECTION A - 12			**SECTION B - 7**		**SECTION C - 4**	

SEMESTER IV

CORE 9 – SUPPLY CHAIN MANAGEMENT

SUBJECT CODE :	**THEORY:**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 5**	**NO. OF HOURS PER WEEK : 6**

COURSE OBJECTIVES:

- To impart knowledge about the various types of Supply Chain Management in Business.

UNIT – I: **(15 Hours)**

Supply chain Management – Meaning, Definition, Functions, need – Marketing forces affecting supply chain activities – supply chain activities in India.

UNIT – II **(15 Hours)**

Supply Chain Intermediaries – Meaning, importance, objectives, functions – Types of intermediaries – Selection of channel members – Motivation, training and evaluation of channel members.

UNIT – III **(15 Hours)**

Transportation – Meaning, importance, Functions – Types of transportation – Methods of Selection of transportation – factors considering fixation of freight charges – Role of containers in modern Transportation.

UNIT – IV **(15 Hours)**

Warehousing – meaning, characteristics, importance, functions – Types of warehousing – Selection of transportation – warehouse locations – Packaging and material handling – Documents relating to warehousing – Warehousing in India.

UNIT-V **(15 Hours)**

Inventory Management – Meaning, Importance, Functions – Inventory Control – Inventory control under uncertainties – ABC Analysis – JIT – Cost of inventories – order processing – Customer Services.

RECOMMENDED TEXTBOOKS

1. Satish K. Kapoor and Purva Kamal, Basis of Distribution Management, Printice Hall of India, New Delhi , 2003.
2. Sunil Chopra, Supply Chain Management – Strategic planning and operations, 2004.

REFERENCE BOOKS

1. Taylor, supply chain, 2004, A managers guide – Pearson Education – New Delhi.
2. David J. Bloomberg, Stephen Lemay, Joe E. Hanna, Logistics, 2002, Printice Hall of India, New Delhi..
3. Dr. C.B. Gupta and Dr. N. Rajan Nair 2007, Marketing management, Sultan Chand, New Delhi.

4. Bowersox closs, Logistical Managemevil 2004 – The Intergrated supply chain Management, Printice Hall of India, New Delhi.

E-LEARNING RESOURCES

- http://www.managementparadise.com/forums/elements-logistics-logs/200348-types-warehouses.html.
- http://www.yourarticlelibrary.com/transport/transport-system-in-india-meaning-advantages-and-types/65100
- https://hbr.org/2018/06/the-death-of-supply-chain-management.

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	-	2	-	1	-
II	3	-	2	-	1	-
III	3	-	1	-	2	-
IV	2	-	2	-	1	-
V	2	-	1	-	1	-
TOTAL	12	-	8	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

CORE 10 - FINANCIAL MANAGEMENT

SUBJECT CODE:	**THEORY & PROBLEM**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 4**	**NO.OF HOURS PER WEEK: 5**

(Common to B.Com (GEN), B.Com (CS), B.Com (AF), B.Com (BM), B.Com (MM), B.Com (ISM), BBA)

COURSE OBJECTIVES

1. To understand how crucial financial decisions are taken in a firm and gain insight into wealth maximization and profit maximization.
2. To understand the cost of capital, importance of leverage and capitalization.
3. To Demonstrate the Theories of capital structure.
4. To formulate dividend decisions in a firm.
5. To select and apply techniques for short term financial needs of the firm using working capital management concepts.

UNIT I **(12 Hours)**

Financial Management – Introduction – Scope – Finance and other related disciplines –Function of Finance – Functions of Finance Manager in 21st Century. Financial Goals: Profit Maximization Vs Wealth Maximization – Time value of money-perpetuity –CMI Amortization.

UNIT II **(17 Hours)**

Cost of Capital – Significance of the cost of Capital – Determining Component costs of Capital – Cost of Equity - Cost of Preference share capital – Cost of Debt - Cost of Retained Earnings – Weighted Average cost of capital.

UNIT III **(17 Hours)**

Capital structure – Importance – Factors affecting Capital structure - Determining Debt – Equity proportion – Theories of capital structure –Net Income Approach – Net Operating Income Approach – M.M Approach & Traditional Approach - Leverage concept –Operating Leverage – Financial Leverage and Combined Leverage.

UNIT IV **(12 Hours)**

Dividend policy – Objective of Dividend Policies - Types of Dividend Policies - Factors Affecting Dividend Policy – Dividend Theories: Walter's - Gordons's – M.M Hypothesis – Forms of Dividend

UNIT V **(17 Hours)**

Working Capital – Components of working Capital – Operating Cycle – Factors influencing working capital – Determining working capital requirements. Capital Expenditure Capital Budgeting Techniques: Discounted Cash flow technique: Net Present Value - Internal Rate of Return- Profitability Index, Non – Discounted Cash flow Techniques: Pay back methods – Accounting Rate of Return

THEORY: 20% PROBLEMS: 80%

RECOMMENDED TEXTBOOKS

1. M.Y.Khan and P.K.Jain Basic Financial Management, Tata McGraw-Hill Education
2. Dr. A. Murthy, Financial Management, Margham Publications

REFERENCE BOOKS

1. Pandey I.M.: Financial Management, Vikas Publishing House Pvt Ltd
2. Maheswari . S.M.: Financial Management, Sultan Chand & Sons
3. Prasanna Chandhra :Financial management theory and practice, McGraw-Hill Education
4. Dr. Rustagi P R, Fundamentals of Financial management , Taxman's publication,14th edition
5. Paramasivan C & Subramanian T, Financial Management, New Age International Publishers

E-LEARNING RESOURCES

1. https://www.managementstudyguide.com/financial-management.htm
2. https://corporatefinanceinstitute.com/resources/knowledge/finance/cost-of-capital/
3. https://www.investopedia.com/terms/c/capitalbudgeting.asp
4. https://efinancemanagement.com/dividend-decisions
5. https://cleartax.in/s/working-capital-management-formula-ratio
6. https://books.google.co.in/books?isbn=812591658X
7. https://books.google.co.in/books?isbn=8174465863

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	1	1	-	-	-
II	2	1	-	1	-	1
III	1	1	1	1	-	1
IV	1	1	-	1	-	1
V	1	1	-	2	-	1
TOTAL	7	5	2	5	-	4
SECTION A 12			**SECTION B 7**		**SECTION C 4**	

CORE 11 - **RESEARCH METHODS IN BUSINESS**

SUBJECT CODE:	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

(Common to B.Com ISM) and B.Com (MM))

COURSE OBJECTIVE:

- To make students aware about the importance of research in business
- To make students acquire skills to locate problem areas in organisation settings, and plan, organize, design, and conduct research to help solve the identified problems.

Unit I **(15 Hours)**

Fundamentals of Research: Meaning, Objectives and Significance. Types of Research: - Descriptive vs. Analytical, Applied vs. Fundamental, Quantitative vs. Qualitative, Conceptual vs. Empirical. **Approaches to Research-** Quantitative approach, Qualitative approach.

Unit II **(15 Hours)**

Defining the research problem, selecting the problem; technique involved in selecting a problem. Research design – Meaning, need, features of good research design. **Sample design** – Meaning- Steps in sampling design – Characteristics of Good Sample Design – Classification of Sampling design: Brief about Probability sampling, Non- probability sampling, restricted, un-restricted sampling. Types: Quota sampling, Cluster sampling, Area sampling, Multi stage sampling, convenience sampling and purposive sampling.

Unit III **(15 Hours)**

Sources and Methods of data collection - Primary and Secondary data. Meaning and Definition of Primary sources - Observation, Interview and Questionnaire. Meaning and definition of Secondary sources - Data processing – Tabulation – Data analysis and Interpretation.

Unit IV **(15 Hours)**

Meaning, definition and importance of Hypothesis –Types: Simple hypothesis, Null hypothesis, alternate hypothesis and complex hypothesis. Formulation of hypothesis and various methods of testing of hypothesis - **(Theoretical explanation only)** Chi-square test, Correlation Co-efficient and Regression analysis.

Unit V **(15 Hours)**

Report writing – layout of research report – Steps in report writing- Importance of research in management decisions- Application of research in various areas - Marketing Research, Government policies and economic systems, Social relationship.

RECOMMENDED TEXTBOOKS

1. Dr.P.Ravilochanan, 2012 Research Methodology, Margham Publications
2. Research Methodology: Methods and Techniques Paperback by C R Kothari – New Age International Publishers
3. P.C. TRIPATHI , Research Methodology in social sciences – Sultan Chand & Sons.

REFERENCE BOOKS:

1. Ranjit Kumar – Pearson. 2005, Research Methodology: A Step by Step Guide for Beginners,

E-LEARNING RESOURCES

http://study.com/academy/lesson/research-methodology-approaches-techniques-quiz.html

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	-	2	-	1	-
II	2	-	2	-	2	-
III	3	-	1	-	1	-
IV	2	-	2	-	1	-
V	3	-	1	-	1	-
TOTAL	12	-	8	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

CORE PAPER 12 INTERNATIONAL MARKETING

SUBJECT CODE :	THEORY	MARKS : 100
SEMESTER : III	CREDITS : 4	NO. OF HOURS PER WEEK : 5

COURSE OBJECTIVES:

- To impart knowledge about the various types of marketing in Business.
- To have a in depth knowledge of International marketing.

UNIT – I **(15Hours)**

Need and importance of international marketing – entry strategy – international trade theories – BOT, BOP

UNIT – II **(15 Hours)**

International markets – consumer behaviour – market research – product market strategies.

UNIT – III **(15 Hours)**

Pricing – terms – FOB – CIF – foreign exchange fluctuations – channels of distributors.

UNIT – IV **(15 Hours)**

Advertising and sales promotion – insurance and Risk coverages – institutions for promotion of international marketing – marketing assistance – documentation procedures in export & import trading. **(15 Hours)**

UNIT – V: **(15 Hours)**

WTO – Trade Blocks – EU – Globalisation – Global Markets.

RECOMMENDED TEXTBOOKS

1. Varshney and Bhattacharya, 1999, International Marketing, Bookwell Publishers, New Delhi,.
2. Philys Cateora and John Graham, 1999., International Marketing, Tata Mc Graw Hill,

REFERENCE BOOKS

1. Srinivasan : International Marketing – Prentice Hall of India
2. Fayerweather – International Marketing – Prentice Hall of India
3. Keith Lewis and Mathew Housden – Introduction to International Marketing
4. Alan Branch – International Purchasing and Management – Thomson

E-LEARNING RESOURCES

1. http://www.economicsdiscussion.net/
2. http://www.yourarticlelibrary.com/trade-2/world-trade-organization-wto-objectives-and-functions/23529

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	-	2	-	1	-
II	3	-	2	-	1	-
III	2	-	1	-	1	-
IV	3	-	2	-	2	-
V	2	-	1	-	1	-
TOTAL	**12**	**-**	**8**	**-**	**6**	**-**
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

ALLIED IV
BUSINESS STATISITICS - II

SUBJECT CODE:	**THEORY & PROBLEM**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 5**	**NO.OF HOURS PER WEEK: 6**

(Common to B.Com (GEN), B.Com (CS), B.Com (AF), B.Com (BM), B.Com (MM), B.Com(ISM), BBA)

COURSE OBJECTIVES

1. To discuss the scope of correlation and use of regression analysis to estimate the relationship between two variables and its applications
2. To analyse the use of time series models for forecasting and the limitations of the methods
3. To utilize the necessary set of skills in using statistical tool and technique of index number for price level changes.
4. To communicate the methods of interpolation & extrapolation.
5. To compile the various methods of statistical tools of quality monitoring including control charts

UNIT I **(18 Hours)**

Correlation Analysis – Meaning, Definition, Significance and Types of Correlation, Karl Pearson's Coefficient of Correlation – spearman's Rank Correlation.

UNIT II **(19 Hours)**

Regression Analysis- Meaning and Importance – Regression Lines and Regression equations- X on Y, Y on X, and Properties of Regression Coefficients – Uses of Regression – Difference between Correlation & Regression.

UNIT III **(19 Hours)**

Time Series Analysis – Meaning, Need and Components of Time Series – Different Methods – Simple Average Method- Free Hand, Semi Average, Moving Average and Least Square Method- Seasonal Indices.

UNIT IV **(19 Hours)**

Index Numbers – Definition Usage, Methods of Construction of Index Numbers – Types – Unweighted and weighted Index Numbers Simple, Aggregate, Price Relative Methods- Laspeyres, Paasche's , Bowley's and Fisher's Index Numbers – Time and Factor Reversal Tests – Cost of Living Index.

UNIT V **(15 Hours)**

Meaning of Sampling - Probability sampling Methods : Simple Random Sampling -Stratified sampling-Systematic sampling-Cluster Sampling-Multi stage Sampling, Non-probability sampling methods: Convenience Sampling -Judgmental Sampling-Quota Sampling -Snowball Sampling- Sampling error and standard error relationship between sample size and standard error.

THEORY: 20% PROBLEMS: 80%

RECOMMENDED TEXTBOOKS

1. Statistical Methods- S.Gupta – Sultan Chand & Sons
2. Statistics –P.R.Vital- Margham Publications.

REFERENCE BOOKS

1. Elements of Statistical Hypothesis – E.L.Lehmann – Johu Wiley &Sons.
2. Practical Statistics – R.S.N.Pillai & B.Bhagavathi – S.Chand & Company.

E-LEARNING RESOURCES

https://books.google.co.in/books?isbn=8122415229
https://books.google.co.in/books?isbn=8131301362
https://books.google.co.in/books?isbn=8122415229

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
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B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	1	1	1	-	1
II	1	1	-	1	-	1
III	1	1	-	2	-	1
IV	1	1	-	1	-	1
V	2	1	1	-	-	-
TOTAL	7	5	2	5	-	4
SECTION A 12			**SECTION B 7**		**SECTION C 4**	

ENVIRONMENTAL STUDIES

SUBJECT CODE:	THEORY	MARKS: 100
SEMESTER: IV	CREDITS: 2	NO.OF HOURS PER WEEK: 2

COURSE OBJECTIVES:

To create awareness among the Students community about the Environmental Issues, Causes and Remedies.

UNIT I: MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES

Definition, scope and importance-Need for public awareness.

UNIT II: NATURAL RESOURCES:

Renewable and non-renewable resources: Natural resources and associated problems.
a) **Forest resources**: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forest and tribal people.
b) **Water resources**: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.
c) **Mineral resources**: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.
d) **Food resources**: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
e) **Energy resources**: Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies.
f) **Land resources**: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources.Equitable use of resources for sustainable lifestyles.

UNIT III: ECOSYSTEMS:
Concept of an ecosystem.
• Structure and function of an ecosystem.
• Producers, consumers and decomposers.
• Energy flow in the ecosystem.
• Ecological succession.
• Food chains, food webs and ecological pyramids.
• Introduction, types, characteristic features, structure and function of the following ecosystem :-
a. Forest ecosystem
b. Grassland ecosystem
c. Desert ecosystem
d.Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

UNIT IV: BIODIVERSITY AND ITS CONSERVATION:

• Introduction – Definition: genetic, species and ecosystem diversity.
• Biogeographicaly classification of India
• Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic And option values
• Biodiversity at global, National and local levels.
• India as a mega-diversity nation,Hot-sports of biodiversity.
• Threats to bio diversity: habitat loss, poaching of wildlife, man-wildlife conflicts.
• Endangered and endemic species of India
• Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.

UNIT V: ENVIRONMENTAL POLLUTION:

Definition: Cause, effects and control measures of:-
a. Air pollution
b. Water pollution
c. Soil pollution
d. Marine pollution
e. Noise pollution
f. Thermal pollution
g. Nuclear hazards
• Solid waste Management: Causes, effects and control measures of urban and Industrial wastes.
• Role of an individual in prevention of pollution.
• Pollution case studies.
• **Disaster management: floods, earthquake, cyclone and landslides**.

UNIT VI: SOCIAL ISSUES AND THE ENVIRONMENT:

• From Unsustainable to Sustainable development
• Urban problems related to energy
• Water conservation, rain water harvesting, watershed management
• Resettlement and rehabilitation of people; its problems and concerns. Case Studies
• Environmental ethics: Issues and possible solutions.
• Climate change, global warming, acid rain, ozone layer depletion, nuclear Accidents andholocaust.Case Studies.
• Wasteland reclamation.
• Consumerism and waste products.
• Environment Protection Act.
• Air (Prevention and Control of Pollution) Act.
• Water (Prevention and control of Pollution) Act
• Wildlife Protection Act
• Forest Conservation Act
• Issues involved in enforcement of environmental legislation.
• Public awareness.

UNIT VII: HUMAN POPULATION AND THE ENVIRONMENT

• Population growth, variation among nations.
• **Population explosion – Family Welfare Programme. Environment and human health.**
• Human Rights.
• Value Education.
• **HIV/AIDS**.
• Women and Child Welfare.
• Role of Information Technology in Environment and human health.
• Case Studies

UNIT VIII: FIELD WORK

• Visit to a local area to document environmental assets- river/forest/grassland/hill/mountain
• Visit to a local polluted site-Urban/Rural/Industrial/Agricultural
• Study of common plants, insects, birds.
• Study of simple ecosystems-pond, river, hill slopes, etc.

PRESCRIBED BOOKS:
1. Environmental studies-St Joseph College Edition
2. Environmental studies- Dr. D.D.Mishra – S.Chand
REFERENCE BOOKS:

1. Environmental studies – Dr. J.P.Sharma – University Science Press.

2. Introduction to Environmental Studies – Dr.MahaintaK.Kalita – Asiau Books.

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	2	**20**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	8	**40**
C	Answer any 2 out of 4 questions (each in 1200 words)	21-24	20	**40**
TOTAL MARKS				**100**

COMPUTING SKILLS – LEVEL – I

SUBJECT CODE:	THEORY	MARKS: 100
SEMESTER: IV	CREDITS: 3	NO.OF HOURS PER WEEK: 2

Unit 1

Introduction to computers – classification of computers; Computers inside – Hardware(processing, memory i/o, storage etc), Software (Systems, application); Operating Systems – DOS, LINUX, UNIX, Windows ; Programming – Overview, need and skills;Networking Basics; Virus; Hacking

Unit 2

Word processing - Operating of word documents like open, close, save, print ;Editing Text – tools, formatting , bullets, layout ; Navigating word – Keyword, mouse, document formatting ; paragraph alignment - indentation, headers, footers, numbering; printing – preview, options

Unit 3

File Management – Importance of file management, backing of files, files and folders- editing, deleting, retrieving, renaming, subfolders; Manipulating windows – minimize, mazimize; power point basics- terminology- templates, viewing 20

Unit 4

Spreadsheets – MS Excel – opening, entering text and data, formatting, navigating; Formulas- entering, handling and copying; charts- creating, formatting and printing, header and footer, centering of data; printing

Unit 5

Networking - Internet explorer; www – working, browsing, searching, saving; bookmark – features, favorite, create, delete; printing webpage; email – creating, receiving, reading and sending messages

SEMESTER V

CORE 13 -COST ACCOUNTING

SUBJECT CODE:	**THEORY & PROBLEM**	**MARKS: 100**
SEMESTER: V	**CREDITS: 4**	**NO.OF HOURS PER WEEK: 6**

(Common to B.Com (GEN), B.Com (CS), B.Com (AF), B.Com (BM), B.Com (MM))

COURSE OBJECTIVES

1. To compile the basic concepts used in Cost accounting.
2. To compute the selling price through cost sheets.
3. To outline the basic principles of materials control and the latest techniques in inventory control.
4. Explain the classification of the overheads, and Distribution of Overheads Under Primary and Secondary distribution.
5. To Evaluate the various surfaces of labor cost control, various methods of remuneration and calculation of wages

UNIT I **(15 Hours)**

Definition, Nature and scope of Cost Accounting, Cost analysis, concepts and Classifications. Installation of costing systems, cost centres and profit centers.

UNIT II **(19 Hours)**

Simple Cost sheets- cost sheet with details of overheads- Stock of work in progress and finished goods, sales price computation- tenders and quotations.

UNIT III **(19 Hours)**

Material purchase control, Stock Levels, aspects, need and essentials of material control. Stores control – Stores Department, EOQ, Stores records, ABC analysis, VED analysis. Material costing – Issue of materials – FIFO, LIFO, HIFO, SAM, WAM, Market price, Base stock method , standard price method and Retail price Method.

UNIT IV **(18 Hours)**

Labour cost – Computation and control. Time keeping, Methods of wage payment – Time rate and piece rate system. Payroll procedures. Idle time and over time. Labour turnover.

UNIT V **(19 Hours)**

Overheads – Classification, Allocation, Apportionment and control of overheads – Manufacturing, Administration, Selling and Distribution (Primary and Secondary Distribution) Computation of Machine Hour Rate.

THEORY: 20% PROBLEMS: 80%

RECOMMENDED TEXTBOOKS

1. Jain S.P. and Narang K. L., Cost Accounting, Kalyani Publishers, Ludhiana, Eighth Edition
2. Reddy T.S. and Hari Prasad Reddy Y., Cost Accounting, Margham Publications, Chennai, Fourth Edition

REFERENCE BOOKS

1. Dr. Maheswari S.N, Principles of Cost Accounting, Sultan Chand & Sons, New Delhi
2. Pillai R. S. N. and Bagavathi V., Cost Accounting, S.Chand,New Delhi
3. Saxena V.K. and Vashist C.D, Cost Accounting, Sultan Chand & Sons, New Delhi
4. Shukla M.C., Grewal T .S. and Dr.Gupta M.P., Cost Accounting, S.Chand, New Delhi

E-LEARNING RESOURCES

1.http://www.yourarticlelibrary.com/cost-accounting/cost-accounting-meaning
2.http://www.accountingnotes.net/cost-accounting/cost-sheet/cost-sheet-meaning-advantages-andpreparation/ 7505
3. http://www.accountingexplanation.com/materials_and_inventory_cost_control.htm
4. https://www.tutorsonnet.com/introduction-to-labour-remuneration-homework-help.php

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Break up of questions for theory and problem

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	-	1		-	-
II	1	1	1	1		1
III	1	1		2		1
IV	1	2		1		1
V	2	1		1		1
TOTAL	7	5	2	5		4
SECTION A 12			**SECTION B 7**		**SECTION C 4**	

CORE 14 -ENTREPRENEURIAL DEVELOPMENT

SUBJECT CODE:	THEORY	MARKS: 100
SEMESTER: V	CREDITS: 4	NO.OF HOURS PER WEEK: 5

(Common to B.Com (GEN), B.Com (CS), B.Com (AF), B.Com (BM), B.Com (MM), B.Com (ISM), BBA)

Objectives:

1. To discuss the concept of entrepreneurship and its importance.
2. To analyze the scope of various financial institutions for the enhancement of small entrepreneurs.
3. To utilize the various technical tools for the business premises and encounter business ventures.
4. To communicate the important values of EDPs and the Government role in ED.
5. To design the valuable approaches in the changing economic scenario and to apply the same for the improvement of small scale entrepreneurs.

UNIT I **(13 Hours)**

Entrepreneurship – Meaning – Types – Qualities of an Entrepreneur – Classification of Entrepreneurs – Factors influencing Entrepreneurship – Functions of Entrepreneurs.

UNIT II **(20 Hours)**

Entrepreneurial Development Agencies - Commercial Banks – District Industries Centre – National Small Industries Corporation – Small Industries Development Organisation – Ministry of Micro, Small & Medium Enterprises (MSME)- Prime Minister Employment Generation Programme - Pradhan Mantri Yuva Yojana - All India Financial Institutions – IDBI – IFCI – ICICI – IRDBI.

UNIT III **(15 Hours)**

Project Management: Business idea generation techniques – Identification of Business opportunities – Feasibility study – Marketing, Finance, Technology & Legal Formalities - Preparation of Project Report – Tools of Appraisal.

UNIT IV **(12 Hours)**

Entrepreneurial Development Programmes (EDP) – Role, relevance and achievements – Entrepreneurship Development Institute of India (EDII), Role of Government in organizing EDPs – Critical evaluation.

UNIT V **(15 Hours)**

Economic development and entrepreneurial growth – Role of entrepreneur in economic growth- Strategic approaches in the changing economic scenario for small scale entrepreneurs- Networking, Niche play, Geographic concentration, Franchising / Dealership – Development of Women entrepreneurship - problems – steps taken by government- Women and Self Help Groups. (SHGs)

RECOMMENDED TEXTBOOKS

1. Gupta, D. C., & Srinivasan, D. N. Entrepreneurship Development in India Sultan Chand & Sons, (2001).
2. Khanka, S. S. Entrepreneurial development. S. Chand Publishing, (2006).

REFERENCE BOOKS

1. Desingu Setty, E., & Krishna Moorthy, P. Strategies for developing women entrepreneurship. Akansha Pub. House, (2010).
2. Drucker, P. F. Innovation and Entre-preneurship: Practice and Principles. Harper & Row, (1986).
3. Gupta, M. Entrepreneurial Development Raj Publishing House, (2006).
4. Shankar, R.Entrepreneurship Theory & Practice Vijay Nicole Imprints Private Ltd
5. Suresh, J. Entrepreneurial Development Margham Publications, (2002).

E-LEARNING RESOURCES

1.http://www.yourarticlelibrary.com/entrepreneur/entrepreneurshipcharacteristicsimportancetyps-and-functions-of-entrepreneurship/5228
2. https://landor.com/thinking/eight-principles-of-innovation
3. http://www.simply-strategic-planning.com/innovation-and-entrepreneurship.html
4. https://www.slideshare.net/sahilkamdar1/institutional-support-in-entrepreneurship
5. https://www.businessmanagementideas.com/entrepreneurship-2/institutional-supportsystem-for-entrepreneurs/18184
6. https://www.entrepreneur.com/article/323660
7. https://www.entrepreneur.com/article/314723

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	3	-	2	-	1	-
II	3	-	2	-	2	-
III	2	-	1	-	1	-
IV	2	-	2	-	1	-
V	2	-	1	-	1	-
TOTAL	12	-	8	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

CORE 15 – RETAIL MARKETING

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**NO. OF HOURS PER WEEK : 6**

COURSE OBJECTIVES:

To enable the students to acquire knowledge on various trend in retail business.

To provide the basic understanding to broad set of specialized activities and techniques in managerial retail business.

To motivate the students to take up retailing business as a career.

UNIT – I **(17 Hours)**

Introduction to Retail marketing – retail environment – the growing importance of retail industry.

UNIT – II **(17 Hours)**

Consumer behavior in the retail context – buying decision process – its implication for retail management.

UNIT – III **(19 Hours)**

Store lay out – design – Merchandising – private brands – national brands – merchandising buying and handling.

UNIT – IV **(18 Hours)**

Retail Marketing Mix – 4 Ps – Merchandise Management – Negotiating Purchase – Rural Marketing.

UNIT – V **(19 Hours)**

Consumerism and ethics in retailing – international retail structures – future of retailing.**)**

RECOMMENDED TEXTBOOKS

1. Andrew J. Navman and Peter Cullon – Retailing Environment – Thomson & Organisation
2. Berman: Retail management, Prentice Hall of India, 8th Edn.

REFERENCE BOOKS

1. Patrick M. Nunne, Robert F. Lusch and David A. Griffith – Retailing
2. David Gilbrath, Retail Marketing Management.
3. A. Nag, Marketing Strategy.
4. Sherlekhar, Dr. K. Nirmala Prasad and S.A. Salvardine Victor, Principles of Marketing.

E-LEARNING RESOURCES

- https://www.managementstudyguide.com/store-design-and-layout.htm
- https://www.ukessays.com/essays/marketing/what-is-the-concept-consumer-ethics-marketing-essay.php

- https://shelfwiz.com/real-life/marketing-merchandising-what-do-they-mean-for-your-store.html

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	-	2	-	1	-
II	2	-	2	-	1	-
III	3	-	1	-	2	-
IV	2	-	2	-	1	-
V	3	-	1	-	1	-
TOTAL	12	-	8	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

CORE 16 - PRACTICAL AUDITING

SUBJECT CODE:	THEORY	MARKS: 100
SEMESTER: V	CREDITS: 4	NO.OF HOURS PER WEEK: 5

(Common to B.Com (GEN), B.Com (CS), B.Com (AF), B.Com (BM) & B.Com (MM))

COURSE OBJECTIVES

1. To brief about concepts of auditing and its usage in various fields.
2. To demonstrate the scope and features of vouching and the other related topics related to it.
3. To learn about depreciation, reserves, provisions and the auditor's duty.
4. To study the appointment of auditors, their responsibilities and presentation of audit report.
5. To know the audit procedures in service sectors.

UNIT I **(18 Hours)**

Meaning and definition of auditing – Distinction between auditing and accounting – objectives – Advantages and limitations of audit – scope of audit – classification of audits – Audit planning, meaning – Audit Programme, meaning, objectives and contents – audit note book, contents, usefulness of audit note book – Audit working papers, meaning. Ownership and custody – Test checking and Routine checking, meaning- Internal control - meaning , definition, objectives.

UNIT II **(18 Hours)**

Vouching, meaning and definitions, objectives – Trading transactions – audit of ledger- Scrutinizing of ledgers - vouching of cash receipts and payments. Vouching of outstanding assets and liability – verification, meaning objectives and process – valuation of assets and liabilities- Distinction between verification and valuation.

UNIT III **(10 Hours)**

Depreciation and reserves – meaning – Auditor's duty with regard to depreciation – Reserves and provisions- Difference between reserves and provision – Depreciation of wasting Assets.

UNIT IV **(18 Hours)**

Appointment of auditors – appointment of first auditor – appointment by central government – filling of casual vacancy – Appointment by special resolution – Re-appointment and compulsory re-appointment – ceiling on the number of Auditorship - Removal of auditor – Remuneration – auditor's lien – qualification and disqualification – Duties of the company auditor – Rights and powers of auditors – different classes of auditors – Audit Report – Preparation and Presentation.

UNIT V **(11 Hours)**

EDP audit – meaning - procedure of audit under EDP system – specialized Audits – points to be considered while auditing Educational Institutions – Hotels – Banking and Insurance companies.

RECOMMENDED TEXTBOOKS

1. Practical Auditing – B.N. Tandon Sultan Chand and Co.,
2. Contemporary Audinting, Kamal Gupta Tata MC Graw Hill.

REFERENCE BOOKS

1. Auditing – D.P. Jain Konark Publishers Pvt. Ltd.
2. Auditing, Principles and practice – Ravinder Kumar and virender Sharma, East ern economy edition.
3. Practical Auditing – B.N. Tandon Sultan Chand and Co.,
4. Contemporary Audinting, Kamal Gupta Tata MC Graw Hill.

E-LEARNING RESOURCES

https://books.google.co.in/books?isbn=8121920418
https://books.google.co.in/books?isbn=5877373412
https://books.google.co.in/books?isbn=8170231868

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	-	2	-	2	-
II	3	-	2	-	1	-
III	2	-	1	-	-	-
IV	3	-	2	-	2	-
V	2	-	1	-	1	-
TOTAL	12	-	8	-	6	-
SECTION A 1 - 12			**SECTION B - 8**		**SECTION C - 6**	

ELECTIVE 1

TOURISM MANAGEMENT (IDE)

SUBJECT CODE :	**THEORY:**	**MARKS : 100**
SEMESTER : V	**CREDITS : 5**	**NO. OF HOURS PER WEEK : 6**

COURSE OBJECTIVES:

•To make the learners acquainted with the concept of tourism
•To make the learners know with the various aspects of tourism in India and abroad
•To make the learners know about different facets of tourism industry

UNIT I **(20 Hours)**

Definition of Tourism Management – Need for tourism management – Factors influencing the growth of tourism – Effects of tourism – Tourism marketing - Tourism industry in India and abroad.

UNIT II **(15 Hours)**

Tourism product planning and development – User's profile – Tourism life study styles – Market segmentation.

UNIT III **(20 Hours)**

Tourism product strategy – Tourism Pricing strategy – Tourism promotion strategy – Tourism distribution strategy.

UNIT IV **(15 Hours)**

Typology of tourism – Different kinds of tourism – educational, religious, medical, entertainment, cultural, heritage, sports and adventurous tourism – Travel

UNIT V **(20 Hours)**

ITDC – World Tourism Organisation (WTO) - Role of travel agents and Employment opportunities.

RECOMMENDED TEXTBOOKS

1. "Tourism marketing", S.M.Jha, Himalaya Publishing House, Mumbai, 1Stedition, 2010.

E-LEARNING RESOURCES

http://www.unto.org/index.php
http://www.indiatourism.com/
http://www.tamilnadutourism.org
http://www.incredibleindia.org

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	-	2	-	1	-
II	2	-	2	-	1	-
III	3	-	1	-	2	-
IV	2	-	2	-	1	-
V	3	-	1	-	1	-
TOTAL	12	-	8	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

SEMESTER VI

CORE 17 - SALES AND DISTRIBUTION MANAGEMENT

SUBJECT CODE :	THEORY:	MARKS : 100
SEMESTER : VI	CREDITS : 4	NO. OF HOURS PER WEEK : 6

COURSE OBJECTIVES

- To impart knowledge about the various types of Sales and Distribution Management in Business.

UNIT – I **(15 Hours)**

Sales objectives – Functions of Sales Management – Duties and responsibilities of Sales Manager – Types of Salesmanship – Advantages and Limitations of Salesmanship.

UNIT – II **(15 Hours)**

Sales Planning, Sales policy – Sales organization, Structurising and managing sales force, designing sales territories – fixing sales, quota, controlling and motivating sales force.

UNIT – III **(20 Hours)**

Recruitment and selection of sales force – training of salesman Supervising Salesman – Appraising Salesman's performance – methods of appraisal – Compensation of sales force – methods of compensation

UNIT – IV **(20 Hours)**

The Channel of distribution – Its importance – types of channels. Wholesalers & Retailers – Brokers, Commission agents - dealers sole selling agents.

UNIT – V **(20 Hours)**

Potential in distribution in India – Logistics – Physical Distribution – Supply Chain Management. Field Trip to understand the various Practical concepts of SCM

RECOMMENDED TEXTBOOKS

1. Bestrand Canfield & Englan Cliff, Sales Administration, Prentice Hall.
2. Richard R Still and Edward W. Cundiff, Sales Management, Prentice Hall.

REFERENCE BOOKS

1. Albert New Guard – The Field Sales Manager – Taraporewala
2. V.S. Ramasamy, Marketing Management, MacMillan.

E-LEARNING RESOURCES

- www.tutorialspoint.com/sales_planning/sales_planning_introduction.html.
- https://www.businessmanagementideas.com/products/channels-of-distribution-of-products-meaning-functions-factors-and-types/2276

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	-	2	-	1	-
II	2	-	2	-	1	-
III	3	-	1	-	2	-
IV	2	-	2	-	1	-
V	3	-	1	-	1	-
TOTAL	12	-	8	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

CORE 18 ADVERTISING MANAGEMENT AND SALES PROMOTION

SUBJECT CODE :	THEORY:	MARKS : 100
SEMESTER : VI	CREDITS : 4	NO. OF HOURS PER WEEK : 6

(Common to B.Com (MM) and BBA)

COURSE OBJECTIVES:

- To equip the students with the nature, purpose & complex construction in the planning and execution of a successful advertising program and the ways to improve the sales through various promotions

UNIT – I **(20 Hours)**

Advertising: Definition, objectives, need & importance, growth of modern advertising – types & classification of advertisement, advertising spiral – market segmentation, promotional mix and target audience.

UNIT – II **(20 Hours)**

Media: Mass Media-Selection, planning and scheduling – web advertising – integrated programme and budget planning –percentage of sales method, objective to task method, competitive parity, market share method, unit sales method, affordable method.

UNIT – III **(20 Hours)**

Message and copy development – different types of copy; Art & layout of an advertisement: Principles of design, layout stages, difference in designing of television, audio & print advertisement – Advertising agencies – Organization and operation.

UNIT – IV **(15 Hours)**

Management of sales promotion: Importance & need for sales promotion, planning for consumer schemes & contests, different types of consumer schemes.

UNIT – V **(15 Hours)**

Control: Measurement of effectiveness – ethics, economics and social relevance.

REFERENCE BOOKS

1. Bhatia, T.K., 2007, Advertising and Marketing in Rural India, Macmillan India Ltd, 2nd Edition.
2. Hackley, C., 2010 Advertising and Promotion: An integrated communication approach, Sage Publications, 2nd Edition.
3. Aaker, Myers & Batra, Advertising Management, Prentice Hall.
4. Wells, Moriarity & Burnett: Advertising Priniciples & Practices, Prentice Hall.
5. Jefkins, F., 2002 Advertising, , Pearson, 4th Edition.
6. Wells, W.D., Burnett, J. and Moriarty, S. 2007, Advertising: Principles and Practices, 7th Edition.

E-LEARNING RESOURCES

1. https://economictimes.indiatimes.com/definition/advertising
2. https://www.learnmarketing.net/mediaselection.html

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	-	2	-	1	-
II	2	-	2	-	1	-
III	3	-	1	-	2	-
IV	2	-	2	-	1	-
V	3	-	1	-	1	-
TOTAL	12	-	8	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

CORE 19 - SERVICES MARKETING

SUBJECT CODE :	THEORY	MARKS : 100
SEMESTER : VI	CREDITS : 4	NO. OF HOURS PER WEEK : 6

(Common to B.Com (MM) and B.B.A)

COURSE OBJECTIVES:

- To impart the knowledge of the elements in services marketing and their effectiveness in the business scenario.
- To understand the basic concepts in service quality.

UNIT-I **(20 Hours)**

Marketing Services: Introduction growth of the service sector. The concept of service. Characteristics of service - classification of service designing of the service, blueprinting using technology, developing human resources, building service aspirations.

UNIT-II **(20 Hours)**

Marketing Mix In Service Marketing: The seven Ps: product decision, pricing strategies and tactics, promotion of service and distribution methods for services. Additional dimension in services marketing- people, physical evidence and process.

UNIT-III **(18 Hours)**

Effective Management of Service Marketing: Marketing demand and supply through capacity planning and segmentation - interna1 marketing of services - external versus internal Orientation of service strategy.

UNIT-IV **(20 Hours)**

Delivering Quality Service: Causes of service - quality gaps. The customer expectations versus perceived service gap. Factors and techniques to resolve this gap. Customer relationship management. Gaps in services - quality standards, factors and solutions - the service performance gap - key factors and strategies for closing the gap. External communication to the customers- the promise versus delivery gap - developing appropriate and effective communication about service quality.

UNIT-V **(12 Hours)**

Marketing of Service With Special Reference To: 1.Financial services, 2.Health services, 3.Hospitality services including travel, hotels and tourism, 4.Professional service, 5.Public utility service, 6.Educational services.

RECOMMENDED TEXTBOOKS

1. S.M. Jha, Services marketing, Himalaya Publishers, India
2. Sinha.P.K and Sahoo.S.C., 1994,Services Marketing Text and Reading, Himalaya Publishers House, India.

REFERENCE BOOKS

1. Dr. L. Natarajan Services Marketing, Margham Publications, Chennai.
2. Thakur .G.S. Sandhu Supreet & Dogra Babzan , Services marketing , kalyanni

Publishers, Ludhianna .
3. Dr. B. Balaji , Services Marketing and Management ,S. Chand & Co , New Delhi .

E-LEARNING RESOURCES

1. https://altitudemarketing.com/services/
2. https://courses.lumenlearning.com/boundless-marketing/chapter/service-quality/

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	2	-	2	-	1	-
II	2	-	2	-	1	-
III	3	-	1	-	2	-
IV	2	-	2	-	1	-
V	3	-	1	-	1	-
TOTAL	12	-	8	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

ELECTIVE 2 - HUMAN RESOURCE MANAGEMENT

SUBJECT CODE :	THEORY	MARKS : 100
SEMESTER : VI	CREDITS : 5	NO. OF HOURS PER WEEK : 6

(Common to B.Com (GEN), B.Com (CS), B.Com (AF), B.Com (BM), B.Com (MM), B.Com (ISM), BBA)

COURSE OBJECTIVES

1. To explain the importance of Human Resource Management and its Processes concerned with various management activities and to run an effective organization.
2. To outline different methods and techniques of Training and Performance Appraisal that are used in an organization
3. To assess the different methods and techniques relating to administration and to retain the human resources.
4. To discuss the various mechanisms in HR environment that are capable of applying the principles and techniques as professionals for developing human resources in an organization.
5. To predict the different faces of executives and preparing policies and practices based on it and Human Resource audit

UNIT I **(16 Hours)**

HRM Concepts and Functions, Role, Status and competencies of HR Manager - HR Policies – Emerging Challenges of Human Resource Management - Workforce diversity; Empowerment – Differences between personnel management and HRM

UNIT II **(20 Hours)**

Human Resource Planning – Job Analysis – Job Description, Job Specification and Job Evaluation – Recruitment and Selection – meaning - Process of Recruitment – Sources of Recruitment –Internal Sources – External Sources - Meaning and Process of Selection – Selection Tests And Interviews - Placement

UNIT III **(18 Hours)**

Induction – Mentoring – Concepts and Importance of Training and Development Needs- Training and Development Methods - on the Job Training – off the Job Training – Evaluating Training Effectiveness – Career Development.

UNIT IV **(20 Hours)**

Objectives and importance of Performance Appraisal - Methods and techniques of Performance Appraisal – Potential Appraisal, Type of transfers and promotions – Problems in Performance Appraisal – Essentials of Effective Appraisal System – Termination of Services.

UNIT V **(16 Hours)**

Compensation – Concept and Policies - Wage and Salary Administration – Methods of Wage Payments and Incentive Plans - Fringe Benefits – Performance linked compensation – Monetary and Non-Monetary benefits.

RECOMMENDED TEXTBOOKS

1. Aswathappa, K. (2013). *Human resource management: Text and cases*. Tata McGraw-Hill Education.
2. Gupta, C. B. (2011). Human Resource Management: New Delhi. *Sultan Chand & sons Educational publishers*.

REFERENCE BOOKS

1. DeCenzo, D. A., Robbins, S. P., & Verhulst, S. L. (2016). *Fundamentals of Human Resource Management*, John Wiley & Sons.
2. Dessler, G., & Varrkey, B. (2005). *Human Resource Management, 15e*. Pearson Education India.
3. Durai, P. (2009). Human Resource Management (Publisher: Dorling Kindersley (India) Pvt. *Limited:*
4. Prasad, L. M. (2006). Human Resource Management (Sultan Chand & Sons.
5. Rao, P. S. (2009). *Personnel and human resource management* (pp. 236-345). Himalaya Publishing House.

E-LEARNING RESOURCES

1. https://bohatala.com/impact-of-internal-and-external-environment-on-human-resourcemanagement
2. https://studiousguy.com/human-resource-planning/
3. https://corehr.wordpress.com/2013/12/04/transfer-and-promotion/
4. https://hrmpractice.com/employee-welfare/
5. https://www.mbaskool.com/business-concepts/human-resources-hr-terms/2390-quality-ofwork-life-qwl.html

GUIDELINES TO THE QUESTION PAPER SETTERS

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
C	Answer any 4 out of 6 questions (each in 1200 words)	21-26	10	**40**
TOTAL MARKS				**100**

Break up of questions for theory

UNITS	SECTION A		SECTION B		SECTION C	
	THEORY	PROBLEM	THEORY	PROBLEM	THEORY	PROBLEM
I	3	-	1	-	1	-
II	3	-	2	-	2	-
III	2	-	2	-	1	-
IV	2	-	2	-	1	-
V	2	-	1	-	1	-
TOTAL	12	-	6	-	6	-
SECTION A 12			**SECTION B 8**		**SECTION C 6**	

ELECTIVE III–PROJECT WORK

SUBJECT CODE :	**PROJECT**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 5**	**NO. OF HOURS PER WEEK : 6**

COURSE OBJECTIVES:

To give a hands on practicum to the students in the fields of marketing or finance or human resources, thus enabling them to learn the nuances of working both as an individual and as a team.

A group of 3 students will be assigned a project in the beginning of the final year. The project work shall be submitted to the college 20 days before the end of the final year and the college has to certify the same and submit to the Examination.

The project shall be evaluated externally. The external examiner shall be from the panel of examiners suggested by the board of studies from time to time.
Those who fail in the project work will have to redo the project work and submit to the college for external examination

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A - Grade' by NAAC
(Affiliated to the University of Madras)

DEPARTMENT OF BIOTECHNOLOGY

Regulations and Syllabus (Revised)

(For the Candidates admitted in 2019 - 2020 only)

COURSE STRUCTURE – 2019-2020 Admitted batch (Onwards)
B.Sc BIOTECHNOLOGY

Semester-I

Part	Course Component	Subject Name	Cdt.	Hrs	Total
I	Language	Language-I : Tamil/French/Hindi	3	6	100
II	English	English I	3	4	100
III	Core I	Cell Biology	4	5	100
	*Core II - Practical -I	Cell Biology and Biochemistry	--	3	--
	*Core IV - Practical-II	Chemistry and Bioinstrumentation	--	3	--
	Allied I	Chemistry	4	5	100
IV	1.NME - 1/ Basic Tamil/Adv. Tamil	Human Physiology Basic Tamil-I/ Adv. Tamil	2	2	100
	2.Skill Based subjects	Soft Skill I: Introduction to Study Skills	3	2	100
Total Credits - 19, Total Hours/ week- 30					

*Practicals to be conducted at the end of the II semester

Semester-II

Part	Course Component	Subject Name	Cdt.	Hrs	Total
I	Language	Language-II : Tamil/French/Hindi	3	6	100
II	English	English II	3	4	100
III	Core III	Biochemistry	4	5	100
	Core II - Practical -I	Cell Biology and Biochemistry	4	3	100
	Core IV - Practical-II	Chemistry and Bioinstrumentation	3	3	100
	Allied II	Biotechniques and Bioinstrumentation	5	5	100
IV	1. NME-2/ Basic Tamil/ Adv. Tamil	Behavioral studies of flora and fauna	2	2	100
	2.Skill Based subjects	Soft Skill II: Life Skills	3	2	100
Total Credits- 27, Total Hours/ week- 30					

Semester – III

Part	Course Component	Subject Name	Cdt.	Hrs	Total
I	Language	Language-III : Tamil/French/Hindi	3	6	100
II	English	English III	3	4	100
III	Core V	Genetics	4	6	100
	Core VI - Practical- III	Genetics and Immunotechnology	3	6	100
	Allied III	Immunology and Immunotechnology	5	6	100
IV	1. Skill Based subjects	Soft Skill III: Job-Oriented Skills	3	2	100
Total credits- 21, Total Hours/ week- 30					

COURSE STRUCTURE – 2019-2020 Admitted batch (Onwards)

B.Sc BIOTECHNOLOGY

Semester – IV

Part	Course Component	Subject Name	Cdt.	Hrs	Total
I	Language	Language-IV : Tamil/French/Hindi	3	6	100
II	English	English IV	3	4	100
III	Core VII	Genetic Engineering	4	5	100
	Core VIII – Practical- IV	Genetic Engineering and Microbiology	3	6	100
	Allied IV	Microbiology	5	5	100
IV	Skill Based subjects	Soft Skill IV: Computing Skills	3	2	100
	EVS	Environmental Studies	2	2	100
Total credits- 23, Total Hours/ week- 30					

Semester – V

Part	Course Component	Subject Name	Cdt.	Hrs	Total
III	Core IX	Molecular Developmental Biology	4	4	100
	Core X	Bioprocess Technology	4	4	100
	Core XI	Bioinformatics and Biostatistics	3	6	100
	Core XII	Pharmaceutical Biotechnology	4	4	100
	Core XIII -Practical-V	Molecular Developmental Biology, Bioprocess Technology and Bioinformatics	3	9	100
	Elective I (IDE)	Intellectual Property Rights	5	2	100
IV	Value Education	Value Education	2	1	100
Total credits- 25, Total Hours/ week- 30					

Semester – VI

Part	Course Component	Subject Name	Cdt.	Hrs	Total
III	Core XIV	Plant Biotechnology	4	6	100
	Core XV	Animal Biotechnology	4	6	100
	Core XVI	Biosafety, Bioethics and Intellectual Property Rights	3	5	100
	Core XVII Practical - VI	Plant Biotechnology and Animal Biotechnology	3	6	100
	Elective – II (any one)	Environmental Biotechnology	5	2	100
		Food Biotechnology			
	Elective – III	Project	5	5	100
IV	Extension Activities	Extension Activities	1	--	100
Total credits- 25, Total Hours/ week- 30					
Total Credits of the course - 140					

Cdt.= Credit & **Hrs** = Hours

CORE I: CELL BIOLOGY

Subject	L (hrs.)	T (hrs.)	L+T (hrs.)	TC	P	PC
Cell Biology	1	4	5	4	3	2

Course Objectives:

- To learn about the cellular organization in different life forms
- To learn about the different types subcellular organization and their importance.
- To learn about the various inter and intra-cellular communication mechanisms.

Unit I: Introduction to Biotechnology **(12 hrs.)**

Biotechnology as an interdisciplinary field and its scope; Various fields of Biotechnology: Red Biotechnology (Health, Medical and Diagnosis), White Biotechnology (Gene based bio- industries), Green Biotechnology (Agriculture, Environmental Biotechnology- biofuels, biofertilizers, bioremediation, Geomicrobiology), Yellow biotechnology (food and nutritional Biotechnology), Blue biotechnology (Aqua, coastal and marine biotechnology), Brown Biotechnology (Arid zone and Dessert Biotechnology), Purple Biotechnology (Patents, publications, inventions, publications and IPRs), Gold Biotechnology (Bioinformatics and Nanotechnology), Grey Biotechnology (Classical Fermentation and Bioprocess technology; List of Indian Biotechnology sectors.

Unit II: FUNDAMENTALS OF CELL **(12 hrs.)**

Organization of living organism (Cells, Tissues [both animal & plant tissues], Organs, Organ system) – Evolution of Unicellular to higher organisms (*Chlamydomonas to Volvocine* algae); Cell theory; Different types of cells; Structural comparison of microbes, plant and animal cells. Plasma membrane – Model, structure and function; Biomembrane Transportation - Active: Symport, Uniport, Antiport and Passive; Extracellular matrix: Properties and function; Cytoskeleton - Microfilaments, Microtubules and Intermediate filaments; Cellular Junctions - Adherent, Tight and Gap junctions; Molecular Levels of organization – Epithelial Cell to skin tissue and skin tissue to integumentary system.

Unit III: Structure and functions of Subcellular organelles **(15 hrs.)**

Mitochondria and its function; Chloroplast and its function; Morphology and functions of Lysosome, Peroxisomes and glyoxysomes; Centrioles; Eukaryotic Nucleus: Nuclear membrane, Karyoplasm, Chromatin reticulum, Condensation of chromatin reticulum to

chromosome; DNA replication in eukaryotic cells; Transposable elements: Transposons and Retroposons; Structure and function; Ribosomes

Unit IV: Structure and functions of Subcellular organelles (16 hrs.)

Overview of Transcription and Translation of eukaryotic cells and its regulator mechanism (RNA editing, Post transcriptional regulation & Post translation regulation- Protein modification and its importance); Protein degradation mechanism; Endoplasmic reticulum (smooth and rough) & Golgi apparatus and their functions (Protein folding); Protein sorting (Extracellular mechanism & intracellular mechanism- to Mitochondria and nuclear transport mechanism).

Unit V: CELL SIGNALING AND CELL DIVISION (20 hrs.)

Cellular communication - Types of cellular receptors and Cytokines; Inter cellular communication (Autocrine, paracrine, juxtacrine and endocrine) and Intracellular signaling mechanism (G-Protein Coupled Receptor pathway, Receptor kinase pathway: Tyrosine kinase pathway); Phases of Cell cycle and the check point proteins; Mitosis and Meiosis; Mechanism of Apoptosis, Overview of Cancer biology (Definition and types of protooncogens, oncogens and overview of normal cell into abnormal cell).

Reference Books:

- Devasena, Cell biology by, Oxford University Press, Ist Ed., 2012.
- Geoffrey M. Cooper and Robert E. Hausman, Molecular approach to cell by, Oxford University Press, 7th Ed., 2018.
- Channarayappa, Molecular Biology, Universities Press, 2010.
- Gerald Karp, "Cell and Molecular Biology Concepts and Experiments", Wiley 6th Edition, 2010.
- Harvey Lodish (Author), David Baltimore (Author), Arnold Berk,, Molecular Cell Biology 3rd Ed., W H Freeman & Co (Sd).
- The lives of a cell –A practical –Experimental Biology-A laboratory manual by Lewis Thomas.

Useful URL:

https://www.youtube.com/watch?v=dMPXu6GF18M&list=PLSy2IqrL3nn9etf2m mBU3OOGYxlR H1BNN
https://www.youtube.com/watch?v=y623clAREHI&list=PL3993356C72C83C
https://www.youtube.com/watch?v=qOVkedxDqQo
https://www.youtube.com/watch?v=4qf1BSXn_tk
https://www.youtube.com/watch?v=89W6uACEb7M
https://www.youtube.com/watch?v=KIvBn6gfRgY
https://www.youtube.com/watch?v=uK6po1sLiYY

Course Outcome:

- To gain the understanding of cellular organization and functions.
- To demonstrate gene expression and regulation.
- To apply the concept of Cell – Cell signal transduction, secondary messengers.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR

THEORY PAPERS

Question Allotment	**Maximum :100 Marks** **Passing Minimum :40 Marks** **Duration : Three Hours**

QUESTION PAPER PATTERN:

Section	Numbers	Question Component	Marks	Total
Section A	**Question 1–12**	**Definition** Answer **ANY 10** out of **12** questions	3	**30**
Section B	**Question 13–19**	**Short Answer** Answer **ANY 5** out of **7** questions	6	**30**
Section C	**Question 20–25**	**Detailed Answer** Answer **ANY 4** out of **6** questions	10	**40**
TOTAL MARKS				**100**

DISTRIBUTION OF QUESTIONS:

Sections	Units	No. of Questions
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	2
	Unit – 4	3
	Unit – 5	3
Section B	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	2
	Unit – 5	2
Section C	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit – 5	2

CORE II - PRACTICAL - I: CELL BIOLOGY AND BIOCHEMISTRY

CORE II - PRACTICAL - I: CELL BIOLOGY

Unit-1: Experiments:

1. Description about the Compound Microscope: Principle, construction.
2. Preparation of buccal smear and examination of cells and preparation of permanent slide.
3. Yeast cell size measurement using the ocular and micrometer.
4. Preparation of blood smear and examination of cells using Leishman staining.
5. WBC Cells count using Hemocytometer
6. Yeast cell count using Hemocytometer
7. Preparation of temporary mount of onion peel, to observe and study epidermal cells.
8. To perform and identify Mitosis stages by root squash method of *Allium cepa*
9. Animal Cell viability assay using trypan blue
10. Examination of cells under dark field and phase contrast field of microscope.
11. Temporary mount stained preparation and study of striated muscles fiber in cockroach.
12. Examine of biomolecules (Proteins, carbohydrates, lipids) in hand free sections of *Plectranthus amboinicus (*Mexican mint- Karpuravalli) succulent stem.

Unit-2: Demonstration Experiments:

1. Demonstration of using microtome and examination of Hematoxylin and eosin staining.
2. Demonstration of mitochondria isolation by differential centrifugation and its confirmation by methylene blue method.
3. Demonstration of difference between normal skin epithelial cell and a cancerous skin epithelial cell by using photomicrograph.

Unit-3: Spotters:

1. Cell organelles structures (Plant Cell wall, Vacuoles, Cell membrane, Mitochondria, Nucleus, Golgi complex, Chromatin reticulum, Chromosomes)
2. Skin epithelial cells
3. Plant parenchymatous cells
4. Human Nerve cells

5. Human Muscles (striated and non-striated cells)
6. Human Blood smear (demonstration of blood cells)
7. Animal Cell line: Vero
8. Polytene chromosome
9. Mitosis stages: Prophase, Metaphase, Anaphase and telophase
10. Nuclear stain
11. Histochemical stain
12. Cytoplasmic stain
13. Formalin
14. Hemocytometer
15. Onion peel
16. Skin Normal epithelial cell vs Skin epithelial Cancer cell
17. Robert Hooke
18. Theodore Schwann
19. Geoffery M.Cooper
20. Yoshinori Ohsumi

Course Outcome:

- To analysis the types of cells in our body.
- To demonstrate the chromosomes and their arrangement.
- To identify the cell division processes and subcellular organelle separation.

ALLIED I: CHEMISTRY

Subject	L (hrs.)	T (hrs.)	L+T (hrs.)	TC	P (hrs.)	PC
Chemistry	1	4	5	4	3	1

Course Objectives:

- To understand the basics of atomic arrangement, theories involved in the sub atomic particle.
- To understand the chemical bonding
- To understand the importance of functional

Unit I: Fundamental concepts in organic chemistry **(15 hrs.)**

Concept of hybridization: Orbital overlap hybridization and geometry of CH_4, C_2H_4, C_2H_2 and C_6H_6; Polar effects: Inductive, Mesomeric, Hyperconjugation, Steric effect; Intermediate and Types of organic reactions: Nucleophile, Electrophile, Free radicals- Substitution and Elimination (S_N1, S_N2, E_1, E_2)

Unit II: Co-ordination chemistry and water technology **(15 hrs.)**

Co-ordination chemistry: Definition of terms – IUPAC nomenclature – Werner's theory. Chelation – EDTA, its importance and biological applications; Water technology: Hardness of water, determination of hardness of water using EDTA method, zeolite method.

Unit III: Basics of physical chemistry **(15 hrs.)**

Photochemistry: Grothus-Drapper's law and Stark-Einstein's law of photochemical equivalence. Quantum yield, Phosphorescence, fluorescence, chemiluminescence, photosensitization and photosynthesis; Kinetics: Order and Molecularity - First order, second order, zero order and pseudo unimolecular reactions (no derivation); Catalysis: Homogenous and heterogeneous.

Unit IV: Electrochemistry **(15 hrs.)**

Galvanic cell- Standard hydrogen electrode- Calomel electrode- standard electrode potentials- electrochemical series. Strong and weak electrolytes – ionic product of water – pH, pKa, pKb. Conductometric titrations- pH determination by colorimetric method – buffer solutions and its biological applications. Corrosion and its prevention.

Unit V: Special topics **(15 hrs.)**

Basic principles of stereochemistry: Chirality- Elements of symmetry (simple approach). Enantiomers, diastereomers and racemic mixture (definition with one example). Resolution (biochemical method). Configuration- R / S (amino acids, tartaric acid, lactic acid), E / Z (Maleic and fumaric acid, butene). Conformation – Conformers of n-butane and cyclohexane; Essentials of trace metals in biological systems- Na, Cu, K, Zn, Mg and Fe; Surfactants- Ionic, Non-ionic and its application. Surface tension, viscosity and their determination (one method).

Reference:

1. V. Veeraiyan, Text book of Ancillary Chemistry; Highmount publishing house, Chennai, first edition, 2009.
2. S. Vaithyanathan, Text book of Ancillary Chemistry; Priya publications, Karur, 2006.
3. ArunBahl, B. S. Bahl. Advanced organic chemistry; S. Chand and Company, New Delhi, twenty third edition, 2012.
4. P.L. Soni, H. M. Chawla, Text Book of Organic chemistry; S. Chand & Company, New Delhi, twenty ninth edition, 2007.
5. P. L. Soni, Mohan Katyal, Text book of Inorganic chemistry; S. Chand & Company, New Delhi, twentieth edition, 2007.
6. B. R. Puri, L. R. Sharma, M. S. Pathania, Text book Physical chemistry; Vishal Publishing Co., New Delhi, forty fourth edition, 2010.

Useful URL:

https://www.youtube.com/watch?v=9QZj-F-5PV4

https://www.youtube.com/watch?v=XG5HvU47Ky4

https://www.youtube.com/watch?v=DC4J0t1z3e8

https://www.youtube.com/watch?v=Sa0WfA9UGG0

Course Outcome:

- To demonstrate the basics of chemical reaction
- To match chemical reaction with factor influencing them.
- To demonstrate the importance of functional groups.
- To predict the chemical configuration and its importance.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR THEORY PAPERS

Question Allotment	**Maximum :100 Marks** **Passing Minimum :40 Marks** **Duration : Three Hours**

QUESTION PAPER PATTERN:

Section	Numbers	Question Component	Marks	Total
Section A	**Question 1–12**	**Definition** Answer **ANY 10** out of **12** questions	3	**30**
Section B	**Question 13–19**	**Short Answer** Answer **ANY 5** out of **7** questions	6	**30**
Section C	**Question 20–25**	**Detailed Answer** Answer **ANY 4** out of **6** questions	10	**40**
TOTAL MARKS				**100**

DISTRIBUTION OF QUESTIONS:

Sections	Units	No. of Questions
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	2
	Unit – 4	3
	Unit – 5	3
Section B	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	2
	Unit – 5	2
Section C	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit – 5	2

ALLIED PRACTICAL-I: PRACTICAL- CHEMISTRY AND BIOINSTRUMENTATION

ALLIED PRACTICAL-I: CHEMISTRY

Course Objectives:

- To learn about the estimation of inorganic and organic compounds.
- To learn to identify the organic functional groups

Unit-1: (A) VOLUMETRIC ANALYSIS

- Estimation of Sodium hydroxide using standard Sodium Carbonate.
- Estimation of Hydrochloric acid using standard Oxalic acid.
- Estimation of Ferrous sulphate using standard Mohr's salt
- Estimation oxalic acid using standard Ferrous Sulphate.

Unit-2: (B) ORGANIC ANALYSIS

(1) Detection of Elements (N, S, Halogens)

(2) To distinguish between aliphatic and aromatic Saturated and unsaturated compounds. Functional group tests for phenol, acids (mono, di) aromatic primary amine, amide & aldehyde. Systematic analysis of organic compounds containing one functional group and characterization by confirmatory test.(Phenol, cinnamic acid, benzoic acid, phthalic acid, benzamide, urea, benzaldehyde & aniline).

Unit-3: Demonstration Experiment:

- Estimation of hardness of water using EDTA (Demo)

Course Outcome:

- To apply normality, molarity, molality, equivalent weight and their calculations.
- To identify and demonstrate the importance of functional groups.

NON-MAJOR ELECTIVE (NME-I): HUMAN PHYSIOLOGY

Subject	L (hrs)	T (hrs)	L+T (hrs)	P	PC
Human Physiology	1	1	2	0	2

Learning Objectives:

- To understand the types of organ system in human body
- To understand the basics of human physiology

Unit-I: Skeletal and muscular system **(6 hrs.)**

Skeletal system: Bones and properties, Types of skeletal system: Hydrostatic skeletal system, exoskeleton and endoskeleton system; Muscles- Smooth and striated muscles, Neuro- Muscular junction and muscular contraction and relaxation.

Unit-II: Nervous system **(6 hrs.)**

Nervous system- Nerve cells, glial cells, aster cells, Different types of nerves, functions of nervous system, Brain: parts, functions, Spinal cord and its functions.

Unit-III: Circulatory System **(6 hrs.)**

Circulatory system- Blood composition and lymph composition, Functional anatomy of the heart, Conducting system of the heart, Capillary circulation (Blood and lymph), Arterial and venous system.

Unit-IV: Digestive and Excretory system **(6hrs.)**

Gastro intestinal system- General structure of alimentary canal, Gastric secretion, pancreatic secretion, mechanism of digestion, gastrointestinal hormones. Renal physiology- Structure of kidney, structure of Nephrons, Glomerular filtrate, Reabsorption, Secretion-mechanism of secretion, Concentrating and diluting mechanism of urine.

Unit-V: Respiratory and Endocrine system **(6hrs.)**

Respiratory system-Mechanism of breathing, Ventilation, Regulation of respiration, Transport of gases, Hypoxia, Artificial ventilation, Non respiratory functions of the lungs. **Endocrinology**-Endocrine glands and their hormonal secretions, their functions.

Reference Books:

- G. K. Pal, 'Text Book of Medical Physiology', Second Edition, 2014.
- T. S. Ranganathan,Text Book of Human Anatomy , S.Chand&Co. Ltd.,5th,1996
- Arthur.C.Guyton, John E Hall, 'Textbook of Medical Physiology', W.B. Saunders Company, Twelfth edition, 2006
- Kim E. Barrett, Susan M. Barman, Scott Boitano, Ganong's Review of Medical Physiology', 24th Edition, 1 May 2012.
- Sylvia Mader (Author), Michael Windelspecht, Human Biology by, McGraw Hill publications, 14th Ed., 2015.
- K. Sembulingam, Essentials of Medical Physiology, 6th Edition

Useful URL:

https://www.youtube.com/watch?v=vii3YLGouv0

https://www.youtube.com/watch?v=Evsqy0a_Lrk&t=246s

https://www.youtube.com/watch?v=Evsqy0a_Lrk

https://www.youtube.com/watch?v=WPjqgaMmOTE

https://youtu.be/URrXh0LJ6JE

https://youtu.be/PLFq-1h4870

https://youtu.be/hn6YDo39tx4

Course Outcome:

- ❖ To explain physiological processes of all body systems in detail and on an appropriate level (knowledge, comprehension, application and analysis).
- ❖ To explain the role of body systems and mechanisms in maintaining homeostasis.
- ❖ To explain how the activities of organs are integrated for maximum efficiency.
- ❖ To demonstrating higher level critical thinking skills, solving problems, and following directions.
- ❖ To directing their own learning activities to meet course objectives.

SEMESTER-II

CORE III: BIOCHEMISTRY

Subject	L(hrs)	T (hrs)	L+T (hrs)	TC	P(hrs)	PC
Biochemistry	1	4	5	4	3	2

Learning Objective:

- To understand metabolic cycles
- To understand the properties and mechanism of enzymes
- To understand the role of hormones and vitamins in metabolism

Unit- I: Biomolecules and Carbohydrates **(15 hrs.)**

Characters of Early earth's atmosphere and lithosphere; Theories related to the formation of Biomolecules on Erath: Urey-Miller experiment; Titan's atmosphere as a case study; Overview of Classification of biomolecules. Carbohydrates (Structures and biological importance of animal & plant polymers- Cellulose, Starch, Lignin, Pectin, Cyanophycin). Glycolysis (aerobic and anaerobic), TCA cycle, oxidative phosphorylation, EM pathway, HMP shunt, Cori cycle.

Unit- II: Amino acid and Proteins **(15 hrs.)**

Classification, properties and Biological significance of (i.) Amino acid; (ii.) Proteins; Amino acid synthesis pathway and Urea Cycle. Introduction to Biochemistry of Enzymes: Nomenclature, Classification and Properties.

Unit- III: Fatty acid and Nucleotides **(15 hrs.)**

Classification, properties and Biological significance (i.) triglycerols, Lipids, Cholesterol, Sterols, essential fatty acids (Omega-3 fatty acid and Docosahexenoic acid [DHA]), eicosanoids, membrane lipids (phospholipids and sphingolipids) and their fluidity, and polyhydroxyalkanoates (PHA). ; Fatty acid synthesis (saturated and unsaturated) and degradation (β, ω oxidation). Types and Structures of Nucleotides.

Unit- IV: Vitamins & Hormones **(15 hrs.)**

Classification and their importance: Vitamins; Roles of vitamins as cofactors in metabolic reaction and their related diseases- (a.) Thiamine (Vitamin B_1) in Glucose metabolism, (b.)Riboflavin (Vitamin B_2) importance in metabolic reactions; Classification of hormones, Metabolic orders: Diabetics, Obesity, thyroid; Fatty Acid Oxidation disorders, Glycogen Storage diseases, Night blindness.

Unit- V: Porphyrin and Pigments (15 hrs.)

Classification and applications: (i.) Porphyrin compounds: of Hemoglobin, chlorophyll, Vitamin B12; (ii.)Alkaloids; (iii.)Pigments: Carotenes, Xanthophylls- Astaxanthin, flavonoids (Anthocyanidins, flavan-3-ols and poly phenols), Betalains (Betacyanins) and animal pigments (Melanin, Luciferin, hemocyanin, myoglobin) and iridescences mechanism; Biopotenial properties of Microbial Pigments: Pycocyanin: *Pseudomonas aeruginosa*.

Reference Books:

- Albert Lehninger, David Nelson, Michael Cox, Principles of Biochemistry; W.H.Freeman, 2000.
- Donald Voet, Judith G.Voet, Charlotte W.Pratt, Fundamentals of Biochemistry: Life at the molecular level, Wiley, 5th Ed., 2016.
- J.L.Jain, Sunjay Jain, Nitin Jain, Fundamentals of Biochemistry, S.Chand Publishers, 7th Ed., 2006.
- Satyanaryana.U, Essentials of Biochemsitry, New India Book Agency, 2nd, 2008.
- T.Devasena, Biomolecules, MJP Publishers, Ist Ed., 2010.
- Donald Voet, Judith G.Voet, Biochemistry, Vol. 1: Biomolecules, Mechanisms of Enzyme Action, and Metabolism, Wiley Publishers, Ist Ed., 2003.
- Biomolecules Chemistry of Living System by V.K. Ahluwalia, Manakin Press, 2015.

Useful URL:

https://www.youtube.com/watch?v=8qij1m7XUhk

https://www.youtube.com/watch?v=rdF3mnyS1p0

https://www.youtube.com/watch?v=FmafhSMv0e0

https://www.youtube.com/watch?v=wQ1QGZ6gJ8w

https://www.youtube.com/watch?v=KwNe9x0eChs

Course Outcomes:

- To match metabolism reactions with their energetics.
- To demonstrate the role of biomolecules in our health maintenance.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR THEORY PAPERS

Question Allotment	**Maximum :100 Marks** **Passing Minimum :40 Marks** **Duration : Three Hours**

QUESTION PAPER PATTERN:

Section	Numbers	Question Component	Marks	Total
Section A	**Question 1–12**	**Definition** Answer **ANY 10** out of **12** questions	3	**30**
Section B	**Question 13–19**	**Short Answer** Answer **ANY 5** out of **7** questions	6	**30**
Section C	**Question 20–25**	**Detailed Answer** Answer **ANY 4** out of **6** questions	10	**40**
TOTAL MARKS				**100**

DISTRIBUTION OF QUESTIONS:

Sections	Units	No. of Questions
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	2
	Unit – 4	3
	Unit – 5	3
Section B	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	2
	Unit – 5	2
Section C	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit – 5	2

CORE II - PRACTICAL - I: CELL BIOLOGY and BIOCHEMISTRY

BIOCHEMSITRY

CORE II - PRACTICAL – I: BIOCHEMISTRY

Course Objectives:

- To learn about the types and estimation of biomolecules.
- To learn about the various separation, elution techniques to identify the biomolecules.

Unit-1: Experiments:

1. Estimation of protein by Lowry method
2. Estimation of Carbohydrate by Orthotolidine and Glucose oxidase method
3. Estimation of DNA by Diphenyl amine method.
4. Estimation of RNA by Orcinol method.
5. Estimation of Cholesterol by Zak's method.
6. Preparation of starch from potato
7. Preparation of albumin from eggs
8. Qualitative Analysis:
   (a) Analysis of sugars a) Monosaccharides - Glucose, Fructose, Galactose, b) Disaccharides - Sucrose, Maltose and Lactose. c) Polysaccharides - Starch.
   (b) Analysis of amino acids a) Tyrosine b) Tryptophan c) Cysteine d) Arginine
9. Detection of Phytochemicals in Tulasi leaf extract
   (a) Preparation of Tulasi leaf extract using solvents like methanol, Hot water and cold water and detection of phytochemicals.
   (b) Confirmation of Alkaloids by Mayer's test, Wanger's test, Hagger's test, Dragendroff test
   (c) Confirmation of phenolic compounds and tannins by ferric chloride test
10. Antioxidative test of plant extract by using DPPH method
11. TLC separation of plant pigments

Unit-2: Demonstration:

1. Demonstration of density gradient centrifugation by separating of Blood cell by using sucrose density.
2. Demonstration of phase separation of organic and aqueous phase in plant pigment separation and silica gel column chromatography.
3. TLC separation of Carbohydrates (glucose and fructose) and amino acid (Glycine and proline).

4. Demonstration of the usage of semi auto-analyser for blood, serum and urine biochemical parameters.

Unit-3: Spotters:

1. Osazone crystals of glucose, fructose, lactose, maltose, galactose
2. Albumin
3. Glucose
4. Starch
5. Silica Gel for TLC
6. Structure of starch
7. Silica gel for Column chromatography
8. TEMED
9. Diphenyl amine reagent
10. Methanol as solvent
11. PBS buffer
12. Vitamin C
13. Liver cirrhosis
14. Night blindness
15. Oliver H. Lowry
16. Ulrich Laemmli
17. Peggy Annette Whitson
18. pH meter
19. Spectroscopy
20. Colorimetry

Reference Books:

- David Plummer, An introduction to practical Biochemistry, Tata McGraw-Hill Education, 1998
- Sowbhagya Lakshmi and Divya ShanthiD'Sa, An easy guide for practical Biochemistry by,Jaypee Brothers Medical Publishers (P) Ltd., 2010.
- T.Devasena, Techniques in Biochemistry, Ahuja Publishing House, 2010.
- G. Devala Rao, A manual of practical biochemistry, *Birla* Publications (Regd) Pvt Ltd., 2015.

Course Outcomes:

- To apply the concepts of biomolecules estimation.
- To demonstrate biomolecules separation.

Allied Practical -I CHEMISTRY AND BIOINSTRUMENTATION

Allied Practical -I BIOINSTRUMENTATION

Course Objectives:

- To operate the basic laboratory instruments and record the results for further interpretations.
- To separate mixtures, analyze the samples qualitatively and relate their properties
- To learn about the working principles and handling of laboratory instruments.

Unit-1: Experiments:

1. Separation of blood cells based on sucrose density gradient centrifugation
2. Extraction of plant compounds by using Soxhlet Apparatus
3. Separation of Plant leaf components by Thin Layer Chromatography
4. Separation of Plant pigments by column chromatography
5. Estimation of proteins from food sample (egg) by UV- Spectrophotometer
6. Visualization of various DNA fragments by using Agarose Gel Electrophoresis (nicked, linear, super coiled and circular single strand DNA, degraded DNA bands).

Unit-2: Demonstration Experiments:

1. Examination of pond water sample by Phase Contrast Microscope.
2. Demonstration of salivary amylase activity using pH meter.

Unit-3: Spotters:

1. Water bath
2. Homogenizer
3. Electronic Weighing Balance
4. Orbital Shaker
5. Micropipette
6. UV-Trans illuminator
7. Biosafety Cabinet
8. Vortex Mixture
9. Soxhlet apparatus
10. Silica gel

Course Outcome:

- To become proficient in instrumentation handling.
- To isolate bioactive compounds from various plants extract.
- To carry out small research projects on their own.
- To perform different Biotechniques as standard operating procedure.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR THEORY PAPERS

Question Allotment	**Maximum :100 Marks** **Passing Minimum :40 Marks** **Duration : Three Hours**

QUESTION PAPER PATTERN:

Section	Numbers	Question Component	Marks	Total
Section A	**Question 1–12**	**Definition** Answer **ANY 10** out of **12** questions	3	**30**
Section B	**Question 13–19**	**Short Answer** Answer **ANY 5** out of **7** questions	6	**30**
Section C	**Question 20–25**	**Detailed Answer** Answer **ANY 4** out of **6** questions	10	**40**
TOTAL MARKS				**100**

DISTRIBUTION OF QUESTIONS:

Sections	Units	No. of Questions
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	2
	Unit – 4	3
	Unit – 5	3
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	Unit – 2	1
	Unit – 3	1
	Unit – 4	2
	Unit – 5	2
Section C	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit – 5	2

ALLIED II: BIOTECHNIQUES AND BIOINSTRUMENTATION

Subject	L(hrs)	T (hrs)	L+T(hrs)	TC	P
Biotechniques and Bioinstrumentation	2	3	5	4	3

Course Objectives:

- To understand the good and suitable practical knowledge of Biotechnology lab.
- To understand the usage of instruments in analyses, purification of biomolecules, cells and tissues.
- To understand the collection, interpretation of data in a mathematical and computer aid method.

Unit – 1: Microscopy **(15 hrs.)**

Microscopes – Micrographs – Microscope lenses and types - Simple microscopes – Compound microscopes – Principles of microscopy: Magnification and resolution power – Basic operation procedures of a Bright field microscope – Types of microscopes - Dark field microscopes - Phase contrast microscopes – Fluorescent microscopes – Electron microscope (SEM & TEM) – Applications of microscopes and cell architecture studies.

Unit – II: Centrifugation **(15 hrs.)**

Forces involved in centrifugation: Gravitational force, centrifugal force and centripetal force. Principles of sedimentation – Stroke's law - Factors influencing centrifugation – Rotors used in centrifuges -Types of centrifuges – Preparative centrifugation – Analytical centrifugation – Applications of centrifugation in separation of cells and molecules.

Unit – III: Chromatography **(15 hrs.)**

Stationary phase – Mobile phase – Types of separation mixtures – Distribution coefficient – Principle and Applications of different types of chromatography: Paper chromatography – Thin layer chromatography – Capillary action - Rf Value - Column chromatography – Size exclusion chromatography - Ion exchange chromatography – Affinity chromatography – High pressure liquid chromatography – Gas liquid chromatography.

Unit – IV: Colorimetry and Spectroscopy **(15 hrs.)**

Colorimeter: Principles, types and application. Spectroscopy: Basics of classification of the types – Principles, instrumentation and applications of UV-Visible spectroscopy – Principle

and uses of Fluorescence spectroscopy – Differences between spectroscopy and spectrometry - Applications of Atomic absorption spectroscopy & Gas Chromatography - Mass Spectrometry.

Unit – V: Electrophysiology **(15 hrs.)**

Basics of electrophysiology - Voltage clamp technique: Principle and applications. Patch clamp technique: General Principles – Types: Cell attached recording, whole cell recording, Inside out recording, outside out recording. Applications of patch clamp technique in various fields.

Reference Books:

- Keith Wilson, John Walker (2010) Principles and Techniques of Biochemistry and Molecular Biology (7th Ed) Cambridge University Press
- David Sheehan (2009), Physical Biochemistry: Principles and Applications (2nd Ed), Wiley- Blackwell
- David M. Freifelder (1982) Physical Biochemistry: Applications to Biochemistry and Molecular Biology, W.H.Freeman
- Rodney F. Boyer (2012), Biochemistry Laboratory: Modern Theory and techniques, (2nd Ed), Prentice Hall
- Kaloch Rajan (2011), Analytical techniques in Biochemistry and Molecular Biology, Springer.

Useful URL:

https://www.youtube.com/watch?v=VpiqscrcbME

https://www.youtube.com/watch?v=U5N2uxHNzxg

https://www.youtube.com/watch?v=Dq5JgsxJpTY

https://www.youtube.com/watch?v=W0oacysFTko

https://www.youtube.com/watch?v=1uPyq63aRvg

https://www.youtube.com/watch?v=SsIYDEma_cU

https://www.youtube.com/watch?v=2rYmUxqz3jo&list=PLFD540BF4995B4469

https://www.youtube.com/watch?v=x8one-B_Y1w

https://www.youtube.com/watch?v=sOb9b_AtwDg

Course Outcomes:

- To set-up or design the Biotechnology start-up lab.
- To apply the basic calculation involved in instrumentation.
- To demonstrate the bio-preparative and analytical techniques.

***Industrial Visit to sophisticated instrumentation facility**

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR THEORY PAPERS

Question Allotment	**Maximum :100 Marks** **Passing Minimum :40 Marks** **Duration : Three Hours**

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TOTAL MARKS				**100**

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	Unit – 3	2
	Unit – 4	3
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	Unit – 2	1
	Unit – 3	1
	Unit – 4	2
	Unit – 5	2
Section C	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit – 5	2

NME-II: BEHAVIORAL STUDIES OF FLORA AND FAUNA

Subject	L (hrs)	T (hrs)	L+T (hrs)	TC
Behavioral studies of Flora and Fauna	1	1	2	2

Course Objective:

- To understand the importance of Behavioral adaptations among plants and animals
- To understand the role of genetic adaptations mechanism.
- To understand the survival of species.

Unit- I: Behavioral study **(6 hrs.)**

Scope and importance; Behavioral phenotypic plasticity: Case study for microbes (*Dienococcus* spp.), Animals- (Evolution of Elephants from Mammoth and *Pristimantis mutabilis*, Crabs- immune responses in *Scylla serrata*), Plants- (Origin of cactus in desserts and in Dandelions); Types of plasticity with definition and examples: Assimilated Gene Expression Plasticity, Accommodated Gene Expression Plasticity, Novel Constitutive Gene Expression, Conserved Gene Expression Plasticity, Evolved Gene Expression Plasticity, Reversed Gene Expression Plasticity.

Unit- II: Adaptations **(6 hrs.)**

Types: (i.)Structural adaptation: Bill of a bird, tooth of beavers, Plants: Small leaves in desert plants; (ii.)Behavioral adaptation: Hunting patterns among predatory animals, Plants: Survival of weak stemmed plants (Creepers, climbers, vines, twiners); (iii.)Physiological adaptations: Examples- body temperature maintenance among animals (Endothermic, poikilotherms and homothermic animals), Plants: aquatic plants; Effects arising from changes according to the availability of food among animals and changes according to their habitat among animals and plants; Behavioral responses and the evolutionary process.

Unit- III: Ecological traps **(6 hrs.)**

Definition, ecological significance; Adaptive versus maladaptive plasticity: *Cardinalis cardinalis* attraction towards carotenoid rich berries, Insect attraction towards shiny surfaces for laying eggs; Behavioral ecology based upon color vision among animals and Photosynthesis among plants (in evergreen forest and tropical contours).

Unit- IV: Interactions **(6hrs.)**

Parasitism and mutualism interaction (i.) plants only, (ii.) animals only (iii.) their inter relationship; Plants and animals behavioral effects of stability of population and ecosystem; Consequences for species interaction networks and communities.

Unit- V: Hybridization, Speciation and Development **(6 hrs.)**

Introduction and Speciation: Monkey to humans; Role and effect of environment on Genetic and cognitive development.

Reference Books:

- Michael D. Breed, Conceptual breakthroughs in Ethology and animal behavior, Academic press, 2017.
- Anthony Trewavas, Plant behavior and intelligence, Oxford University Press, 2014.

Useful URL:

http://www.reed.edu/biology/courses/BIO431S05_2015/student_selected_papers/topic2/renn_schumer_2013.pdf)

https://www.youtube.com/watch?v=SELV4pnyBAw

https://www.youtube.com/watch?v=zTWZxBJCDKs

https://www.youtube.com/watch?v=vnmPdHmRv9o

https://www.youtube.com/watch?v=S3X-NkvE49o

https://www.youtube.com/watch?v=9YGLYz0iCLw

https://www.youtube.com/watch?v=LoGnYmNp2Y0

https://www.youtube.com/watch?v=uO_mFuNpy8c

Course Outcomes:

- To provide the genetic evidences in evolution.
- To analyse and apply the concepts of behavioral adaptations
- To demonstrate the species adaptation and survival.

SEMESTER-III

CORE V: GENETICS

Subject	L(hrs)	T(hrs)	L+T(hrs)	TC	P(hrs)
Genetics	2	4	6	4	3

Course Objective:

- To relate genotypes with phenotypes and describe the inheritance pattern of Mendelian and non-mendelian genetic principles
- To categorize and discuss various types of genetic disorders and their clinical complications.

UNIT I: Classical Genetics & Mendelian inheritance (12 Hours)

Historical concepts of genetics – Gregor Mendel's experiments on pea plants (Monohybrid cross and dihybrid cross) – Mendelian laws of inheritance: Law of dominance, law of segregation and law of independent assortment – Back cross – Test cross – Rediscovery of Mendelian principles

Unit II: Classical genetics & Non-mendelian inheritance (12 Hours)

Principles of Multiple alleles – Co-dominance – Incomplete dominance – Epistasis – Polygenic inheritance – Genetic linkage – Morgan's experiments on drosophila – Crossing over and genetic recombination – Alfred Sturtevant's linkage mapping based on recombination Frequency

Unit III: Molecular Genetics (12 Hours)

Discovery of chromosomes - Chromosome theory of inheritance – Structural organization of chromosomes in prokaryotes and eukaryotes – Structure of chromosomes - Human karyotyping - Types of chromosomes (Autosomes and Sex chromosomes) – Classification of chromosomes based on centromere - Discovery of DNA as the genetic material: Griffith's Experiment, Avery's experiment and Hershey – Chase Experiment

Unit IV: Population Genetics (12 Hours)

Allelic polymorphism - Principles and importance of genetic variation and natural selection - Mutations (types and factors) - Genetic drift (Bottle neck effect and Founder's Principle) – Speciation - Hardy-Weinberg's law (Goon pool and gene frequency) – Pedigree analysis – Overview of Human Genome Project

Unit V: Genetic disorders **(12 Hours)**

Monogenic inheritance – Sex linked inheritance – X-linked dominant inheritance – X-linked recessive inheritance – Y-linked inheritance – Polygenic inheritance – Chromosomal abnormalities: Autosomal structural abnormalities & Numerical abnormalities – Sex chromosomal abnormalities (XO, XXX, XXY, XYY, XX Male & XY Female Syndromes) – Gender defects and gender defective phenotypes.

Reference Books:

- Dr. P.S.Verma and V.K.Agarwal, Genetics, S.Chand Publishers, 2010.
- Daniel L.Hartl, Bruce J.Cochrane, Genetics, Analysis of Genes and genomes, Jones and Bartlett Publishers, 6th Ed., 2005.
- Gardner, Simmons and Snutad Principles of Genetics, John Wiley & Sons Ltd., 8th Ed., 2005.
- R.S.Shukla, R.S.Shukla, Cytogenetics, Evolution, Biostatistics, Plant breeding, S.Chand, 5th Ed., 2016.
- Richard Dawkins, The Selfish Gene, Oxford University Press, 4th Ed., 2016.
- Jocelyn E. Krebs (Author), Elliott S. Goldstein (Author), Stephen T.Kilpatrick (Author) Lewin's Genes XII, Jones & Bartlett Learning; 12 Ed., 2017.
- Steve Olson, Mapping Human History: Genes, Race and our common origins, Mariner Books; First Ed, 2003.
- Sharma & Chakraborty, A Textbook of Developmental Genetics, Wisdom press. 2013.
- Narain & Naha, Handbook of Heredity & Genetics, Wisdom Press, 2012.

Useful URL:

https://www.youtube.com/watch?v=mBq1ULWJp_M

https://www.youtube.com/watch?v=0bfpOhbKEAk&t=8s

https://www.youtube.com/watch?v=NWqgZUnJdAY&start_radio=1&list=RDQMA-0RaR5RrOw

https://www.youtube.com/watch?v=1ZXkPk9Rr5M

https://www.youtube.com/watch?v=Dzt3XdSZ1eI

https://www.youtube.com/watch?v=RTo2lRgfluI

Course Outcome:

- ❖ To demonstrate the classical Mendelian experiments.
- ❖ To interpret the impact non-Mendelian concepts.
- ❖ To explain the principles of molecular basis of inheritance.
- ❖ To discuss the theories and mechanism of evolution on genetic basis.
- ❖ To discuss the effects of mutation in genetic disorders and gender defects.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR THEORY PAPERS

Question Allotment	**Maximum :100 Marks** **Passing Minimum :40 Marks** **Duration : Three Hours**

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	Unit – 5	2
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	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit – 5	2

CORE VI – PRACTICAL – III: GENETICS AND IMMUNOTECHNOLOGY

CORE VI – PRACTICAL – III: GENETICS

Course Objective:

- To culture the genetic model organisms on their own and witness the pattern of inheritance and phenotypic expression of genetic traits
- To observe, analyze the structure of chromosomes and karyotypes of chromosomal autosomes and sex chromosomal abnormalities in humans.

Unit-1: Experiments:

1. Observation of seven characteristics of Pea plant using photomicrographs
2. Identification of human blood groups and demonstration of multiple allelism and co-dominance
3. Preparations of culture medium of *Drosophila melanogaster* (Fruit fly)
4. Maintenance and culture of *Drosophila melanogaster* in lab
5. Preparation of Giant chromosomes from Chironomous larvae/Drosophila larvae salivary glands.
6. Identification of different types of Human chromosomes (Metacentric, submetacentric, Telocentric and acrocentric) by Photomicrographs.

Unit-2: Demonstration Experiments:

1. Drosophila: Life cycle, male, female, wild type and mutant type differentiation
2. Identification of chromosomal abnormalities using photomicrographs of karyotypes
3. Expression of recombination using *Portulaca grandiflora* (button rose plant).

Unit-3: Spotters:

1. Drosophila mutant type and wild type
2. Drosophila eye color (Red eyes & White eyes)
3. Dominant and recessive traits of maize
4. Down syndrome
5. Klinefelter syndrome
6. Polytene chromosome
7. Crossing over - Chiasma
8. Pedigree analysis
9. Punnett square
10. Bottle neck effect

Reference Books

- Dr. P.S.Verma and V.K.Agarwal, Genetics, S.Chand Publishers, 2010.
- Daniel L.Hartl, Bruce J.Cochrane, Genetics, Analysis of Genes and genomes, Jones and Bartlett Publishers, 6th Ed., 2005.
- Gardner, Simmons and Snutad Principles of Genetics, John Wiley & Sons Ltd., 8th Ed., 2005.
- R.S.Shukla, R.S.Shukla, Cytogenetics, Evolution, Biostatistics, Plant breeding, S.Chand, 5th Ed., 2016.
- Richard Dawkins, The Selfish Gene, Oxford University Press, 4th Ed., 2016.
- Jocelyn E. Krebs (Author), Elliott S. Goldstein (Author), Stephen T.Kilpatrick (Author) Lewin's Genes XII, Jones & Bartlett Learning; 12 Ed., 2017.
- Steve Olson, Mapping Human History: Genes, Race and our common origins, Mariner Books; First Ed, 2003.
- Sharma & Chakraborty, A Textbook of Developmental Genetics, Wisdom press. 2013.
- Narain & Naha, Handbook of Heredity & Genetics, Wisdom Press, 2012.

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https://www.youtube.com/watch?v=0bfpOhbKEAk&t=8s

https://www.youtube.com/watch?v=NWqgZUnJdAY&start_radio=1&list=RDQMA-0RaR5RrOw

https://www.youtube.com/watch?v=1ZXkPk9Rr5M

https://www.youtube.com/watch?v=Dzt3XdSZ1eI

https://www.youtube.com/watch?v=RTo2lRgfluI

Course Outcome:

- To analyze the karyotypes of human chromosome using photomicrograph
- To differentiate the male, female, wild and mutant types of drosophila
- To culture genetic model- drosophila and to observe stages of its life cycle
- To perform the blood grouping and discuss the mechanism of co-dominance

CORE VI – PRACTICAL – III: GENETICS AND IMMUNOTECHNOLOGY

CORE VI – PRACTICAL – III: IMMUNOTECHNOLOGY

Course Objectives:

- To identify the immune cells in vertebrate system
- To demonstrate the separation of serum and plasma.
- To discuss about the different types of serum proteins.
- To explain the principles of agglutination reactions and precipitation reactions.

Unit-1: Experiments:

1. Differential staining and identification of WBC.
2. Preparation of serum and plasma from whole blood
3. Serum protein separation by Agarose gel electrophoresis
4. Demonstration of Anti-inflammatory effects of turmeric by using RBC as model.
5. Agglutination reaction: Blood grouping
6. Identification of phagocytic cells

Unit-2: Demonstration experiments:

1. Agglutination reactions: WIDLA TEST, ASO, CRP test
2. Precipitation reactions: SRID, OD-Patterns, Counter immunoelectrophoresis, Immunoelectrophoresis.
3. ELISA- To detect Antigens
4. Western blotting

Unit-3: Spotters:

1. Granulocytes
2. Agranulocytes
3. ELISA test
4. Western blot
5. T.S of Spleen
6. T.S. of Lymph node
7. T.S. of Thymus
8. Elie Metchnikoff
9. Kohler and Milstein
10. Edward Jenner

Reference Books:

- Frank C. Hay, Olwyn Westwood, Practical Immunology (4th Ed.,), Blackwell Publications.
- Christine Dorresteyn Stevens, Clinical Immunology & Serology by A laboratory perspective, 3rd Ed., F. A. Davis.

Course Outcomes:

- To demonstrate the different types of human blood cells.
- To apply the immunoelectrophoresis in serum protein separation.
- To identify the phagocytic cells and describe the mechanism of microcidal property.
- To describe the principles of agglutination and precipitation in disease diagnosis.

ALLIED III: IMMUNOLOGY AND IMMUNOTECHNOLOGY

Subject	L (hrs)	T (hrs)	L+T (hrs)	TC	P(hrs)
Immunology and Immunotechnology	2	4	6	4	3

Course Objectives:

- To describe the evolution of immunology among various host cells.
- To explain immune responses in various host cells.
- To analyse the acquired responses
- To differentiate the various the processes involved in clearance of immuno-complex and hypersensitivity reactions.
- To select the various immnotechnologies in disease diagnosis.

Unit- I: History of Immunology (15 hrs)

Evolution of Immune system (from bacteria to human- overview); History of Immunology, Immune system: Lymphatic system (Primary and secondary lymphatic organs); Immune cells: Eosinophil, Basophil, Neutrophil, Monocytes, Macrophages, Lymphocytes (1. T cells & their types, 2. B-cells & their types and activated B-cells) and MHC molecules (types, structure and their significance).

Unit- II: Host Immune Responses and Antigens (15 hrs)

Types of Immune response: Innate Immune response- Physical, Chemical and biological immune response and Acquired Immune response- Introduction to Humoral immune response and Cell mediated immune responses, Types of antigens, haptens, properties of antigens, processing of antigens (Endocytic and Exocytic pathways).

Unit- III: Acquired immune responses (15 hrs)

Acquired Immune response - Humoral immune response mechanism - Antibody structure, types their biological applications and Cell mediate immune responses: Cytotoxic cell responses, Natural killer cells and Macrophage activation; Immune complex formation reaction- (i.) Agglutination: Direct agglutination, Indirect agglutination and Passive agglutination reactions and (ii.) Precipitation reaction: three types- Single diffusion in single dimensions, double diffusion in single dimension, double diffusion in double dimension.

Unit- IV: Immune complex and Hypersensitivity **(15 hrs)**

Immune complex formation and its removal from host body: Complement pathway (Classical, Alternative, Mannose binding -lectin pathways), opsonization, Phagocytosis; Hypersensitivity types and biological significance of: Type I, Type II, Type III, Type IV; Immunological tolerance

Unit: V- Immunotechnology **(15 hrs)**

Monoclonal antibodies production (Classical and modern methods) and their applications; Vaccines: Classical vaccination schedule and Recombinant vaccines: Epitope vaccines, synthetic peptide vaccines. Transplantation immunology: HLA Typing and MLR; Western Blotting, ELISA and FACS.

Reference Books:

- Sudha Gangal and Shubhangi Sontakke, Textbook of basic and clinical Immunology, 2013.
- B. Annadurai, A textbook of Immunology and Immunotechnology,2010.
- Abul. K. Abbas, Andrew Litchman and Shiv Pillai, Cellular and molecular immunology, Elsevier Saunders, 8th Ed., 2014.
- Kuby Immunology by Owen, Punt and Stranford, W.H.Freeman and Company, 7th Ed., 2009.
- A handbook practical and clinical immunology (Volume-1 & Volume-2) G.P Talwar and S.K.Gupta, CBs Publishers & Distributors, 2nd Ed., 2006.
- Janeway, Travers, Walport, Shlomchik, Garland, "Immunobiology" 6th Edition, 2007.

Useful URL:

https://www.youtube.com/watch?v=LB9FYAo7SJU

https://www.youtube.com/watch?v=G4jobV6-bFA

https://www.youtube.com/watch?v=_FLjj_Z7SKA

https://www.youtube.com/watch?v=Q3XpZjtciBQ

https://www.youtube.com/watch?v=iZYLeIJwe4w

https://www.youtube.com/watch?v=jrAw50B3jK0

https://www.youtube.com/watch?v=YO244P1e9QM

https://www.youtube.com/watch?v=lkoDv6qgRjE

https://www.youtube.com/watch?v=quv1oJlbsTc

https://www.youtube.com/watch?v=3g246c6Bv58

Course Outcomes:

- To discuss the immune responses in host cells.
- To recognize the innate and acquired immune responses.
- To explain the acquired the immune responses
- To discuss the clearance of immune responses and hypersensitivity responses.
- To critically identify immuno- techniques and its application in disease diagnosis.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR THEORY PAPERS

Question Allotment	**Maximum :100 Marks** **Passing Minimum :40 Marks** **Duration : Three Hours**

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TOTAL MARKS				**100**

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	Unit – 2	1
	Unit – 3	1
	Unit – 4	2
	Unit – 5	2
Section C	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit – 5	2

SEMESTER-IV

CORE VII: GENETIC ENGINEERING

Subject	L(hrs)	T (hrs)	L+T (hrs)	TC	P (hrs)
Genetic Engineering	1	4	5	4	3

Course Objective:

- To demonstrate the processes of r-DNA technology and discuss the technical aspects of every steps.
- To use the tools of genetic engineering in a determined way to reach out their specific study.

Unit I: Natural genetic recombination processes **(12 Hours)**

Genetic recombination in bacteria (transformation, transduction and conjugation). Transposable elements in plants. Horizontal (viral) and vertical (sexual reproduction) gene transfer in animals - Restriction modification system – Basics of r-DNA technology & molecular cloning.

Unit II: Molecular tools (Enzymes) **(12 Hours)**

Nucleases: Endo and Exonucleases - Restriction Enzymes (Type I, II, III, IV & V). RNases (Ribonuclease-H, Ribonuclease-A). Dam Methylase. Polymerases: DNA Pol I, Klenow Fragments, Taq Polymerases: Terminal Transferase, T4 Polynucleotide Kinase, Alkaline Phosphatases, Reverse Transcriptases, Topoisomerases. Proteases: Endo & exopeptidases. Ligases: T4 Ligases, E.coli DNA Ligase.

Unit III: Biology of Cloning vectors **(12Hours)**

Properties of vectors - Bacterial vectors: pBR322, pUC - BAC vectors - λ phage vector: Charon vector, Cosmid vectors, M13 vectors - Animal viral vectors: Retro viral and Vaccinia vector - Plant vectors: Ti plasmid vectors (Bipartite vectors), CaMV in combination with TMV vectors - Yeast Vectors: YAC vectors - Expression vectors: Three rules of construct, pBluescript-sk vectors (+/-), pGEM vector.

Unit IV: Gene expression systems **(12 Hours)**

Bacterial expression systems (*E. coli* and *Bacillus*) - Yeast expression systems (*Saccharomyces cerevisiae* and *Pichia pastoris*) - Mammalian expression systems (chinese hamster ovary

(CHO) cells and mouse myeloma cells). Methods of gene transfer in to expression system: Chemical, Physical & Viral mediated DNA transfer. Selection & Screening techniques: Lac Z gene & HGPRT selection.

Unit V: Core molecular techniques **(12 Hours)**

Polymerase Chain Reaction - Quantitative Real Time PCR - Gel Electrophoresis: AGE & PAGE - Blotting Techniques: Southern, Western & Northern Construction of Genomic & cDNA Libraries - DNA Sequencing methods - Protein Engineering: Site Directed Mutagenesis. Overview of applications of genetic engineering in medicine and research

Reference Books:

- Desmond S. T. Nicholl, "An Introduction to Genetic Engineering" 2008.
- Russ Hodge and Nadia Rosenthal, "Genetic Engineering: Manipulating the Mechanisms of Life" (Genetics & Evolution) 2009.
- Howe C. J., "Gene Cloning and Manipulation" 2007
- Principals of gene manipulation by R.W. Old and S.B. Primrose, Blackwell Scientific Publications, 1985.
- J. M. Walker and E.B. Gingold, Molecular Biology and Biotechnology, Panima Publishing Corporation; 3rd Ed., 2001.
- Subodh Saxena, Genetic Engineering, Black Prints India Inc., 2014.
- Tissue Culture & Non-gene Biotechnology by Harinder Chaddha, 2011.

Useful URL:

https://www.youtube.com/watch?v=3IsQ92KiBwM

https://www.youtube.com/watch?v=BK12dQq4sJw

https://www.youtube.com/watch?v=glt8iAqK8NQ

https://www.youtube.com/watch?v=JmveVAYKylk

Course Outcome:

- To explain the mechanism of enzymes involved in Recombinant technology
- To select appropriate types of vectors and expression systems for molecular cloning
- To screen and distinguish the Transformants and Non-Transformants
- To use the molecular techniques for analyzing the biomolecules
- To demonstrate series of steps involved in Recombinant technology
- To apply the principles of genetic engineering in the field of agriculture, medicine and research.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR THEORY PAPERS

Question Allotment	**Maximum :100 Marks** **Passing Minimum :40 Marks** **Duration : Three Hours**

QUESTION PAPER PATTERN:

Section	Numbers	Question Component	Marks	Total
Section A	**Question 1–12**	**Definition** Answer **ANY 10** out of **12** questions	3	**30**
Section B	**Question 13–19**	**Short Answer** Answer **ANY 5** out of **7** questions	6	**30**
Section C	**Question 20–25**	**Detailed Answer** Answer **ANY 4** out of **6** questions	10	**40**
TOTAL MARKS				**100**

DISTRIBUTION OF QUESTIONS:

Sections	Units	No. of Questions
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	2
	Unit – 4	3
	Unit – 5	3
Section B	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	2
	Unit – 5	2
Section C	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit – 5	2

CORE VIII – PRACTICAL – IV: GENETIC ENGINEERING AND MICROBIOLOGY

CORE VIII – PRACTICAL – IV: GENETIC ENGINEERING

Course Objective:

- To apply the principles of molecular techniques to examine biological samples
- To isolate, visualize and analyze the biomolecules and determine their properties.

Unit-1: Experiments:

1. Isolation of genomic DNA from *E.coli* cell culture and purity check by using UV- spectroscopic analysis.
2. Agarose gel electrophoresis of DNA sample and demonstration of different types of DNA bands.
3. Isolation of plasmid DNA from *E.coli* cell and demonstration by Agarose gel electrophoresis.
4. Extraction of DNA from animal tissues
5. Determination of molecular weight of the DNA sample by graphical method.
6. Preparation of protein from bacterial cell and demonstration of protein profiling by SDS-PAGE.
7. Restriction digestion experiments and demonstration of bands using agarose gel electrophoresis

Unit-2: Demonstration Experiments:

1. Blue white colony screening
2. Polymerase Chain Reaction

Unit-3: Spotters:

1. DNA patterns of linear DNA, circular DNA, Nicked DNA and Apoptotic DNA
2. ECORI enzyme action
3. pBR322 Vector
4. TAE buffer
5. DNA gel loading dye
6. Southern blotting and hydridisation
7. Submarine gel electrophoresis unit
8. Slab gel electrophoresis unit
9. Blue white screening
10. Kary Mullis

Reference books:

- T.Maniatis, E.F.Fritsch, J.Sambrook,Molecular cloning, a laboratory manual (Volume-1, volume-2 and volume-3), Cold Spring Harbour, 3rd, Ed., 2001.
- S. Janarthanan and S. Vincent, Practical Biotechnology: Methods and Protocols by Orient Black Swan and Universities Press, 2007.
- Stefan Surzycki, Basic techniques in molecular biology, Springer, 2000.
- Heather Miller, D.Scott Witherow, Molecular biology techniques: A classroom laboratory manual, Academic Press 3rd Ed., 2011.
- Basic Laboratory Calculation for Biotechnology by Seidman, Pearson, 2008.

Course Outcome:

- To extract the biomolecules: Protein, DNA and RNA by centrifugation methods
- To separate and observe the biomolecules by electrophoretic techniques
- To estimate the biomolecules using the UV-spectroscopy analyses
- To maintain the stock bacterial cell used in genetic engineering experiments
- To demonstrate the amplification of DNA by PCR

CORE VIII – PRACTICAL – IV: MICROBIOLOGY

Course Objectives:

- To explain the importance of the staining techniques for bacterial identification
- To identify the bacteria based upon the various biochemical properties.
- To isolate the bacteria from different types of samples such as air, water and soil.
- To isolate industrial important microbes.

Unit-1: Experiments:

1. Staining protocols
    - Simple staining
    - Differential staining (Gram's staining: Gram positive bacteria: Cocci in chains, cocci in clusters, Bacilli spp., Gram negative strain: *E.coli*)
    - Special staining (Spore, Capsular and Metachromatic staining)
2. Isolation and confirmation of *E.coli* from sewage water
3. Isolation of plant growth promoting bacteria from rhizosphere soil sample (confirm phosphatase, siderophore).
4. Isolation of probiotic bacteria (aerobic and anaerobic) from curd sample
5. Screening of enzyme producing bacteria: Starch hydrolysing bacteria
6. Isolation of bacteria from marine sample using Zobell medium.
7. To identify the various colony of bacteria isolated from soil sample.
8. Fungus identification by - Lactophenol cotton blue staining method.
9. Antibiotic sensitivity test: Disc diffusion method.

Unit-2: Demonstration Experiments:

1. Demonstration of Pigment producing and fluorescents bacteria
2. Demonstration of bacteriophage plaques
3. Water quality test-MPN test
4. Open plate technique.

Unit-3: Spotters:

1. *Staphylococcos aureus*
2. *Bacillus subtilis*
3. *E.coli*
4. *Lactobacillus* spp.
5. EMB agar

6. Mannitol salt agar
7. *Aspergillus niger*
8. *Penicillium chrysogenum*
9. Gram's Iodine
10. Lactophenol cotton stain
11. Colony counter
12. Autoclave and Hot air oven
13. Alexander Fleming

Reference Books:

- TSR manual
- Bergey's Manual of Systematic Bacteriology, David Hendricks Bergey, 9th Ed.,
- Practical Microbiology - A Laboratory Manual, Senthilkumar Balakrishnan, Zothansanga, Senbagam Duraisamy, Guruswami Gurusubramanian, Panima Publishing Corporation, New Delhi, India, 2013.
- General Microbiology Laboratory Manual, Biology 490, Sam R. Zwenger, Ph.D., 2nd Ed.

Course Outcomes:

- ❖ To discuss the methods involved in the microbial culture identification.
- ❖ To apply the microbes for agricultural benefits.
- ❖ To demonstrate the different culture methodologies involved.
- ❖ To discuss about the quality of water.
- ❖ To evaluate the total bacterial count in air.
- ❖ To evaluate the role of antibiotics anti-microbial agent.

ALLIED IV: MICROBIOLOGY

Subject	L (hrs)	T (hrs)	L+T (hrs)	TC	P (hrs)
Microbiology	1	4	5	4	3

Course Objectives:

- To identify the evolution of microbes and their classification.
- To evaluate the various sterilisation techniques.
- To classify the microbes and demonstrate the various biochemical test to identify the microbes.
- To identify and interpret the microbial interactions.
- To relate the importance of microbes in the field of agriculture and plant growth.
- To evaluate the role of microbes in environmental.

Unit I: Introduction to Microbes and its classification (18 hrs.)

History of Microbiology and importance of Microbiology; Branches of Microbiology. Whitakaer classification, Bacteria (Ultrastructure of bacteria – functions of subcellular organelles and Bacterial Genomic DNA & plasmids); Classification of Microbes (1.) Based upon their shape (2.) Cell wall (3.) nutritional classification of bacteria (4.) Optimum growth temperature (5.) Based upon its primitiveness (1.) Archaebacter and Eubacter; General properties of (i) Virus (iii.) fungi, (iii.) protozoa, (iv.) algae.

Unit II: Sterilization and culture techniques (15 hrs.)

(i.) Definition of sterilization, dry and moist heat, pasteurization, tyndalization; radiation, ultra-sonication, filtration. Physical and Chemical methods of sterilization; disinfection sanitization, antisepsis, sterilants and fumigation.

(ii.) Media: Properties and types; Bacterial culturing techniques; Bacterial growth, bacterial growth curve determination; calculation of generation time

Unit III: Bacterial identification and microbial interaction (20 hrs.)

Classification of staining techniques (Simple staining, Differential staining and Special staining); Biochemcial test for bacterial identification (principles of Catalase, Hydrolyase, IMViC, growth on differential medium: MacConkey, Blood agar, TSI, Nitrate reductase, citrate utilisation, OF-test, motility test, gelatin utilization, growth pattern on selective medium); Microbial interactions: Mutualism, Commensalism, symbiotic association, saphrophytic and parasitic: Kotch postulates to understand the host parasite interaction, Antibiotics: Classes (Cell wall & cell membrane degrading, Inhibition of protein synthesis, disammebly of ribosomal assembly and inhibition of DNA replication).

Unit IV: Role of microbes in agriculture **(10 hrs)**

Azolla, Azospirillum, Cyanobacteria as biofertilizer, Mycorrhizal fungi as biofertilizers – Importance of Ecto, Endormycorrhizae, Calcium and Phosphate solubilisation bacteria.

Unit V: Environmental applications of microbes **(13 hrs)**

Sewage and waste water treatment purification, Microbial ore leaching; Microbial bioremediation of pesticides and Xenobiotic compounds; Phytoremediation (Microscopic and macroscopic algae) - concepts and application. Microbes as Biosurfactants.

Reference Books:

- Pelezar, Chan, "General Microbiology"– Krieg Tata McGraw Hill Publications, 2007.
- Ananthanarayan and Paniker's Textbook of Microbiology, 10th Ed., Universities Press. 2017.
- Prescott, Harley and Klein, "Microbiology", McGraw Hill publications, Fifth edition, 2003.
- Jacquelyn G.Black, "Microbiology -Principles and Explorations" Wiley publications 2008.
- VarunShastri, Microbes by Isha Books, Ist Ed., 2006.
- Microbiology Laboratory by V.R. Ramamurthy, Black Prints India Inc., Ist Ed., 2013.
- Handbook of Food Technology by NIIR, National Institute of Science publication.
- Hans-Joachim Jördening, Josef Winter, "Environmental Biotechnology: Concepts and Applications", Wiley, 2006.
- Chandrawati Jee, Shagufta,"Environmental Biotechnology", APH Publishing, 2007.
- Bacterial Biotechnology by Bhattacharjee& Sridhar, Wisdom Press.
- Environmental Toxicology and Biotechnology by S. K. Dubey& S. Ghose, Dominant Publishers & Distributors (P) Ltd., 2009.
- Environmental Biotechnology by Scragg, Oxford.

Useful URL:

https://www.youtube.com/watch?v=iDVq2etiknU

https://www.youtube.com/watch?v=qZXOILsh9ro

https://www.youtube.com/watch?v=zDmP14twN8g&t=77s

https://www.youtube.com/watch?v=y_EhCERWzfs

https://www.youtube.com/watch?v=Et1v8EQP10U

Course Outcomes:

- To determine the evolution of microbes.
- To describe the sterilization techniques of microbes.
- To discuss the various biochemical test for the bacterial identifications.
- To identify the role of microbes in agriculture
- To interpret the applications of microbes in environment recalcitration.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR THEORY PAPERS

Question Allotment	**Maximum :100 Marks** **Passing Minimum :40 Marks** **Duration : Three Hours**

QUESTION PAPER PATTERN:

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Section B	**Question 13–19**	**Short Answer** Answer **ANY 5** out of **7** questions	6	**30**
Section C	**Question 20–25**	**Detailed Answer** Answer **ANY 4** out of **6** questions	10	**40**
TOTAL MARKS				**100**

DISTRIBUTION OF QUESTIONS:

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Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	2
	Unit – 4	3
	Unit – 5	3
Section B	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	2
	Unit – 5	2
Section C	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit – 5	2

SEMESTER-V

CORE IX: MOLECULAR DEVELOPMENTAL BIOLOGY

Subject	L	T	L+T	TC	P (hrs.)
Molecular Developmental Biology	1	3	4	4	3

Course objective:

- To recall the various fertilization.
- To demonstrate the various developmental processes
- To justify the specific signaling mechanism involved in embryonic developmental
- To demonstrate the genes involved in development of embryo
- To diagnose the medical disorders related to developmental biology.

Unit I: Introduction to Developmental Biology (12 hrs.)

Gametogenesis-process, Types of sperms and eggs (Frog, Chick and human); different types of Fertilization, Mechanism involved in fertilization in humans; Patterns of Cleavage, Blastulation & Gastrulation pertaining to frog, chick & humans.

Unit II: Molecular developmental processes (8 hrs.)

Growth, Differentiation (Stem cell to functional active cells), Development, re-differentiation, dedifferentiation, trans- differentiation, metamorphosis and morphogenesis.

Unit III: Signaling mechanism involved in development (15 hrs.)

Signal transduction that control the organogenesis in Drosophila (GPCR pathway: Wnt, hedgehog pathway and Notch Delta pathway; Tyrosine kinase pathway: MAP-kinase, JAK-STAT, Serine threonine pathway: TGF-β pathway); Neurulation in Drosophila.

Unit IV: Embryonic Development (15 hrs.)

Genes that control the embryonic development to fetus: maternal genes, zygotic genes and hometotic genes using Drosophila as study model animal; Pattern formation in Drosophila-axis specification, fate map; Comparative study of Regional specification among Drosophila and humans.

Unit- V: Medical implications of developmental biology (10 hrs.)

Congenital disorders- Neurological disorders (Anencephaly and cyclopia), thalassemia, Deformality disorders (improper digit separation in hand), Teratogenesis- microbial induced disorders- Rubella virus as example.

Reference Books:

- Scott F. Gilbert and Michael J.F.Barresi, Developmental Biology, Oxford University Press, 11th Ed., 2016.
- Lewis Wolpert, Cheryll Tickle, and Alfonso Martinez Arias, Principles of developmental biology, Oxford University Press,5th Ed., 2015.
- T.Subramoniam, Molecular Developmental biology, 2nd Ed., Alpha Science, 2011.
- Balinsky, An introduction to embryology, Cengage Learning India; 5 Ed., 2012.
- Ramdass, Animal biotechnology recent concepts and developent, MJP, 2008.

Useful URL:

https://www.jove.com/science-education/5328/an-introduction-to-molecular-developmental-biology.
https://www.youtube.com/watch?v=DsK9R-yfgF4
https://www.youtube.com/watch?v=YtvL-LQlPrU
https://www.youtube.com/watch?v=YtvL-LQlPrU
https://www.youtube.com/watch?v=YtvL-LQlPrU
https://www.youtube.com/watch?v=J2DlGtOA3sA
https://www.youtube.com/watch?v=J2DlGtOA3sA
https://www.youtube.com/watch?v=RDt5ev9Q0Uk

Course Outcomes:

- To recall and discuss the various fertilization, cleavage, blastula and gastrulation.
- To describe the molecular developmental processes.
- To classify and compile the signaling processes of embryonic development process.
- To interpret the embryonic development.
- To diagnoses the medical implication of embryonic development

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR THEORY PAPERS

Question Allotment	**Maximum :100 Marks** **Passing Minimum :40 Marks** **Duration : Three Hours**

QUESTION PAPER PATTERN:

Section	Numbers	Question Component	Marks	Total
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Section B	**Question 13–19**	**Short Answer** Answer **ANY 5** out of **7** questions	6	**30**
Section C	**Question 20–25**	**Detailed Answer** Answer **ANY 4** out of **6** questions	10	**40**
TOTAL MARKS				**100**

DISTRIBUTION OF QUESTIONS:

Sections	Units	No. of Questions
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	2
	Unit – 4	3
	Unit – 5	3
Section B	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	2
	Unit – 5	2
Section C	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit – 5	2

CORE X: BIOPROCESS TECHNOLOGY

Subject	L (hrs)	T (hrs)	L+T (hrs)	TC	P (hrs)
Bioprocess Technology	1	3	4	4	3

Course Objective:

- To discuss the traditional and modern fermentation techniques.
- To distinguish the parts of fermenters and the types of fermenters.
- To interpret the media formulation, bacterial growth and kinetics involved.
- To recognize the specific down-stream processes.
- To discuss the bio-products produced by bioprocess technologies.

Unit I: Introduction to Bioprocess and Fermentation (10 hrs.)

Scope of bioprocess technology; Difference between Fermentations and bioprocess processes; Industrial Microbes isolation; Strain improvisation, cell bank maintenance and preservation techniques; Types of fermentation process: Based upon gaseous requirements, mode of fermentation: Surface and submerged fermentation, Mechanism: Batch, fed and fed-batch fermentation.

Unit II: Fermenters and Up-stream process- media formulation (12 hrs.)

Definition of fermenter, Basic parts of fermenter, Types of fermenters: stirred tank fermenter, airlift fermenter, fluidised bed bioreactor, packed bed fermenter and Photo bioreactor; Control of a fermenter: Pressure controls, temperature, gas flow control; (i.) Media design and sterilization for fermentation processes: Medium requirements for fermentation processes and industrial fermentation.

Unit III: Up-stream processes - Bacterial cell inoculum and Kinetics (15 hrs.)

(i.) Kinetics of microbial growth (simple and unstructured kinetic models); Substrate utilisation kinetics; Mass transfer kinetics (Fick's law and its application, no derivations) and product formation: Metabolic stoichiometry and energetics: Stoichiometry of cell growth, substrate utilisation and product formation- Citric acid production as an example; Leudeking – Piret model.

Unit IV: Downstream process **(12 hrs.)**

Extra cellular products and intra cellular products; Stages of Downstream process: (1) Removal of solids: flotation, flocculation, precipitation, centrifugation; (ii.) Product isolation: Liquid-Liquid Separation, adsorption, ultra-filtration (iii.) Product purification: Chromatography, crystallisation, distillation, (iv.) Concentration: Evaporation, liquid-liquid separation, precipitation (V) Formulation: drying, freeze drying-lyophilisation, crystallisation.

Unit V: Bioprocess Products **(11 hrs.)**

Primary metabolites and secondary metabolites, Industrial important products: cellulase, amylase, lipase, protease- leather industry; Food products: Bread, Dairy product- Cheese, Beverages: Wine, SCP; Recalcitrant products: Biogas, Vermicompost; Antibiotics: Penicillin, recombinant product-Hormones-Insulin from *Saccharomyces cerevisiae* Microbial flavours: Diacetyl, Methyl ketones, Terpenes, Vanillin.

Reference Books:

- Rajiv Dutta, Fundamentals of Biochemical engineering, Springer (India), 2008.
- Michael L. Shuler and FikertKargi, Bioprocess Engineering Basic concepts, Pearson Education India; 2 Ed., 2015.
- James E.Bailey and David F. Ollis, Biochemical Engineering fundamentals, McGraw Hill Education; 2 Ed., 2017.
- Pauline M.Doran, Bioprocess Engineering principles, Elsevier, 2nd Ed., 2012.
- Wulf Crueger and Anneliese Crueger, "Biotechnology - A textbook of Industrial Microbiology", reprint 2005. Panima publishing corporation, New Delhi.
- A.H.Patel, (2000), "Industrial microbiology", Macmillan Publishers India.
- Peter F. Stanbury, Whitaker.A, Principles of Fermentation Technology, Elsevier, 2nd Ed., 1995.
- JayantoAchrekar, Fermentation Biotechnology, Dominant Publishers & Distributors (P) Ltd., 2006.
- Najafpour, Yesdee, Biochemical Engineering and Biotechnology, Elsevier Science, 1st Ed., 2006.

Useful URL:

https://www.youtube.com/watch?v=-Uua8sfoJ8

https://www.youtube.com/watch?v=5eKdZ0dVCCo

https://www.youtube.com/watch?v=VKpthcW1llU

https://www.youtube.com/watch?v=I0-w3om3rdU

https://www.youtube.com/watch?v=qbXtN-AiThQ

https://www.youtube.com/watch?v=N7vxq948l-U

https://www.youtube.com/watch?v=fQOzHC828aM

https://www.youtube.com/watch?v=Aw2yjoZ_RtY

https://www.youtube.com/watch?v=uN0NwdR_3sI

Course Outcomes:

- To practice the specific fermentation technologies.
- To differentiate the usage of the different types of fermenters.
- To formulate the media and microbial concentrations required for up-stream processes.
- To practice the down-stream processes
- To determine the bio-based products.

***Industrial visit to fermentation industries.**

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR THEORY PAPERS

Question Allotment	**Maximum :100 Marks** **Passing Minimum :40 Marks** **Duration : Three Hours**

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Section C	**Question 20–25**	**Detailed Answer** Answer **ANY 4** out of **6** questions	10	**40**
TOTAL MARKS				**100**

DISTRIBUTION OF QUESTIONS:

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Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	2
	Unit – 4	3
	Unit – 5	3
Section B	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	2
	Unit – 5	2
Section C	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit – 5	2

CORE XI: BIOINFORMATICS AND BIOSTATISTICS

Subject	L (hrs)	T (hrs)	L+T (hrs)	TC	P (hrs)
Bioinformatics and Biostatistics	1	5	6	3	3

Course Objectives:

- To understand the molecular biology in a genomic and proteomic knowledge.
- To study the gene expression systems through *in-silico* studies.
- To make the students to understand the mathematical importance in biological research.

UNIT I: Data Analysis **(16 hrs.)**

Importance and scope of Bioinformatics. Introduction to Human genome project. Biological databases – Data Bank (GenBank, PDB), Pairwise sequence alignment and multiple sequence alignment analysis of nucleic acid and protein sequence data using web-based tools.

UNIT II: Gene Prediction and Drug Discovery **(18 hrs.)**

Gene prediction approaches – prokaryotes and eukaryotes - Open Reading Frame (ORF) prediction – Hidden Markov Model – Discriminant analysis. *In-silico* Drug designing – characteristics of a drug compound – drug discovery pipeline- target identification, lead compound identification, serendipity, QSAR, ADME predictions.

UNIT III: Protein structures **(20 hrs.)**

Introduction to Isomer (Optical, geometric and stereo isomers); Protein structures - Definition and Types - Primary structure, Secondary structures (Ramachandran Plot), Tertiary structure (α-α: Collagen, β-α (Rosmann fold), β-β (Jelly roll -Beta barrels- transporter proteins) and quaternary structures: hemoglobin structure). Protein secondary structure prediction: First Generation – Chou-Fasman, Garnier- Osguthorpe- Robson (GOR) methods – Neural network concepts and Second Generation - Homology modeling (hom and hox box genes).

UNIT IV: Introduction to Biostatistics **(18 hrs.)**

Introduction, Scope and application of Biostatistics; Common terms (Data, Constant and variables: Dependent and independent data); Collection of biological data- sampling techniques, Processing of data, Presentation of data (Numerical presentation and Graphical representations (Line graph, Frequency polygon and curve, Histogram, Bar chart, Pie chart). Central tendency- Arithmetic mean, Mode and Median (problems).

Unit-V: Measures of dispersion and Probability **(18 hrs.)** Range, Variance, Standard Deviation (problems); Coefficient of Variance and Probability. Theoretical distributions - Binomial and Poisson distribution; Normal distribution: Skewness and kurtosis. Significance: Hypothesis testing, Student's t-test, Chi square test (no problems).

Reference Books:

- Arthur Lesk "Introduction to Genomics" 2nd edition. Oxford University Press 2007.
- Andreas D Baxevanis, B F Francis Oullette "Bioinformatics: A practical guide to the analysis of genes and proteins". 2nd edition. Wiley publishers, 2005.
- Jin Xiong "Essential Bioinformatics", 1st edition Cambridge University Press, 2006.
- David Mount "Bioinformatics: sequence and genome analysis" 3rd edition. Cold Spring Harbor Laboratory Press, 2004.
- Biotechnology & Bioinformatics by Ranganathan, Narain & Kuppuswamy, Wisdom Press, 2011.
- Basics of Bioinformatics, Springer-Verlag Berlin Heidelberg, 2013.
- Pevsner, Bioinformatics and Functional Genomics, John Wiley publishers, 3rd Ed., 2015.
- Higgs and Attwood, Bioinformatics and Molecular Evolution, Blackwell publishers, 2005.

Useful URL:

https://www.youtube.com/watch?v=w-uk-_TOgR0&list=PLb0WW0k29aHrF8aZzK17ORTesZsd-lING

https://www.youtube.com/watch?v=SAweFv8I8ow&list=PL1ay9ko4A8skYqjhrA4INDZ7IHtebS0l Y

https://www.youtube.com/watch?v=IQCbnRafCtM

https://www.youtube.com/watch?v=cd6O8FbrVjw

https://www.youtube.com/watch?v=ZNIQCrCIbL8

Course Outcomes:

- To explain about the importance of bioinformatics and its scopes
- To acquire idea about different types of biological databases and data retrieval
- To discuss different methods of sequence alignment and its computational tools.
- To discuss gene prediction methods in prokaryotes and eukaryotes

- To explain in detail about protein database, comparison of protein sequences, database searching and its structure prediction.
- To describe microarray technology for gene expression studies.
- To analyze genomic and proteomic information with respect to biological system.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR THEORY PAPERS

Question Allotment	**Maximum :100 Marks** **Passing Minimum :40 Marks** **Duration : Three Hours**

QUESTION PAPER PATTERN:

Section	Numbers	Question Component	Marks	Total
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Section C	**Question 20–25**	**Detailed Answer** Answer **ANY 4** out of **6** questions	10	**40**
TOTAL MARKS				**100**

DISTRIBUTION OF QUESTIONS:

Sections	Units	No. of Questions
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	2
	Unit – 4	3
	Unit – 5	3
Section B	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	2 (1 theory and 1 problem)
	Unit – 5	2 (1 theory and 1 problem)
Section C	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit – 5	2 (1 theory and 1 problem)

CORE XII: PHARMACEUTICAL BIOTECHNOLOGY

Subject	L (hrs)	T (hrs)	L+T (hrs)	TC
Pharmaceutical Biotechnology	1	3	4	4

Course Objectives:

- The aim of the course is to give strong foundation and advanced information on biopharmaceutical aspects in relation to drug development.
- The core responsibilities for the development and monitoring of the drug and the preparation of medicines according to the norms.
- Knowledge in physicochemical properties, pharmacology and the formulation of commonly used biopharmaceuticals.

UNIT I: Introduction to Pharmaceutical Biotechnology (10 hrs.)

Scope of Bio-pharmaceutical industries in India; Overview of Pharmaceutical products, Classification – Chemical and phytopharmaceuticals – Pharmacognosy.

UNIT II: Drug development process (14 hrs.)

Stages in the drug development process- Drug Discovery, Drug Designing, Pharmacokinetics – Metrics of Pharmacokinetics. Pharmacodynamics – Mechanisms of Drug action. Rate and Target site – specific delivery. Preclinical trials – Patenting and Drug Approval – Post Clinical trials.

UNIT III: Industrial consideration of drugs (12 hrs.)

Production methods, pharmaceutical consideration, drug formulations and quality analyses, Description and labeling of pharmaceutical products: recombinant protein; Biogeneric drugs development; Drug toxicity analysis, Management of side effects.

UNIT IV: Drug regulations (12 hrs.)

Economic and legal considerations in pharmaceutical Biotechnology. National (Indian Pharmacopoeia) and International Drug approval agencies and guidelines for conduct of clinical trials, licensing and drug marketing.

UNIT V: Recombinant products and their applications (12 hrs.)

Human Insulin (Humulin, actrapid), Growth hormones (Humatrope, Serostim), Steriod hormones, Blood coagulating factors, Hematopoietic growth factors, Vaccines (Hepatitis B (Recombivax), Cholera Vaccines, Edible Vaccine), Monoclonal antibody-Infliximab, Rituximab, Rhogam. DNA based vaccines – Overview and mechanism of Gene therapy – *Ex vivo* and *in vivo* gene therapy (ADA).

Reference books:

- Daniel Fieys (Ed.) 2005. Industrial proteomics: Applications for Biotechnology and Pharmaceuticals. Wiley and Sons, Incorporated.
- O. Kayser, R.H. Muller. 2004. Pharmaceutical Biotechnology – Drug Discovery and clinical applications. Wiley – VCH.
- Heonrich Klefenz. 2002. Industrial Pharmaceutical Biotechnology.
- Leon Shargel, Andrew B. C. Yu, Susanna Wu-Pong and Yu Andrew B.C.2004. Applied Biopharmaceutics and pharmacokinetics. McGraw- Hill Companies.
- Sefania Spada, Garywalsh. 2004. Directory of approved biopharmaceutical.
- Garywalsh. 2003. Biopharmaceutical, biochemistry and biotechnology.
- Thomas Lengauer (Ed) 2002. Bioinformatics – from Genomes to drugs. Vol.I and II. Wiley – VCH.
- John F. Corpenter (ed.) Mark C. Manning. 2002. Rational design of stable formulation theory and practice (Pharmaceutical Biotechnology). Plenum, US. I Edition.
- D.I.A. Crommelin et al, 2002. Pharmaceutical biology. Amazon prome publications.
- Werner kalow, UA Meyer and Rachel F Tyndale. 2001.

Course Outcome:

- To compare and screen the microbes of pharmaceutical values
- To explain the series of steps involved in drug development process
- To determine the fate of drug in human body
- To demonstrate the phase involved in pre-clinical and clinical trials
- To analyse the various drug formulation, drug administration and drug description methods
- To clarify the protocols in achieving drug approval and marketing
- To discuss about the demand of Health care products and diagnostics in local and global market
- To plan and prepare themselves to meet the demand of the Biopharmaceutical sectors

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR THEORY PAPERS

Question Allotment	**Maximum :100 Marks** **Passing Minimum :40 Marks** **Duration : Three Hours**

QUESTION PAPER PATTERN:

Section	Numbers	Question Component	Marks	Total
Section A	**Question 1–12**	**Definition** Answer **ANY 10** out of **12** questions	3	**30**
Section B	**Question 13–19**	**Short Answer** Answer **ANY 5** out of **7** questions	6	**30**
Section C	**Question 20–25**	**Detailed Answer** Answer **ANY 4** out of **6** questions	10	**40**
TOTAL MARKS				**100**

DISTRIBUTION OF QUESTIONS:

Sections	Units	No. of Questions
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	2
	Unit – 4	3
	Unit – 5	3
Section B	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	2
	Unit – 5	2
Section C	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit – 5	2

CORE XIII – PRACTICAL – V:
MOLECULAR DEVELOPMENTAL BIOLOGY, BIOPROCESS TECHNOLOGY AND BIOINFORMATICS

CORE XIII – PRACTICAL – V: MOLECULAR DEVELOPMENTAL BIOLOGY

Course Objective:

- To recall the molecular developmental process by using chick as model.
- To discuss the molecular developmental process by using plant seed as model

Unit-1: Experiments:

1. To observe and record the different stages of plant development using seeds (Fenugreek or Moong dhal) as study model.
2. Observe the fertilized egg (to detect Growth and position of chick embryo; Day1 to Day-7) by using "Egg Candler".
3. Using chick embryo as a model to study the following by the wet mount preparation and record the observation (Number of somites and to monitor the organs development at different time period):
    A. Identification and description of 24 hrs. chick embryo
    B. Identification and description of 48 hrs. chick embryo
    C. Identification and description of 72 hrs. chick embryo
    D. Identification and description of 96 hrs. chick embryo
4. Flybase tools- Importance to molecular developmental biology

Unit-2: Demonstration Experiments:

1. Record the life cycle of frog.
2. Observation of frog embryo (Blastula, Late gastrula stages)
3. To understand Wound healing mechanism using tadpole as specimen.
4. Hormonal induced developmental metamorphosis using tadpole as sample

Unit-3: Spotters:

1. Human ovum and sperm
2. Frog ovum and sperm
3. Blastophore in frog
4. Different developmental stages of Drosophila

5. Drosophila imaginal bud and Neural tube
6. Egg Candler
7. Safranin stain
8. Ringer solution
9. Edward B.Lewis
10. Scott Gilbert

Reference Books:

- Laura R.Keller, Experimental Developmental Biology-a laboratory manual, Academic Press, 1st Ed., 1999.
- James Sharpe and Rachel O.Wong, Imaging in developmental Biology: A laboratory manual, Cold Spring Harbor Laboratory Press, Ist Ed., 2011.
- P.S.Verma and V.K.Agarwal, Chordate Embryology, S.Chand, 2006.

Course Outcomes:

- Would gain knowledge about the embryonic development by using Drosophila and embryonated chick embryo.
- Would learn different types of early developmental stages.
- Would learn about the role of hormones in embryonic and wound healing mechanism.

CORE XIII – PRACTICAL – V: BIOPROCESS TECHNOLOGY

Course Objectives:

- To compare the different types of fermentation processes.
- To discuss about the importance of cell immobilisation techniques in fermentation processes.
- To examine and describe the applications of parts of SS-grade fermenter.
- To produce wine and relate the importance of submerged fermentation processes.
- To produce citric and to discuss the application of surface fermentation processes.
- To discuss the suitable methods applied for down-stream processes.

Unit-1: Experiments:

1. Cell immobilization by alginate gel method
2. Hydrolysis of starch by free and immobilized yeast
3. Bacterial growth curve estimation by using Yeast cells
4. Detection of Lipase production microbes

Unit-2: Wine production by *Saccharomyces cerevisiae*:

(i) Preparation of grape extract for wine production
(ii) Estimation of total sugars before and after 14 days
(iii) Estimation of Initial pH and after 14 days
(iv) Estimation of initial total anthocyanin before and after 14 days
(v) Estimation of initial Tartaric acid and after 30 days
(vi) Effect of substrate concen tration on biomass yield in wine preparation

Unit-3: Citric acid production by *Aspergillus niger*

(i) Media formulation
(ii) Determination of total acid by titration (after 2nd day and after 21 days)
(iii) Product recovery

Unit-4: Demonstration Experiments:

1. To demonstrate the parts of the industrial grade SS-fermenter.
   Amylase production by *Bacillus subtilis* using a fermenter (Laboratory scale to Pilot scale) and detection of amylase and identify the concentration of product produced.
2. Demonstration of compost production.

Course Outcomes:

- To demonstrate the applications of the different types of fermenters and fermentation mechanisms.
- To explain the parts of the industrial grade fermenters.
- To outline, evaluate the microbial growth kinetics
- To apply the principles of fermentation techniques for wine, citric acid and amylase production.
- To compare and outline steps involved for the downstream processes

CORE XIII – PRACTICAL – V: BIOINFORMATICS

Course Objective:

- To learn about the on-line biological data bases
- To learn the usage of search engines to derive the biological data.

Unit-1: Experiments:

1. Study of Internet resources in Bioinformatics.
2. Searches on MEDLINE, PubMed databases.
3. Introduction to sequence databases: Protein sequence databank – UNIPROT, Nucleic acid sequence databank – Gene bank, EMBL, DDBJ.
4. Sequence alignment - BLAST, FASTA
5. Multiple alignment - CLUSTALW.

Course Outcomes:

- To know about the online biological databases.
- To access and analyses the DNA, protein data bases.
- To apply online tools to understand the protein structures.
- To compare the DNA sequences

ELECTIVE I: INTER DISCIPLINARY ELECTIVE (IDE)

INTELLECTUAL PROPERTY RIGHTS

Subject	L (hrs)	T (hrs)	L+T (hrs)	TC
Intellectual Property Rights	1	1	2	5

Course Objectives:

- The course is intended to make the students to know about the fundamental concepts of Intellectual property rights leading to product development and marketing.
- This course also teaches the basics acts associated with IPR.
- This course is designed with multidisciplinary approaches.

Unit I: Introduction to Intellectual Property Rights (4 Hrs.)

Origin and Genesis of IPR. Types of Properties – tangible property and intangible property – Types of intellectual property: Patents, Trademarks, Copyrights, Semiconductor Design and Industrial Designs.

Unit II: International Relevance (6 Hrs.)

Internationalization of IP protection – Paris Convention – Berne Convention, Origin and functionsof GATT and World Trade Organization (WTO), TRIPS Agreement – basic principles and minimum standards – limits of one-size-fit for all – flexibilities under TRIPS.

Unit III: Copy Right (Indian Copy Right Act 1957) (6 Hrs.)

Definition of Copy Right – Copy Right Literary, Dramatic & Musical works, Copy Right Rules 2013 - Copyright protection with reference to performers' rights and Artist rights, Author and ownership of Copy Right, Term of Copy Right – Transmission and Relinquishment of Copy Right Licenses.

Unit IV: Patents (Indian Patents Act 1970) (8 Hrs.)

Definitions – Concepts of Patents – Patentable and Unpatentable Inventions – Plant Breeders Rights (Basmati rice), Procedure to obtain Patent specifications (Course activity) – Patent Application – Examination and disposal of application for Patent – Power of the Controller – Grant and sealing of Patents – lapse and restoration of Patents Rights and Obligations of Patentee – Revocation and surrender of Patents – Infringement of Patents and the remedies therefore.

Unit V: Industrial Designs and Trade Mark **(6 Hrs.)**

Introduction – Registerable and Non – Registerable design – novelty and originality – Infringement of rights in designs – Civil remedies against piracy defenses, Awareness of false advertisements. Definition and concepts of Trade Marks – Registration of Trade Marks – Defensive Registration Certification – Duration and Effect of Registration – Registered users – Assignment and Transmission - Infringement and remedies – Passing off actions – Offence and Penalties.

Reference Books:

- W. Cornish & Llewelyn – Intellectual Property: Patent, Copyrights, Trade Marks & Allied Rights", London Sweet & Maxwell.
- J. P. Mishra – An Introduction to Intellectual Property Rights
- B.L. Wadehra - Law Relating to Intellectual Property 5th Edition
- P. Narayanan – Intellectual Property Law

Course Outcomes:

- To explain the history and classification of intellectual property rights.
- To outline the various international treaties gave rise to IPR laws.
- To assess and discuss the scope of Indian Copyrights Act.
- To assess and discuss the scope of Indian Patents Act.
- To evaluate the scope of invention for its eligibility to be patented.
- To explain industrial designs and Trade Marks.

CORE XIV: PLANT BIOTECHNOLOGY

Subject	L (hrs)	T (hrs)	L+T (hrs)	TC	P (hrs)
Plant Biotechnology	2	4	6	4	3

Course Objective:

- To understand the basic properties, classification of plants
- To understand the application of genetic engineering in the generation of transgenic plants and their applications.

Unit I: Overview of Plant Biotechnology **(18 hrs.)**

Overview of Plant Biotechnology and its scope. History of Plant Biotechnology. Plant and microbes beneficial association: Plant - *Agrobacterium* association, Rhizobium and Nitrogen fixation. Role of soil microbes in the growth of plant (Production of phytohormones and role of siderophore producing microbes).

Unit II: Plant Genome Organization **(16 hrs.)**

Model plants for genetic engineering: Tobacco, Potato, *Arabidopsis thaliana*. Genomic organization of plant: Chloroplast, Mitochondria and Genomic DNA.

Unit III: Gene Transfer Techniques **(19 hrs.)**

Methods of gene transfer into plant cells: (1.) Biological transfer- Vectors used in the production of transgenic plants: Bacterial vectors system: Ti and Ri plasmid (Bipartite and tripartite vector systems), Viral vector system: Tobacco mosaic viral vector system, Cauliflower mosaic system, Cucumovirus vector system. (2.) Physical transfer Biolistic, (3.) Electroporation, (4.) Microinjection.

Unit IV: Plant Tissue Culture **(18 hrs.)**

Phytohormones and its role in organogenesis; Plant tissue culture medium: MS medium, Gamboorg, White's and Nitsch's medium; Types of explants and various methods of surface sterilization; Protoplast isolation and its application in somaclonal variation, Somatic hybridisation; *In vitro* culture of plants: Callus propagation and its various stages and Micropropagation.

Unit V: Applications of Plant Biotechnology **(19 hrs.)**

Insect resistant plants, pesticide resistant plants, plants with longer shelf lives- Pomato. Bioactive compounds from plants: β-Carotene, Plantibodies and edible plant vaccine; Types and labelling of GMO crops: BT-cotton, Salinity resistant rice, Brinjal, Okra; Biofortified plant: Golden rice.

Reference Books:

- Dr. Ahindra Nag Textbook of Agricultural Biotechnology, PHI Learning Private Ltd., New Delhi, 2009.
- J. H. Dodds, Plant Genetic Engineering, Cambridge University Press, 1983.
- Rangaswami G., Bagyaraj D.J. Agricultural Microbiology PHI; 2 edition, 1992.
- Arie Altman Paul Hasegawa, Plant Biotechnology and Agriculture, Academic Press, 2012.
- Slater, Plant Biotechnology, Oxford, 2nd Ed., 2008.
- Pareek L K Trends in Plant tissue culture and biotechnology, Agrobios (India), 2006.
- Natesh S, Biotechnology in Agriculture, 1st Ed.South Asia Books, 1987.
- P. Madhusudan Rao, Plant Tissue Culture & Biotechnology, *Black Prints*/Dominant Publishers & Distributors Pvt Ltd India, 2013.
- Fruit and Vegetable Biotechnology (2 Vols.) by Raghuraj Chintamani, Dominant Publishers & Distributors (P) Ltd., 2008.
- Plants Genes and Agriculture by Chrispeels, Jones and Bar, 2nd Ed., 2013.

Useful URL:

https://www.youtube.com/watch?v=6y13hYGPi8Q

https://www.youtube.com/watch?v=TORRxwbz7aY

https://www.youtube.com/watch?v=ykKs5icYwq0

https://www.youtube.com/watch?v=MiSLo_HvcJc

https://www.youtube.com/watch?v=cD9CFtpLL2s

https://www.youtube.com/watch?v=7ba-hqLrgf8

https://www.youtube.com/watch?v=QYBbgs4612o

Course Outcome:

- To assess the plant genome and its collective gene family and the organization of chloroplast and mitochondria
- To compare the various plant viral vectors and to use the efficient method for genetic transformation.
- To evaluate the different seed storage proteins and to explain the regeneration of gene expression.
- To select the plant and the methodology for the production of plant based vaccine.
- To compare the molecular basis of action of different plant growth hormones and their role in photomorphogeneisis
- To use novel technologies for the fruit ripening and processing.
- To evaluate the types of plant growth media and to formulate innovative and novel growth media.
- To apply the concepts of haploid plants and to use protoplast isolation for various applications.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR THEORY PAPERS

Question Allotment	**Maximum :100 Marks** **Passing Minimum :40 Marks** **Duration : Three Hours**

QUESTION PAPER PATTERN:

Section	Numbers	Question Component	Marks	Total
Section A	**Question 1–12**	**Definition** Answer **ANY 10** out of **12** questions	3	**30**
Section B	**Question 13–19**	**Short Answer** Answer **ANY 5** out of **7** questions	6	**30**
Section C	**Question 20–25**	**Detailed Answer** Answer **ANY 4** out of **6** questions	10	**40**
TOTAL MARKS				**100**

DISTRIBUTION OF QUESTIONS:

Sections	Units	No. of Questions
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	2
	Unit – 4	3
	Unit – 5	3
Section B	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	2
	Unit – 5	2
Section C	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit – 5	2

CORE XV: ANIMAL BIOTECHNOLOGY

Subject	L (hrs)	T (hrs)	L+T (hrs)	TC	P(hrs)
Animal Biotechnology	1	5	6	4	3

Course Objective:

- To describe the application of animal biotechnology in human welfare
- To summarize the scope of stem cell research and production of Bioartificial organs

Unit I: Cell culture technology (12 Hours)

History of animal cell culture - Adherent cells and suspension cells - Types of cell culture: Primary cell culture, secondary cell culture and cell line culture. Cell culture requirements and conditions: Buffers – Media – Antibiotics – Culture vessels – Equipments. Steps in animal cell culture. Maintenance of animal cell culture – Isolation, separation and analysis of cultured cells - Cell counting and cell viability assays –Passaging of cells – Cell storage, freezing and thawing methods – Applications of animal cell culture.

Unit II: Transgenic and cloning technology (12 Hours)

Transgenic technology: Transgenic animals - Time line of key events – Methods of producing transgenic animals: DNA microinjection. Retrovirus-mediated gene transfer (RMGT). Sperm-mediated gene transfer (SMGT). Embryonic stem cell-mediated gene transfer. Applications: Clinical applications & Agricultural applications. Ethics of treating laboratory animals. Cloning technology: History and methods of cloning – Types of cloning: Therapeutic cloning and reproductive cloning - Pros and cons of cloning.

Unit III: Molecular tools and techniques for disease diagnosis (12 Hours)

Types of human diseases – Modern tools as diagnostics (Probes and monoclonal antibodies) – Modern techniques in diagnosis: PCR, ELISA, FISH, Southern hybridization and Western blotting. Prophylaxis and management of pathogenic diseases

Unit IV: Assisted reproductive technology (12 Hours)

Human Reproductive health – Infertility in humans - Causes and risk factors of male and female infertility - Assisted reproductive technology: Methods, types and steps of AI, IVM, IVF, GIFT, ZIFT, ICSI, & Third-party assisted ARTs. Livestock improvement methods: Introduction, selection and breeding.

Unit V: Overview of Stem cell biology and tissue engineering (12 Hours)

Stem cells: Stem cell potency - Types of stem cells - Embryonic stem cells, tissue specific stem cells, mesenchymal stem cells and induced pluripotent stem cells – Applications of stem cells in medicine and research. Tissue engineering: Basic principles – Types of cells – Scaffold and biomaterials – Tissue assembly – Bioartificial organs – Biomimetics.

Reference Books:

- Ashish Swarup Verma, Modern Animal Biotechnology, Alpha Science, 2014.
- R. Ian Freshney, Culture of Animal Cell: A Manual of Basic Technique and specialized applications, 6th Ed., Wiley Blackwell, 2011.
- Sasidhara R, Animal Biotechnology, MJP publishers, 2010.
- B Singh, S K Gautam and M S Chauhan, A textbook of Animal Biotechnology, TERI-The energy and resources institute, 2015.
- David Christie Murray, Red Biotechnology, Dominant Publishers & Distributors (P) Ltd., 2011.
- Butler, Animal Cell Culture & Technology, Taylor & Francis Publications, 2nd Ed., 2003.
- David S. Goodsell, "Bionanotechnology", John Wiley & Sonsinc., publications, 2004.
- Niemeyer, C.M. Mirking C.A., "Nanobiotechnology concepts, Applications and Perpectives", 2004.
- Shanmugam. S, "Nanotechnology", MJP publishers, 2010.

Useful URL:

https://www.youtube.com/watch?v=RzYhcXjksKc
https://www.youtube.com/watch?v=qybFQJ4-KEY
https://www.youtube.com/watch?v=WGKoJRNKADY
https://www.youtube.com/watch?v=f1ZcvAQW64E
https://www.youtube.com/watch?v=766QH_qaYN8
https://www.youtube.com/watch?v=Op3r_dB3ISk

Course Outcome:

- To demonstrate animal cell culture techniques
- To realize the significance of transgenic and cloning technology
- To use appropriate molecular techniques for disease diagnosis
- To take a special care on their reproductive health
- To distinguish the properties of stem cells and can correlate it with tissue engineering

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR THEORY PAPERS

Question Allotment	**Maximum :100 Marks** **Passing Minimum :40 Marks** **Duration : Three Hours**

QUESTION PAPER PATTERN:

Section	Numbers	Question Component	Marks	Total
Section A	**Question 1–12**	**Definition** Answer **ANY 10** out of **12** questions	3	**30**
Section B	**Question 13–19**	**Short Answer** Answer **ANY 5** out of **7** questions	6	**30**
Section C	**Question 20–25**	**Detailed Answer** Answer **ANY 4** out of **6** questions	10	**40**
TOTAL MARKS				**100**

DISTRIBUTION OF QUESTIONS:

Sections	Units	No. of Questions
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	2
	Unit – 4	3
	Unit – 5	3
Section B	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	2
	Unit – 5	2
Section C	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit – 5	2

CORE XVI: BIOSAFETY, BIOETHICS AND INTELLECTUAL PROPERTY RIGHTS

Subject	L (hrs)	T (hrs)	L+T (hrs)	TC
Biosafety, Bioethics and Intellectually Property Rights	1	4	5	3

Course Objective:

- To understand the etiquettes of the research conduction.
- To understand human rights.
- To understand the biosafety precautions, to be followed in laboratory

Unit I: Biosafety **(15 hrs.)**

Introduction, history, objectives of Biosafety. Risk assessment in biotechnological research and their regulation of GMO's. Field trail and planned introduction of GMO's. Biosafety guidelines in India. Biosafety levels of Plants, animals and microbial research.

Unit II: Bioethics **(15 hrs.)**

Bioethics – Introduction, Ethical issues related to biotechnology. Legal and socio-economic impacts of biotechnology. Ethical concerns of gene cloning and stem cell research.

Unit III: Research Ethics **(15 hrs.)**

Research ethics – Introduction, Validation of research, Confidentiality in research (Collection, Recording, Usage in research and safe guarding the biological, personal information). Plagiarism – Importance and effects of Plagiarism and its identification software (Urkund and Turnitin), Biopiracy.

Unit IV: Intellectual Property Rights **(15 hrs.)**

Intellectual property rights – Introduction, History (WIPO, GATT, TRIPS), Types - Trade mark (Registration, duration, effect, infringement and remedies), Copyright (Registration, Infringement and remedies), Plant Breeder's Rights, Protection of Plant Varieties and Farmers Rights (Basmati Rice).

Unit V: Patents **(15 hrs.)**

Patents – Introduction, scope. International Scenario of patents. Significance of patents in India

– Patent Act 1970 and Patent (Amendments) Act 2002. Process Patent and Product Patent – Patent Application, Procedure and Granting. Industrial Designs (Microarray diagnostic kit). Indian guidelines for patents of biotechnological applications.

Reference books:

- Shaleesha A, Stanley, Bioethics, Wisdom educational service, 2008.
- Das H.K., Text book of Biotechnology, Wiley Publishers, 2010.

Useful URL:

https://www.youtube.com/watch?v=Ew2OmY_Uer4

https://www.youtube.com/watch?v=9wgFZuBXKfc

https://www.youtube.com/watch?v=CAM6VNDYJ6k

https://www.youtube.com/watch?v=KQwVXqoTfVg

Course Outcomes:

- To assess the risk in biotechnological research and evaluate the different levels of Biosafety.
- To design and carry out experiments in an ethical manner.
- To explain research ethics and analyse the importance of plagiarism.
- To demonstrate the importance of IPR and its types.
- To discuss the impact of patenting and process of patent application and granting.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR THEORY PAPERS

Question Allotment	**Maximum :100 Marks** **Passing Minimum :40 Marks** **Duration : Three Hours**

QUESTION PAPER PATTERN:

Section	Numbers	Question Component	Marks	Total
Section A	**Question 1–12**	**Definition** Answer **ANY 10** out of **12** questions	3	**30**
Section B	**Question 13–19**	**Short Answer** Answer **ANY 5** out of **7** questions	6	**30**
Section C	**Question 20–25**	**Detailed Answer** Answer **ANY 4** out of **6** questions	10	**40**
TOTAL MARKS				**100**

DISTRIBUTION OF QUESTIONS:

Sections	Units	No. of Questions
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	2
	Unit – 4	3
	Unit – 5	3
Section B	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	2
	Unit – 5	2
Section C	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit – 5	2

CORE XVII - PRACTICAL VI:

PLANT BIOTECHNOLOGY AND ANIMAL BIOTECHNOLOGY

CORE XVII - PRACTICAL VI: PLANT BIOTECHNOLOGY

Course Objectives:

- To learn about the medium preparation for plant callus propagation
- To learn about the sterilization of explants.
- To learn about the Micropropagation
- To learn about the protoplast isolation and fusion technique
- To learn to isolate the Plant DNA.

Unit-1: Experiments:

1. Specific surface sterilization methods for different types of explants (leaf, nodal tissues, stem, seed, root and embryo).
2. Callus propagation using chickpea/fenugreek and observe the various stages of callus.
3. Callus squash preparation and staining of callus cells using acetocarmine stain
4. Root induction experiment using carrot explants
5. Isolation of protoplast and its viability check by Evans' blue dye.
6. Protoplast cell fusion technique by using PEG fusion buffer.
7. Plant DNA isolation by CTAB method and visualization by Agarose electrophoresis.
8. Static and shake flask culture of Spirullina by suing Zarrouk's medium and its microscopic observation.

Unit-2: Demonstration Experiments:

1. Preparation of MS medium and the hormone stock preparation.
2. Detection of IAA production by rhizosphere bacteria (*Aztobacter* spp.) by Salkowski method on TLC.

Unit-3: Spotters

1. Protoplast
2. Agrobacterium mediated gene transfer
3. Microinjection and Biolistic method
4. IAA
5. Embryo
6. Steps in Plant Tissue Culture
7. Tween 20
8. Different stages of callus
9. M.S.Swaminathan
10. Murashige and Skoog

Reference Books:

- H. S. Chawal, Plant Biotechnology: A Practical Approach, Science Publishers, U.S., 2003.

Course Outcomes:

- To design and outline the requisites of a Plant tissue culture laboratory
- To demonstrate the callus development and Micropropagation of plants.
- To demonstrate Protoplast isolation and fusion of plants.
- To isolate beneficial bacteria and bacterial consortium for production of secondary metabolites involved plant growth.
- To demonstrate the production of single cell protein by *Spirulina* Culture.

CORE XVII - PRACTICAL VI: ANIMAL BIOTECHNOLOGY

Course Objective:

- To examine various types of animal cells and interpret their basic biological properties.
- To culture animal cells in *in-vitro* conditions using sophisticated instrumentation facility.

Unit-1: Experiments:

1. Preparation of animal cell culture buffers and pH correction
2. Preparation of animal cell culture medium and membrane sterilization
3. Isolation of cells from animal tissues by mechanical methods
4. Isolation of cells from animal tissues by enzymatic digestion methods
5. Morphological observation of the isolated cells using various stains
6. Determining the percentage of cell viability using dye exclusion method
7. Counting of the isolated animal cells using Hemocytometer
8. Preparation of single cell suspension for monolayer culture

Unit-2: Demonstration Experiments:

1. Setting up the animal cell culture laboratory
2. Monitory and maintenance of animal cell cultures

Unit-3: Spotters:

1. Membrane filter
2. Dulbeccos's Modified Eagle's Medium
3. RPMI Medium
4. T - Flasks
5. CO2 Incubator
6. Inverted microscope
7. Tryphan blue
8. Phosphate buffer
9. Hank's buffer
10. Animal tissues (Spleen and liver)

Reference Books:

- Sudha Gangal, Principles and Practice of Animal Tissue Culture, Universities Press, Universities Press (India) Limited, 2007.

Course Outcome:

- To isolate and count the animal cells from various tissues
- To demonstrate the preparation of single cell suspension for cell line culture
- To demonstrate the establishment of monolayer of animal cells and its Trypsinisation process

ELECTIVE II: ENVIRONMENTAL BOTECHNOLOGY

Subject	L (hrs)	T (hrs)	L+T (hrs)	TC
Environmental Biotechnology	1	1	2	5

Unit I: Objective of Environmental Biotechnology (4 hrs.)

The scope of Environmental Biotechnology, Microbial bioindicator of water: Bacteria and algae, air: Bacterial and viral aerosols and soil: Bacterial, Fungus and plants as bioindicators. Solid waste management: Biodegradation of plastics.

Unit II: Biotechnological approach in agriculture management (6 hrs.)

Qualitative and quantitative analysies of soil and air; Removal of pollutions from air and soil, Integrated farming, Vertical agriculture: Methods and benefits, Hydrophonics: Methods and benefits, Rhizospheric and Endophytic Microbes to Provide a Safe and Affordable Means of Crop Biofortification

Unit III: Biotechnological approach in water management (6 hrs.)

Bioremediation: Biotechnology approaches for industrial effluent treatment (Paper, tannery and dye). Grey water (house hold sewage water): treatment methods; Advanced portable water treatment: Water – Softening, Adsorption, Desalination, Reverse Osmosis, Tamil Nadu Water Quality Standards and Guidelines for industrial effluent discharge.

Unit IV: Medical, Radio and e-waste management (6 hrs.)

Medical waste disposal methods, treatment and reuse; Biotechnological approaches for management of e-waste and radio- active waste.

Unit V: Hazardous Waste Management (6 hrs.)

Biotechnological methods for cyanide, oxalate and urea detoxification; toxic solvents -phenols. Environmental toxicology – Toxicants – Toxicity, Acute, subacute, chronic, dose effect and LD 50. Dose response safe limits. Dose response relationship, detoxification of hazardous chemicals.

Reference Books:

- Devarajan Thangadurai and JeyabalanSangeetha, Industrial Biotechnology: Sustainable Production and Bioresource Utilization, CRC Press.
- Loveleen Kaur, Rhobinka Khajuria, Industrial Biotechnology: Principles and application, Nova Science Publishers, 2015.

- Nurhan Turgut Dunford, Food, Industrial bi-products and bioprocessing, Wiley-Blackwell, 2012.
- Erick J.Vandamme, Jose Luis Revuelta, Industrial Biotechnology of vitamins, biopigments and antioxidants, Wiley-VCH, 1st Ed., 2016.
- P.K. Chakraborty, Agro & Industrial Biotechnology, Black Prints India Inc., 2014.
- Naha &Narain, Immuno-Biotechnology, Dominant Publishers & Distributors (P) Ltd., 2004.
- Susanna, Biopharmaceutical Drug Design and Development, Humana Press, 1st Ed., 1999.

Useful URL:

https://www.youtube.com/watch?v=f_wOnmjawiY

https://www.youtube.com/watch?v=1tJ2CWvTVGM&t=378s

https://www.youtube.com/watch?v=28iRLLXIBfU&t=292s

https://www.youtube.com/watch?v=hdpjA0XhYG0

https://www.youtube.com/watch?v=8_1Ng3SCvCU

https://www.youtube.com/watch?v=w5CVw9hWmC4

Course Outcomes:

- To describe the role of Indian Biotechnological Industries.
- To demonstrate the value added product production.
- To discuss the Indian Bio-based industries.
- To demonstrate the Indian Government agencies which monitor the Biotechnology based research.

***Visit to Biotechnology Park**

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR THEORY PAPERS

Question Allotment	**Maximum :100 Marks** **Passing Minimum :40 Marks** **Duration : Three Hours**

QUESTION PAPER PATTERN:

Section	Numbers	Question Component	Marks	Total
Section A	**Question 1–12**	**Definition** Answer **ANY 10** out of **12** questions	3	**30**
Section B	**Question 13–19**	**Short Answer** Answer **ANY 5** out of **7** questions	6	**30**
Section C	**Question 20–25**	**Detailed Answer** Answer **ANY 4** out of **6** questions	10	**40**
TOTAL MARKS				**100**

DISTRIBUTION OF QUESTIONS:

Sections	Units	No. of Questions
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	2
	Unit – 4	3
	Unit – 5	3
Section B	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	2
	Unit – 5	2
Section C	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit – 5	2

ELECTIVE II: FOOD BIOTECHNOLOGY

Subject	L(hrs)	T (hrs)	L+T (hrs)	TC
Food Biotechnology	1	1	2	5

Course Objectives:

- To understand the impact of Biotechnology in Indian food status.
- To understand the identification of food that is produced based upon Biotechnological methods.
- To understand the GMOs
- To understand the Food safety monitoring system.

Unit I: Basics of Food Biotechnology (6 hrs.)

Importance and scope of food biotech and its application. Diseases pertaining to malnutrition in India; Impact of carbon food printing of food; Solution for malnutrition: Factors affecting meal planning, understanding specific considerations for planning meal for different groups of people.

Unit II: Biofortified Foods (6 hrs.)

Definition and importance of Biofortification of crop and animals for food source. Microbes as food source (Pre and Probiotics foods); Methods of Biofortification of crop plants; Impact of biofortification in health improvement. Microbial based food products: Microbial flavour and fragrances.

Unit III: Food Safety Regulations (6 hrs.)

Food safety and standards: Food and Drug Administration (FDA), Food Standard Agency, HACCP, FSSAI and FCI (Indian Standards); Food labelling practices and needs, Universal and Indian standard codes.

Unit IV: Food Storage and Preservation (6 hrs.)

Role of microbes in Food spoilage and Permissible limits of microbes in food. Principles involved in Food preservation and storage techniques. Treatment methods for solid and liquid wastes from food process industries.

Unit V: Agriculture and food ethics (6 hrs.)

Impact on society and ethical issues. Laws for the production and use of genetically modified foods and global marketing.

Reference Books

- Byong H. Lee, Fundamentals of Food Biotechnology, John Wiley & Sons, Ltd., (2014).
- S.C. Bhatia, Food Biotechnology, CRC Press (2016).
- Chetan Sharma, Anil K.Sharma and K.R.Aneja, Frontiers in Food Biotechnology, Nova publishers, (2016).

Useful URL:

http://www.fao.org/docrep/U3550t/u3550t0h.htm.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3257668/

http://www.oecd.org/science/biotrack/41036698.pdf

https://www.youtube.com/watch?v=sOzt0D8vLCU

https://www.youtube.com/watch?v=BlHL5MxB84Q

https://www.youtube.com/watch?v=i610sLycTTs&list=PL_a1TI5CC9RE2S5RoMgcj2kvTmxqHgT gG

https://www.youtube.com/watch?v=-6ZY49DDvq4

Course Outcome:

- ❖ To detail the insight about the importance of food in day to day life.
- ❖ To compile and apply Biotechnological methods involved in the production of biofortified food.
- ❖ To recall the global and Indian standards about food storage, preservation and sale of food.

***Visit to Food industries.**

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR THEORY PAPERS

Question Allotment	**Maximum :100 Marks** **Passing Minimum :40 Marks** **Duration : Three Hours**

QUESTION PAPER PATTERN:

Section	Numbers	Question Component	Marks	Total
Section A	**Question 1–12**	**Definition** Answer **ANY 10** out of **12** questions	3	**30**
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TOTAL MARKS				**100**

DISTRIBUTION OF QUESTIONS:

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Section A	Unit – 1	2
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	Unit – 3	2
	Unit – 4	3
	Unit – 5	3
Section B	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	2
	Unit – 5	2
Section C	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit – 5	2

ELECTIVE III: PROJECT

Group Project (2/3 Students)

Maximum Marks: 100 **Credits: 5**

	Internal Assessment	**External Assessment**
Project	**20 Marks** • Interaction with Guide - 5 marks • Regularity - 5 marks • Maintenance of project book - 10 marks	**Project Report** – 50 Marks **Marks split for Project report:** • Title- 2 Marks • Introduction & Review of literature- 10 Marks • Methodology- 10 Marks • Results- 10 Marks • Discussion & Conclusion - 10 Marks • Reference: 3 Marks • Neat presentation and Novelty- 5 **Viva Voce** – 30 Marks (Students can present the project using as power point presentation)
Total=100 Marks	**20**	**80**

SOFT SKILLS -UG

DEPARTMENT OF ENGLISH
UG Part IV SOFT SKILLS
2019 Batch onwards

2020-21

FIRST YEAR

FIRST SEMESTER: Introduction to Study Skills

CREDITS:2 **30 hrs.**

Objectives

- to help, develop and improve the vocabulary of the learners
- to help the learners develop the skill of inference
- to help the learners to acquire writing skills in English

Use of Dictionary and Dictation
Speech Sounds in English & Right Pronunciation
Stress & Intonation
Vocabulary Building Exercises
Listening and Reading Comprehension
Paragraph and Essay Writing

Books for Reference:

1. *Hewings, Martin. 1999. Advanced English Grammar: A Self- study Reference and Practice Book for South Asian Students. Reprint 2003. Cambridge University Press. New Delhi.*
2. *Lewis Norman.1991. Word Power Made Easy.*
3. *Mohan, Krishna &Meenakshi Raman. 2000. Effective English Communication. Tata Mc Graw Hill Publishing Company Ltd.*
4. *Mohan, Krishna &Meera Banerji. 2001. Developing Communication Skills. Macmillan.*
5. *Syamala. 2002. Effective English Communication for You. Emerald Publishers, Chennai.*
6. *Harishankar, Bharathi. Ed. Essentials of Language and Communication. University of Madras.*
7. *Swan, Michael and Catherine Walter. 1990. The Cambridge English Course-2. Cambridge University Press.*

DEPARTMENT OF ENGLISH
UG Part IV SOFT SKILLS
2019 Batch onwards

2020-21

FIRST YEAR

SECOND SEMESTER: Life Skills

CREDITS:2 **30 hrs.**

Objectives

- to build the confidence of learners to face the challenges of a globalized society
- to sensitize learners' ethical, moral and social values in their work environment
- to help them understand how to overcome stress-related problems
- to train the learners to use their time effectively

SWOC Analysis

Etiquette

Stress Management

Time Management

Discussion of Success Stories

i. Auto-suggestions
ii. Problem solving
iii. Decision Making
iv. Presentation Skills-Oral/PPT

Books for Reference:

1. *Pease, Allen. 1998. Body Language: How to read other's thoughts by their gestures. Sudha Publications. New Delhi.*
2. *Powell. In Company. MacMillan*
3. *http://www.essentiallifeskills.net//*

DEPARTMENT OF ENGLISH
UG Part IV SOFT SKILLS
2019 Batch onwards

2020-21

SECOND YEAR

THIRD SEMESTER: Job-oriented Skills

CREDITS: 2 **30 hrs.**

Objectives:

- to prepare the students to be job-ready.
- to help learners use English Language appropriately to the role or situation.
- to develop confidence in them to face Interviews.
- to train them to prepare their own CV/Resume

Different kinds of Interviews

Letter of Application and CV

Technical Writing - Circulars, Memos, Agenda and Minutes

Group Discussion

Review

i. Books
ii. Films

Books for Reference:

1. *Harishankar, Bharathi. ed. Essentials of Spoken and Presentation Skills. University of Madras.*
2. *John, Seely. 1998. The Oxford Guide to writing and speaking. Oxford U P, 1998, Delhi.*
3. *The Princeton Language Institute and Lanny Laskowski.2001. 10 days to more confident Public Speaking. Warner Books.*
4. *http://jobsearch.about.com/cs/curriculumvitae.html.//*
5. *http://www.cvtips.com//*

QUESTION PAPER PATTERN

UG - SOFT SKILLS

TIME – 3 HRS **MAXIMUM MARKS – 50**

PART – A (5X2=10)

Answer any FIVE from the questions given below from Q.No.1 to Q.No.7 (5 out of 7)

PART – B (4X5=20)

Answer any FOUR from the questions given below from Q.No.8 to Q.No.13 (4 out of 6)

PART – C (2X10=20)

Answer TWO questions only choosing one each from Q.No.14 &Q.No.15 (Internal Choice)

DEPARTMENT OF COMPUTING SKILLS

COURSE COMPONENT: Soft Skill – Computing Skills

SUBJECT CODE:	PRACTICAL	MARKS :100
SEMESTER : IV	CREDIT :2	NO.OF.HOURS PER WEEK :

(For the following UG Departments)

SHIFT –I:

B.A. (Economics), B.A. (Defence and Strategic Studies), B.Sc. Mathematics, B.Sc. Physics, B.Sc. Chemistry, B.Sc. Zoology, B.Sc. Plant Biology and Plant Biotechnology, B.Com (General), B.Com (Corporate Secretaryship)

SHIFT –II:

BBA, B.Sc. Visual Communication, B.Com (General), B.Com (Accounting & Finance), B.Com (Corporate Secretaryship), B.Com (Information System Management), B.Com (Banking Management) and B.Com (Marketing Management)

COURSE OBJECTIVES

- The major objective in introducing the Computer Skills course is to impart training for students in Microsoft Office which has different components like Ms word, MS Excel, Ms Access, Power point etc., at two levels based on their knowledge and exposure.

- It provides essential skills for the user to get adapted to any work environment, as most of the systems in any workplace have Ms Office installed for their day to day activities. The course is highly practice oriented rather than regular class room teaching

Unit I : *Word Processing* – Open, Save and close word document; Editing text- tools, formatting, bullets; Spell Checker; Navigating in word – keyword, Mouse; document formatting- paragraph alignment, indentation, headers and footers, numbering; printing- preview, options

Unit II : *Spreadsheets* – MS Excel – opening, entering text and data, formatting, navigating; Formulas – entering, handling and copying; Charts –creating, formatting and printing, header and footer, centering data, printing.

Unit III: *Presentations* – Power point – exploring, creating and editing slides, inserting tables and charts – Special effects – Clip Art, creating and drawing shapes, inserting multimedia content – Presentations – planning, animation, handouts, slideshow.

Unit VI : *Networks* – Internet Explorer- components; www – working, browsing, searching, saving – Bookmark – favorite, create, delete – Printing a web page; email- creating, receiving, reading and sending messages

Unit V: *HTML* – Defining HTML paragraph and spacing – HTML styles, that include Background color – Text color - Text Fonts – Text that includes Bold, Italic, Underline, Superscript and Subscript.

Note : *Unit II to Unit V needs exposure thru Practicals*

References:

1. Introduction to Computers – Peter Norton, Tata McGraw Hill

Microsoft 2003 – Jennifer Ackerman Kettell, Guy Hat-Davis, Curt Simmons, Tata McGraw Hill

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A- Grade' by NAAC
(Affiliated to the University of Madras)

BACHELOR OF SCIENCE

(ADVANCED ZOOLOGY AND BIOTECHNOLOGY)

Regulations and Syllabus

(For the Candidates admitted in 2019 -2020 and thereafter)

COURSE STRUCTURE – 2019 BATCH

Sem.	Part	Course Component	Subject Name	Cdt.	Hrs.	Total
I	I	Language	Tamil I	3	6	100
	II	English	English I	3	4	100
	III	Core I	Diversity and Functional Anatomy of Invertebrates	4	6	100
			Practical I – Invertebrata and Chordata	-	2	*
		Allied I	Botany I	4	6	100
			Allied Botany Practical	-	2	*
	IV	1.NME/ Basic Tamil/ Basic Hindi/ Adv. Tamil	Aquaculture	3	2	100
		2.Skill Based subjects	Soft Skill I	2	2	100
II	I	Language	Tamil II	3	6	100
	II	English	English II	3	4	100
	III	Core II	Diversity and Functional Anatomy of Chordates	4	6	100
			Practical I – Invertebrata and Chordata	4	2	100
		Allied II	Botany II	4	2	100
			Allied Botany Practical	4	2	100
	IV	1.NME/ Basic Tamil/ Basic Hindi/ Adv. Tamil	Public Health and Hygiene	3	2	100
		2.Skill Based subjects	Soft Skill II	2	2	100
III	I	Language	Tamil III	3	6	100
	II	English	English III	3	4	100
	III	Core III	Cell and Molecular Biology	4	6	100
			Practical II – Cell Biology & Genetics	-	2	100
		Allied III	Chemistry I	4	6	100
			Allied Chemistry Practical	-	2	*
	IV	1. Skill Based subjects	Soft Skill III	2	2	100
		2.EVS	Environmental Science	-	2	*

Sem.	Part	Course Component	Subject Name	Cdt.	Hrs.	Total
IV	I	Language	Tamil III	3	6	100
	II	English	English III	3	4	100
	III	Core IV	Genetics and Evolution	4	6	100
			Practical II – Cell Biology & Genetics	4	2	100
		Allied IV	Chemistry I	4	6	100
			Allied Chemistry Practical	4	2	100
	IV	1. Skill Based subjects	Soft Skill III	2	2	100
		2.EVS	Environmental Science	2	2	100
V	III	Core V	Developmental Biology and Immunology	4	4	100
		Core VI	Biotechnology and Nanotechnology	4	4	100
		Core VII	Animal Physiology, Biochemistry and Endocrinology	4	4	100
		Core VIII	Biostatistics and computer Applications for Life Sciences	4	4	100
			Practical – III Animal Physiology, Biochemistry, Developmental Biology and Immunology	-	4	100
			Practical IV – Environmental Biology, Biotechnology & Microbiology	-	4	100
		Elective I (IDE)	Wildlife Conservation	5	5	100
	IV	Value Education	Value Education	2	1	100
VI	III	Core XI	Environmental Biology and Taxonomy	4	4	100
		Core XII	Genetic Engineering and Recombinant DNA Technology	4	4	100
		Core XIII	Microbiology and Industrial Biotechnology	4	4	100
			Practical – III Animal Physiology, Biochemistry, Developmental Biology and Immunology	4	4	100
			Practical IV – Environmental Biology, Biotechnology & Microbiology	4	4	100
		Elective - II	Medical Laboratory Technique and Bioinstrumentation	5	5	100
		Elective III	Economic Entomology and Pest Management	5	5	100
	V	Extension Activities		1	-	-

*Examination will be held in the Even Semester

SEMESTER I

PAPER I: DIVERSITY AND FUNCTIONAL ANATOMY OF INVERTEBRATES

Credit: 4

Objectives

To enable the students to develop an appreciation for the biodiversity of invertebrate species and to impart knowledge about co-existence of different forms of living organisms ranging from acelluar to multicellular animals. Studies on this group of animals bring to light knowledge of basic functions of life viz., nutrition, respiration, excretion, reproduction etc. and how the organisms of various phyla structurally and functionally adapt themselves for surviving in different ecological conditions. Classification and general characters of the following phyla up to classes with a detailed study of the animals mentioned against each phylum.

UNIT-I **15 hrs**

Protozoa: *Paramecium, Plasmodium*

UNIT-II **18 hrs**

Porifera : *Sycon,* Canal System in Sponges

Coelenterata : O*belia, Aurelia,* Polymorphism

UNIT-III **18 hrs**

Platyhelminthes : *Fasciola, Taenia,* Parasitic Adaptations

Nematoda : *Ascaris,* Nematode parasites of humans.

Annelida : *Nereis,* Excretory Organs in Annelida, Metamerism in Annelida

UNIT-IV **21 hrs**

Arthropoda : *Penaeus,* Larval Forms in Crustacea

Mollusca : *Pila,* Foot in Molluscs, Economic importance of Mollusca.

UNIT-V **18 hrs**

Echinodermata : *Asterias,* Larval Forms

Hemichordata : *Balanoglossus* (External Characters Only) and its Systematic Position.

Books Recommended:

1. Dhami, P.S. and Dhami, J.K., Invertebrates, 5th ed., R. Chand Publisher, 1979.
2. Kotpal, R.L., Invertebrates, Rastogi Publications, Meerut, 2005.
3. Parker, T.J. and Haswell, W.A., Text book of Zoology, Invertebrates, Vol. I edited by Marshall, A.J. and Williams, W.D., CBS Publication & Dist., Delhi, 1990.
4. Barnes, A., Invertebrate Zoology, Harcourt Publishers, International Company, 2001.
5. Chaudhry, S., Fundamental Invertebrate Zoology, S.Vikas & Co. Fatehpura, Jalandhar, 2003.
6. Ekambaranatha Ayyar, M and Ananthakrishnan, T.N. 1993, Outlines of Zoology, Vol.I, Part I and II, Viswanathan and Co. Madras.
7. T.C. Majpuria. 1990, Invertebrate Zoology, Pradeep Pub. Kitab Mahal.

SEMESTER II

PAPER II: DIVERSITY AND FUNCTIONAL ANATOMY OF CHORDATES

Credit: 4

Objectives

To acquaint the students about the structure and function of protochordates and chordates and to make the student understand the basic characters, advancements and adaptations of different types of vertebrates. Detailed study (morphology & anatomy), systematic position, distinctive characters, distribution, ecology, economic importance, if any, of the following animals:

UNIT-I **20 hrs**

Cephalochordata: *Branchiostoma;* Development and affinities.
Cyclostomata : *Petromyzon;* Migration

UNIT-II **15 hrs**

Hemichordata : Balanoglossus; Development and affinities

UNIT-III **20 hrs**

Urochordata: *Herdmania;* Development and Affinities:
Alternation of generation in Urochordata.
Pisces : *Labeo,* Accessory respiratory organs in fishes, Types of fins
Amphibia : *Rana,* Parental care.

UNIT-IV **20 hrs**

Reptilia : *Calotes,* Arcades and fossae
Aves : *Columba,* Migration in birds; Palate in birds.

UNIT-V **15 hrs**

Mammalia : *Oryctolagus,* Dentition in mammals.

Books Recommended:

1. Dhami, P.S., Dhami, J.K., Chordate Zoology, Dinesh Publishers, Jalandhar, 1982.
2. Kotpal, R.L., Text Book of Zoology- Vertebrates, CBS Publishers, Delhi, 2000.
3. Parker, T.J., and Haswell, W.A., A Text Book of Zoology Vol. II- Vertebrates. Latest edition, CBS Publishers, Delhi edited by Late A.J. Marshall & Williams, W.D.
4. Dodson, E.O., A Text Book of Zoology, CBS Publishers & Distributors, Delhi, 1976.
5. Bhamrah, H.S. and Juneja, K., An introduction to fishes, Anmol Publications, New Delhi, 1990.

SEMESTER II – PRACTICAL

PAPER-III PRACTICAL I: INVERTEBRATA AND CHORDATA

Credit: 4

I. DISSECTION

A. Cockroach

1. External characters
2. Digestive system
3. Nervous system

B. Prawn

4. External characters
5. Digestive system

C. Any Bony Fish:

6. External characters
7. Digestive system

II. MOUNTING

Mouth parts of:

8. Cockroach
9. Mosquito
10. Prawn: Appendages
11. Fish Scales: Ctenoid scale, Cycloid scale and Placoid scale

III – SPOTTERS

A- Classify giving reasons up to order:

1. *Paramecium*
2. *Scypha*
3. *Obelia*
4. *Taneia Solium*
5. *Ascaris*
6. *Neanthes*
7. *Penaeus*
8. Asterias
9. *Balanoglossus*
10. *Amphioxus*
11. *Scoliodon sorrakowah*
12. *Rana hexadactyla*
13. *Calotes versicolor*
14. *Columba livia*
15. *Oryctolagus cuniculus*

B- Draw labelled sketches:

16. *Obelia* medusa
17. Nereis T.S.
18. Bipinnaria larva
19. *Amphioxus* T.S
20. Quill feather

C- Comment on Biological significance:

21. Entamoeba
22. *Paramecium* – Conjugation
23. Plasmodium
24. Ascaris
25. Heteronereis
26. Peripatus
27. Nauplius larva
28. *Sacculina* on crab
29. Sea anemone on Hermit crab
30. *Vipera russelli* (= Russel's viper)
31. Bat

D – Relate structure and function:

32. Sponge – Spicules
33. Sponge – Gemmule
34. *Taenia* – Scolex
35. *Neanthes* – Parapodium
36. *Penaeus* – Petasma
37. Starfish - Tube foot.
38. Snake- Poison apparatus
39. Quill feather

E. Osteology / Palate in Birds / Dentition

Osteology

Frog

40. Skull and lower jaw
41. Vertebral column
42. Pectoral girdle
43. Pelvic girdle
44. Forelimb
45. Hindlimb

Palate in Birds

46. Pigeon – Palate
47. Crow – Palate
48. Duck – Palate

Dentition

49. Rabbit – Dentition
50. Dog – Dentition

IV. Study Tour

Report on field visit for studying the adaptation of animals

SEMESTER III

PAPER IV: CELL AND MOLECULAR BIOLOGY

Credit: 4

Objectives

To enable the students to learn various aspects of cell biology.

UNIT I **20 hrs**

Ultrastructure of animal cell, Cell theory, Cell organelles, **Plasma membrane**: Different models of plasma membrane (in brief), Fluid mosaic model in detail, Differentiation at cell surface.

UNIT II **15 hrs**

Endoplasmic Reticulum: Morphology, Chemical Composition, Morphological Differentiation and Functions. **Golgi complex**: Morphology, Chemical Composition, Relationship with other cell components, its function with special reference to cell secretion. **Microbodies**: Structure, Chemical Composition, Functions and Origin of **Peroxisomes** and **Glyoxysomes.**

UNIT-III **20 hrs**

Mitochondria: Morphology including vital examination, Light and Ultramicroscopic Structures, Structural Variations with Regard to Functions, Chemical Composition, Role in Cell Physiology, Mitochondria as Semi-autonomous Organoids.

Lysosomes: Morphology, Chemistry, Polymorphism in Relation to Cytosis and Cell Autophagy.

UNIT-IV **20 hrs**

Nucleus: Nuclear Envelope, Nuclear Permeability, Structure of Interphase Nucleus, Structure and Cytochemistry of Nucleus, Structure and Biogenesis of Ribosomes.

Centrioles: Basal bodies, Cilia, Flagella, Microtubules, Amoeboid movement.

UNIT-V **15 hrs**

Cell cycle and Cell division – Mitosis and Meiosis, Cell Ageing. Overview of Intercellular Signalling (Autocrine, Paracrine, Juxtacrine and Endocrine) and Intracellular signaling - GPCR pathway.

Books Recommended:

1. DeRobertis, EDP, De Robertis,E.M.F. Cell Biology and Molecular Biology. Eighth Edition. W.B. Saunders Co., Philadelphia, 1995.
2. Powar, C.B., Cell Biology, Himalaya Publishing House, Bombay.
3. Alberts, B. Bray, D., Lewis, J., Raff, M., Roberts, K., Watson, J.D. Molecular Biology of the Cell Gerland Publ. Inc., New York.
4. Darnell, J., Lodish, JH. & Beltimore, D. Molecular Cell Biology, Oxford & IBH Publishing Co., New Delhi.

SEMESTER IV

PAPER V: GENETICS AND EVOLUTION

Credit: 4

Objectives

To enable the students to learn various aspects of hereditary. To give an insight into evolution of genetic material, its functional aspects and changes in the environment that bring about evolution.

UNIT-I **20 hrs**

Physical basis of heredity – Mendelism, interaction of genes, multiple alleles, chromosome structure and function in Eukaryotes. Polytene chromosomes, lampbrush chromosomes.

UNIT-II **20 hrs**

Sex determination - Chromosomes & Sex Chromatin

Chromosomal changes- Structural aberrations and its significance. Numerical changes, Polyploidy and its types. Nature of genes-Double helix structure of DNA, Mechanisms of DNA replication. Changes in genes-Spontaneous mutations and Induced Mutations, Physical and Chemical Mutagens.

UNIT-III **15 hrs**

Linkage of genes, Crossing over, Sex linkage in *Drosophila* and Man, Criss-cross inheritance, Colour blindness and Haemophilia. Cytoplasmic inheritance. Human Genetics-Normal and abnormal karyotypes.

UNIT – IV : Evolution **20 hrs**

Lamarckism and Neo-Lamarckism – Darwinism and Neo-Darwinism – Mutation Theory – Geological time scale – Dating of Fossil – Living and Extinct Fossils. Mimicry & Colouration – Batesian and Mullerian – Convergent, Divergent and Parallel Evolution – Co-evolution, Adaptive radiation in mammals.

UNIT – V **15 hrs**

Isolating mechanisms – different types – Species Concept – definition and origin of species – Allopatric and Sympatric speciation – Genetic drift – Founder's Principle. Evolution of Man.

Books Recommended:

1. U. Goodenough: Genetics. IIIrd Edition, Washington University, Saunders College Publishing.
2. O.P. Swanson, Timothy Herz and William, J. Young : Cytogenetics-The chromosome in division, inheritance and evolution, Prentice Hall.
3. B.S. Gardner & D.P. Smustad : Principles of Genetics, John Wiley &Sons. 6th Ed.
4. A.M. Winchester. Genetics-A survey of the Principles of Heredity, Oxford &IBH Publishing Co., New Delhi.
5. P.K. Gupta : Genetics, Rastogi Publishers, Meerut.
6. P.K. Gupta : Cytology Genetics, and Molecular Biology; Rastogi Publishers, Meerut.
7. Verma, P.S. and V.K. Agarwal, 2002, Concept of Evolution, S. Chand & Co., Ram Nagar, New Delhi – 110 055.
8. Stirton, R.A., Time, life and man, C.B.S. Publishers & Distribution, Delhi.
9. Colbert, E.H., Evolution of Vertebrates, C.B.S. Publishers & Distribution, Delhi.
10. Dobzhansky, T., Genetics and the origin of species. Columbia, Univ. Press, New York.
11. Mayr, E., Systematics and the origin of species, Columbia Univ. Press, New York.

PAPER VI: PRACTICAL II - CELL BIOLOGY AND GENETICS

Credit: 4

CELL BIOLOGY

1. Micrometry – Use of Microscopes- Microscopes – Light microscope, Camera Lucida, Stage and Ocular Micrometer.
2. Blood smear preparation – Differential Count of WBC.
3. Counting of RBC and WBC using Haemocytometer (Demonstration)
4. Mounting of Buccal epithelium and observing living cells using vital staining.
5. Mitosis in Onion root tip squash
6. Meiosis in grasshopper testis squash (Demonstration)
7. Study of prepared slides of histology
    a. Columnar epithelium
    b. Ciliated epithelium
    c. Glandular epithelium
    d. Connective tissue
    e. Cartilage T.S.
    f. Bone T.S.
    g. Cardiac tissue
    h. Striated muscle
    i. Non-striated muscle
    j. Nervous tissue
    k. Ovary T.S.
    l. Testis T.S.

GENETICS

1. Observation of Common Mutants of Drosophila
2. Preparation of Mount of Salivary Gland chromosomes of Chironomus larva
3. Identification of Human Blood Groups
4. Study on Normal Karyotype - Male and Female, Down Syndrome, Turner and Klinefelter Syndrome

SEMESTER V

PAPER VII : DEVELOPMENTAL BIOLOGY AND IMMUNOLOGY

Credit: 4

Objectives

To enable the students to know about the development of all the vertebrates from an egg to the embryo. To enable the students to understand the overall organization and functions of the immune system.

UNIT I **12 hrs**

Origin of germ cells- Process of Spermatogenesis and Oogenesis; Structure of human sperm, Types of sperms, Types of eggs.

UNIT II **12 hrs**

Mechanism and Physiology of Fertilization. Early development- Cleavage, Blastulation, Gastrulation and Tubulation in Frog and Chick. Presumptive areas, Organizers and Inductors.Parthenogenesis

UNIT III **12 hrs**

Development of membranes and Formation of placenta. Types of placentae in mammals. Organogenesis – Development of brain, eye and ear in frog. Regeneration in vertebrates and invertebrates. Pregnancy and related problems. IVF-Embryo Transfer and its advantages. Test tube baby-Amniocentesis.

Unit – IV **12 hrs**

Overviews of immune system – Historical perspectives, Innate and Acquired immunity. Cells of the Immune System: Hematopoiesis and Differentiation, B-lymphocytes, T-lymphocytes, Macrophages, Dendritic cells, Natural Killer Cells and Lymphocyte Activated Killer Cells, Eosinophils, Neutrophils & Mast Cells. Organs of the Immune System: Primary and Secondary Lymphoid Organs: Thymus, Bursa of Fabricii, Spleen, Lymph Nodes, Lymphatic System, Mucosa Associated Lymphoid Tissue (MALT) - Complement system

UNIT V **21 hrs**

Antigens – types, properties- Haptens – Adjuvants – Vaccines – Types – Toxoids – Antitoxins – Immunoglobulins – structure, types, and properties – Theories of antibody production – Complement structure, properties, function and pathway – Antigen-antibody reaction – in-vitro methods – Agglutination – Precipitation – Complement fixation – Immuno-fluorescence – ELISA – RIA.

Books Recommended:

1. An Introduction to Embryology, Saunders Company.
2. Turner, C.D. and Bagnars, W.B. (1976) General Endocrinology, Saunders Company.
3. Roitt I.M. 2000. Essential Immunology. Blackwell Scientific Publishers
4. Chakravarthy, A. K.1996. Immunology, Tata Mc Graw Hill, New Delhi.

PAPER VIII: BIOTECHNOLOGY AND NANOTECHNOLOGY

Credit: 4

Objectives

To enable students to be familiar with the basics of biotechnology together with a fundamental knowledge on the application of nanotechnology

UNIT I **12 hrs**

Definitions and history of Biotechnology. Structure of *E.coli*, Bacterial conjugation, Transduction, Transformation, Structure of Bacteriophage – Lytic and Lysogenic Cycle. Major areas of Biotechnology – Agriculture, Food and Pharmaceutical industry and Beverages. Indian scenario in Biotechnology – Centers, Activities Achievements and Bio-industries in India

UNIT II **12 hrs**

Vectors – Types, plasmids (pBR 322, pBR 327), Phage – M13, Cosmid insertion vectors, Replacement vectors, Shuttle vectors and High expression vectors. DNA fragment, Enzymes – Nucleases, Restriction enzymes, Polymerase and Ligases.

UNIT III **12 hrs**

Gene cloning in *E.coli*. Isolation of DNA – Insertion of DNA – Use of Linkers and Adapters – Transformation – Uptake of DNA by host cell – Selection of clones identification of recombinants insertional inactivation.

UNIT IV **12 hrs**

Tissue culture: Culture media – Composition and Preparation. Principles and techniques of plant and animal cell culture. Importance of cell line culture.

UNIT V **12 hrs**

Nanotechnology: Definition - Nanoscience and nanotechnology. Applications of nanotechnology – Nanomaterials in medicine – Medical implants – Nanomaterials for water purification – Nanomaterials in food – Nanomaterials for the environment - Elimination of pollutants – Veterinary applications.

Text Books:

1. Purohit Mathur, 1999 .Biotechnology Fundamental and applications. Botanica Publications.
2. Shah H.A and Tokeer Ahmad, 2011. Principles of nanoscience and nanotechnology. Narosa Publishing House.

Reference Books:

1. T.A. Brown .2010. Gene cloning and Introduction. Wiley Blackwell.
2. Brown J.A. 2001 – Genetics – A Molecular approach 3rd edition – Nelson Tornes.
3. Old R. W and S.B. Primrose. 1994. Principles of Gene manipulation – 5th edition – Blackwell Scientific publications.
4. John. R. W. Masters 2000. Animal cell culture – A practical approach 3rd Edition. Oxford univ press.
5. Glick B.R. and Jack J. Pasternak, 1994 . Molecular biotechnology ASM press.
6. P Ramdoss, 2009.Animal Animal Biotechnology Recent Concepts and Developments, MJP Publishers.
7. Subbiah Balaji, 2010. Nanotechnology. MJP Publishers.
8. S Shanmugam, 2011. Nanotechnology. MJP Publishers.
9. Rakesh Rathi, Nanotechnology, S. Chand & Co.
10. B K Parthasarathy, 2007.Nanotechnology in Life Science Gyan Books.
11. Kumar, 2010. Principles of Nanotechnology, Scitech. Publications (India)

PAPER IX: ANIMAL PHYSIOLOGY, BIOCHEMISTRY AND ENDOCRINOLOGY

Credit: 4

Objectives

To make the students understand the physiological and biochemical processes going on inside the vertebrates.

UNIT-I **12 hrs**

Enzymes: Classification, Nomenclature, General Properties, Regulation of Enzyme Activity, Enzyme inhibition.

Digestion: Intracellular and extracellular digestion, digestive enzymes, Digestion by means of symbionts, Intestinal absorption.

UNIT-II **14 hrs**

Respiration: Nature of Respiratory Organs, Transport of Respiratory Gases, Control of Respiration.

Muscle: Muscle contraction – Physiology and Chemistry.

Excretion: Structure of Kidney and Nephron, Physiology of urine formation.

Circulatory System: Blood components, Functions of components, Cardiac output and Heart rate, Physiology of heart, Control of Cardiovascular function.

Nervous System: Structural elements, Nerve impulse, Resting and Action potentials, Conduction of Action Potential, Synaptic Transmission.

UNIT III **12 hrs**

Structure and Classification of Macromolecules : Protein , Lipid and Carbohydrate.

Metabolism: Carbohydrate metabolism: Glycogenesis, Glycogenolysis, Gluconeogenesis and Glycolysis; Kreb's cycle, Regulation of Carbohydrate Metabolism, Electron Transport Chain, Oxidative Phosphorylation.

Lipid Metabolism

Protein Metabolism

UNIT-IV **12 hrs**

Introduction to hormones and their mode of action. Gonadal hormones in Mammals. Hormonal control of metabolism, Development, Somatic pigmentation and Reproduction in insects. Physiology in relation to reproduction.

UNIT-V **10 hrs**

Structure of Endocrine Glands-Pituitary, Thyroid, Adrenal and Pancreas of Vertebrates. Biological Actions of Hormones of Pituitary, Thyroid, Adrenal and Pancreas.

Books Recommended:

1. Guyton, A.X. (1986) Text Book of Medical Physiology, 7th edition, Saunders Company.
2. Best, J.P. (1985) Best and Taylor's physiological basis of medical practice (11th ed.) William and Wilkins.
3. Hoar, W.S. (1983) General and comparative physiology, Adaptation and Environment (3rd ed.) Cambridge University Press.
4. Highnam, K.C. and Hill, L.(1981) Comparative Endocrinology of invertebrates, Enwaral Arnold Ltd.., London.
5. Golds Worthy, G.J. Robinson, J. and Mordue, W. 1981. Endocrinology, John Wiley and Sons, New York.
6. Tombes, A.S.(1970) An Introduction to invertebrates endocrinology, Academic Press, New York.
7. Lehninger A.L., Nelson D.L., Cox M.M. (2005). Principles of biochemistry (W. H. Freeman, USA).
8. Stryer L, J. M. Berg, J.L. Tymoczko (2001). Biochemistry (W.H. Freeman and Company, New York).
9. Rawn J.D. (1989). Biochemistry (Neil Patterson).
10. Voet D., Voet, J.G. (2004). Biochemistry (John Wiley & Sons).
11. Voet, D., Voet, J.G. and Pratt, C.W. (2008). Fundamentals of biochemistry: Life at the molecular level (John Wiley & Sons).

PAPER X BIOSTATISTICS AND COMPUTER APPLICATION IN LIFE SCIENCE

Credit: 4

Objectives

All the data generated in biological sciences needs statistical verification to prove its significance so computer aided analysis of the same is need of the hour. Therefore knowledge of computer in 1st year is important.

UNIT – I **12 hrs**

An introduction, Types of data, Collection, Classification and Tabulation of the Primary data, Secondary Data, Discrete data and Continuous data, Diagrammatic and Graphical representation of grouped data, Frequency Distribution {univariate and bivariate}, Cumulative frequency distribution and their graphical representation, Histogram frequency polygon. Concept of central tendency or location and measures of dispersion

UNIT – II **12 hrs**

Normal distribution. Simple Correlation. Hypothesis testing- Student's t-test; Chi-square analysis; Regression Analysis. Theories of probability.

UNIT – III **12 hrs**

Computers: General introduction to computers, Organization to computers, Digital and Analogue computers, Computers algorithms: Milestones in hardware and software-batch oriented/online/real time applications.

UNIT – IV **12 hrs**

Data storage devices: Primary storage: Storage addressed and capacity, ROM, RAM, Input/output devices: Key-tape/diskette devices, light pen Mouse, Joystick, Source data automation. Printed outputs: Serial, line, page, Printers, Plotters, Voice Response Units.

UNIT V **12 hrs**

MS – Word: File operations – New, Open, Save & Print – Editing – Cut, Copy, Paste, Find & Replace – Insert – Page numbers & Pictures – Format – Font, Bullet and Numbering, Paragraph & Background – Tools – Spelling & Grammar – Data – Sort.

MS – Excel: Presentation of Biostatistical data using Excel – Auto-sum, Paste function, Chart wizard, Sort function & Drawing. Uses of Internet, Networking of computers.

Reference Books:

1. P.N. Arora & P.K. Malhotra (1996). Biostatistics (Himalaya Publishing House, Mumbai).
2. Sokal & Rohlf(1973). Introduction to biostatistics (Toppan Co. Japan).
3. W.J. Evens, G.R. Grant (2005). Statistical methods in bioinformatics: An introduction (Springer).
4. P.K. Sinha (2004). Computer fundamentals (BPB).
5. Suresh K. Basandra (2008). Computers today (Galgotia Publications Pvt. Ltd., New Delhi).

ELECTIVE I: INTERDISCIPLINARY ELECTIVE (IDE) – WILDLIFE CONSERVATION

Credit: 5

Objectives

To provide education and awareness and to encourage appreciation and importance of wildlife and also to provide knowledge for competitive job oriented examinations.

Unit I **12 hrs**

Introduction to wildlife and its conservation. Economic importance and Need for conservation. Definition of wildlife – Causes of wildlife depletion – Endangered species – Threatened and Rare species. India as a mega wildlife diversity country.

Unit II **12 hrs**

Population Estimation : Basic concepts and application – Direct Count (Block Count, Transect Methods, Point Counts, Visual Encounter Survey, Waterhole Survey) – Indirect Count (Call Count, Track and Signs, Pellet Count, Pug Mark)

Wildlife Photography: Types of camera, camera traps, Field equipments – Altimeter, Pedometer, Field Compass, Binoculars, Radio Collaring, GPS, GIS. Remote sensing in wildlife management

Unit III **12 hrs**

Wildlife health care and Human wildlife confliction. Infectious wildlife diseases – Viral (Rabies) – Bacterial (Anthrax) – Basic reasons for conflicts. Damage caused by wild animals and control measures.

Unit IV **12 hrs**

Wildlife Management and Legislation – Wildlife Protection Act 1972, IUCN, CITES, NBA, Project tiger, Project elephant – Wildlife Trade and Regulation. Biodiversity Act 2000. Ecotourism and Ecorestoration. Anti-poaching Operations – Village Forest Council (VFC).

Unit V **12 hrs**

Wildlife Protection – Definition – *in-situ* and *ex-situ* conservation – Zoos and Zoological Parks – National Parks and Sanctuaries (Aringar Anna Zoological Park, Guindy National Park, Srivilliputtur Wildlife Sanctuary, Vedanthangal Bird Sanctuary, Mudumalai and Periyar Tiger Reserves, Nilgiris Biosphere Reserve).

Exercises (Optional)

Visit to National Zoological Parks and Sanctuaries, Study on wetlands or about high altitude fauna.

Reference Books:

1. Saharia, V.B. (1987). Wildlife in India. Nataraj Publications, Dehradun.
2. The Eye of the Elephant: An Epic Adventure in the African Wilderness by Delia Ownes
3. The Book of Indian Birds by Salim Ali.
4. Analysis and Management of Animal Population by Byron.K. Williams.
5. A book on Wildlife Protection Act 1972, Lawmann
6. A book on the Red Data Books by IUCN.

SEMESTER VI

PAPER – XI: ENVIRONMENTAL BIOLOGY & TAXONOMY

Credit: 4

Objectives

To enable the students to identify, classify and name the organism according to International Code of Zoological Nomenclature. To acquaint the student with different procedures of taxonomy and different methods of analysis of variations and theories of classification. To educate the students about the basic environmental phenomena and enable them to understand the adaptations of the animals to their environment.

UNIT-I **12 hrs**

Ecology-Definition, Subdivision of Ecology and Scope of Ecology. Ecological Factors-Temperature and Light as Ecological Factors. Ecosystem - Definition, Components of Ecosystem, Grazing and Detritus type of food chain, Food Web and Trophic levels. Ecological pyramids-Pyramids of number, Biomass and Energy.

UNIT-II **12 hrs**

Energy flow-Flow of energy through a food chain in relation to laws of thermodynamics. Biogeochemical cycles – Nitrogen and Phosophorous Cycle. Laws of limiting factor- Leibigs's law of minimum, Shelford's law of tolerance and concept of limiting factors. Ecological niche – Concept of ecological niche. Ecological succession – Definition, Types of succession.

UNIT – III **12 hrs**

Freshwater habitats – Lentic and Lotic; Marine habitat- Zonation

National and International Environmental Organizations, Red Data Book. Wildlife Management

UNIT-IV **12 hrs**

Definitions and perspectives of systematics, Classification and Taxonomy; History, Goals and Importance of Taxonomy; Procedures of taxonomy-identification, Classification, Nomenclature, Phena, Taxa, Category; Key and its significance; Higher taxa and Linnean hierarchy; History and Theories of Classification.

UNIT –V **12 hrs**

International Code of Zoological Nomenclature-Principles and Objectives and Rules for Nomenclature, Type system and Priority for different taxa. Population structure of species; Polytypic species, Race, Variety, Cline, Subspecies, Semi-species, Super species.

Books Recommended:

1. Mayr, E., Principles of Systematic Zoology, McGraw-Hall, New York.
2. Kreb, J.C., Ecology, Harper & Row, Publ., New York.
3. Odum, E.P., Fundamentals of Ecology, Saunders College Publishers, Philadelphia.
4. George L.C., Elements of Ecology, Johnes Wiley, New York.
5. Kendeigh, S.C., Ecology with special reference to animals, Prentice-Hall of and New Delhi.
6. Smith, Ecology, Harper & Row Publishers, New York.
7. Kormondy, Concepts of Ecology,Prentice Hall of India, New Delhi.

PAPER XII GENETIC ENGINEERING AND RECOMBINANT DNA TECHNOLOGY

Credit: 4

Objectives

To facilitate students to understanding the basic concepts involved in genetic manipulation and the application of rDNA technology

Unit –I **12 hrs**

Introduction to Gene Cloning, DNA Manipulative Enzymes-Nucleases, Ligases, Polymerases, Modifying Enzymes, Restriction Enzymes and its Nomenclature, reverse transcriptase, topoisomerases, plasmids- Basic features of plasmids, Plasmid Classification, Blunt And Sticky Ends.

Unit – II **12 hrs**

Vectors: Cloning vectors for *E. coli*- Nomenclature, pBR 322, pBR 327, pUC 8, pGEM3Z. Methods of identification of recombinants: Insertional inactivation, Blue/white selection. Bacteriophages: Basic features, Phage and its vector, Lytic & Lysogeny, Linear and Circular forms of Lambda Vector, Insertion and Replacement Vectors; Identification of Recombinant Phages.

Unit – III **12 hrs**

Cloning vectors for yeast and fungi, YEp, YIp, YRp, artificial chromosomes, YAC, application of YAC, Identification of a recombinants from a gene library, Methods of clone identification, Radioactive and non- radioactive DNA and RNA labeling techniques.

Unit- IV **12 hrs**

Southern, Northern and western blotting, colony hybridization, *In situ* hybridization, Genomic Cloning, Transformation of *E. coli*, Yeast and Plant cells. PCR: Types, Applications and Limitations. Applications of rDNA Technology to Medicine, Agriculture & Environment.

Unit V **12 hrs**

DNA sequencing- Restriction fragment probe, Sanger Coulson Method. Maxman Gilbert Method- RFLP- Techniques and Application. Genetic Finger Printing- Polymerase Chain Reaction- Taq Polymerase Primers, Human Genome Project. Applications of Genetic Engineering- Alcohol Production, Medicine- Insulin and Hepatitis Vaccine Production

Text book:

1. Dubey, R.C. 1995, A Text Book of Biotechnology, S.Chand & Co. Ltd., Ram Nagar, New Delhi – 110 055.

Reference Books:

1. J. Sambrook, D.W.Russell (2001). Molecular cloning: A laboratory manual (Cold spring Harbour Laboratory Press).
2. R.M. Old, S.B. Primrose (2001). Principles of gene manipulation (Wiley- Blackwell).
3. B. D. Hames, S. J. Higgins (1995). Gene probes: A. practical approach (Oxford University Press).
4. Tuan Rocky S. (1997). Recombinant gene expression protocols (Edition Illustrated, Publisher Springer).
5. White Bruce A. (1997). PCR cloning protocols: from molecular cloning to genetic engineering (Humana Press).
6. Sandy B. Primrose, Richard Twyman (2006). Principles of gene manipulation and genomics (Wiley Blackwell).
7. Terence A. Brown (2006). Gene cloning and DNA analysis: An introduction (Wiley-Blackwell).

PAPER XIII MICROBIOLOGY AND INDUSTRIAL BIOTECHNOLOGY

Credit: 4

Objectives

Microbes are playing significant role in understanding medical science and industries so study of microbes from basic to advance level, with understanding of biochemistry, cell structure and application makes this paper significant.

UNIT – I **12 hrs**

History of Microbiology: A. Leewenhook, L. Pasteur, R. Koch, J. Lister, J. Tyndall. Biogenesis Vs Abiogenesis, Koch Postulates, Discovery of Antibiotics. Principle of Microscopy: Bright field, Dark field, Phase Contrast, Fluorescent, Electron Microscopy.

UNIT – II **12 hrs**

Microbial Classification: Bacteria, Fungi and Algae. Morphology of Bacteria, Viruses and Fungi with major emphasis on bacterial structure specially cell wall. Gram positive and Gram negative bacteria. Microbial spores, Sporulation/ germination process.

UNIT – III **12 hrs**

Microbial growth, Nutritional biodiversity, Phases of growth, Generation time, Growth rate. Chemostat and Turbidostat, Microbes in extreme environment like high temperature and high/ low pH values, Sterilization.

UNIT –IV **12 hrs**

Dairy Microbiology – Pasteurization – Milk products – Curd, Butter and Cheese; Food Microbiology – Fermented food - Food spoilage - Food poisoning – Physiochemical methods in food preservation. Soil Microbiology – Common soil microbes – Symbiotic and asymbiotic organisms. Water Microbiology - Microbiology of drinking water – Waterborne diseases.

UNIT V **12 hrs**

Production of Industrial Enzymes such as Proteases, Amylases, Lipases, Cellulases. Biopreservatives (Nisin) Cheese, Biopolymers (Xanthan Gum, PHB), Antibiotics, (penicillin). Production of Recombinant Proteins having Therapeutic and Diagnostic Applications, Products of Plant and Animal Cell Culture.

Text Books:

1. Dubey, R.C. 1995, A Text Book of Biotechnology, S.Chand & Co. Ltd., Ram Nagar, New Delhi – 110 055.
2. Sundara Rajan, S, 2002, College Microbiology – Vol. I to IV, Vardhana Publications, Bangalore – 560 095.

Reference Books:

1. Pelczar Jr. M.J. Chan E.C.S. and Kreig N.R. 2001 Microbiology – McGraw Hill Inc. New York.
2. Stainer R.Y., Ingraham J.L., Wheelis M.L. and Painter P.R. 1999 General Microbiology – Macmillan Education Ltd. London.
3. Purohit Mathur. 1999. Biotechnology Fundamentals and applications. Botanica Publications.
4. Higgins I.J., Best G.J., and Jones J. 1996, Biotechnology – Principles and applications, Blackwell Scientific Publications, Oxford London.
5. Gupta P.K. Elements of Biotechnology 2001, Rastogi Publications, Meerut.
6. Rittmann, B.E. and P.L. McCarty, 2001. Environmental biotechnology: principles and applications. Mcgraw- Hill, New York.
7. Ahmed, N., F.M.Qureshi and O.Y. Khan, 2001. Industrial environmental Biotechnology, Horizon Press.

ELECTIVE II: MEDICAL LABORATORY TECHNIQUES AND BIOINSTRUMENTATION

Credit: 5

Objectives

To familiarize students with various laboratory techniques undertaken before medical intervention and the instruments utilized in common laboratories.

Unit I **12 hrs**

Introduction – Scope of the subject. Collection of specimens, Records and Preparation of reports. Cleaning, Maintenance and Care of Glasswares.

Unit II **12 hrs**

Sterilization – Physical and Chemical Methods. Disposal of Specimens and Infected Materials, Safety Precautions and First Aid Treatment for Superficial wounds, Burns, Chemical Poisoning, Contamination of infected microbiological specimens and Electric shock.

Unit III **12 hrs**

Urine: Analysis of urine samples, Chemical parameters routinely required to be analysed. Pregnancy test. Analysis of stools, semen, Cerebrospinal fluid for chemical investigation.

Unit IV **12 hrs**

Pathology: Organisms causing infectious diseases. Viruses – Measles, Poliomyelitis, Hepatitis, HIV. Bacteria – Tuberculosis, Whooping cough – Tetanus – Diptheria, Cholera. Protozoans – Amoebic dysentery, Malaria, Leishmaniasis. Helminths – filariasis, Cysticercosis.

Unit V **12 hrs**

Principles use and maintenance of laboratory instruments like Autoclave, Hot air oven, Incubators, Water bath, Refrigerator, Centrifuge, Colorimeter, pH meter, Haemoglobinometer, Haemocytometer, Microtomes, Balances.

Text Book:

1. Sood Ramnik, 1985. Medical Laboratory Technology. Jaypee brothers, New Delhi, 384 pp.

Reference Book:

1. Baker F.J. and Silverton R.E. Introduction to Medical Laboratory Technology.

ELECTIVE III : ECONOMIC ENTOMOLOGY AND PEST MANAGEMENT

Credit: 5

Objectives

India being an agricultural oriented country, economic losses through agriculture is a major concern. This study facilitates an understanding of insects pests and diseases of major crops cultivated in India and their management strategies.

Unit I **12 hrs**

Brief account of morphology, Classification (Major orders) and Development (Metamorphosis) of insects.

Unit II **12 hrs**

Beneficial and Harmful Insects. Economic importance of Honeybees, Silkworm and Lac insect – Parasitic and Predatory Insects. Damages to plants, animals and man by insects. Brief account of any three pests of 1. Rice, Cholam and Pulses 2. Sugarcane 3. Cotton 4. Groundnut, Gingely and Coconut 5. Brinjal, Tomato and Lady's finger 6. Cardomam, Chilies, Tea and Coffee 7. Mango and Citrus.

Unit III **12 hrs**

Insect pests of stored grains – Insect vectors of plants, animals and man – Other insects affecting the health of man domestic animals.

Unit IV **12 hrs**

Insect pest control methods (Physical, mechanical, biological and chemical) – Classification of pesticides and their modes of action.

Unit V **12 hrs**

Plant protection appliances used – Basic principles of insecticide formulations and their application in pest control. Pesticides and environmental pollution – Precautions in handling pesticides.

Text Book:

1. David, B.V. and T. Kumarasamy, 1984. Elements of Economic Entomology, Popular Book Depot, Madras, 536 pp.

Reference Books:

1. Nayar, K.K., T.N. Ananthakrishnan and B.V. David. 1992. General and Applied Entomology. Tata McGraw Hill Publishing Co., Ltd., New Delhi – 110 051.
2. David, B.V., 1992. Pest Management and Pesticides Indian Scenario, Namratha Publications, Madras.
3. Metcalf, C.L. and W.P. Flint, 1973. Destructive and Useful Insects. 4th Ed., Tata McGraw Hill Publishing Co. Ltd., New Delhi – 110 051, 1087 pp.
4. Roya D.N. and A.W.A. Brown (Eds), 1981. Entomology Medical and Veterinary (3rd Ed.) The Bangalore Printing and Publishing Company, Bangalore –18.
5. Ramakrishna Iyer, T.V., Economic Entomology, Government Publications. Madras.

PAPER XIV: PRACTICAL III - ANIMAL PHYSIOLOGY, BIOCHEMISTRY, DEVELOPMENTAL BIOLOGY AND IMMUNOLOGY

Credit: 4

ANIMAL PHYSIOLOGY

1. Use of Kymograph unit, B.P. apparatus, Respirometer.
2. Survey of Digestive enzymes in cockroach.
3. Estimation of Oxygen consumption in a fish with reference to body weight.
4. Detection of nitrogenous waste products in fish tank water, frog tank water, bird excreta and mammalian urine.

BIOCHEMISTRY

1. Qualitative analysis of sugar (Glucose, Fructose, Lactose, Starch, Dextrin)
2. Estimation of Glycogen (Anthrone method) (Demonstration)
3. Estimation of Protein (Biuret method) (Demonstration)

DEVELOPMENTAL BIOLOGY

Study of the following prepared slides, museum specimens and materials.

1. Sections of testis and ovary showing the maturation stages of gametes.
2. Slides of mammalian Sperm and Ovum.
3. Study of Egg types – Frog's egg, Hen's egg.
4. Slides of cleavage stages, blastula, gastrula and neurula of frog.
5. Slides of different stages of chick embryo. 18 Hours (primitive streak stage), 24 Hours, 48 Hours, 72 hours and 96 Hours.
6. Placenta of sheep, Pig and Man.

IMMUNOLOGY

1. Immuno electrophoresis-antigen, antibody reactions – agglutination - precipitation ring test. (Demonstration)
2. ABO, Rh typing

PAPER XV: PRACTICAL IV- ENVIRONMENTAL BIOLOGY, BIOTECHNOLOGY AND MICROBIOLOGY

Credit: 4

ENVIRONMENTAL BIOLOGY

1. Estimation of O_2, salinity, pH, free CO_2, Carbonates and bicarbonates, Calcium in water samples.
2. Use of Rain gauge, Maximum & minimum thermometer, Hygrometer, Anemometer and Barometer.
3. Plankton study – Fresh water and marine plankton.
4. Adaptations of aquatic and terrestrial animals based on a study of museum specimens - rocky, sandy, muddy shore animals, flying and burrowing animals.
5. Study of natural ecosystem and field report of the visit.

BIOTECHNOLOGY

1. Demonstration of PCR technique.
2. Blotting techniques
   (a) Southern blot
   (b) Northern blot
   (c) Western blot
3. Paper chromatography (Demonstration)
4. Instrumentation – Components and application of instruments – Centrifuge Electrophoresis – Colorimeter-Spectrophotometer.
5. Visit to Industries, Laboratory – Report to be submitted.

MICROBIOLOGY

1. Media preparation- Broth, agar, slants, plating
2. Spotters: *Staphylococcus aureus, E.coli, Rhizopus, Aspergillus flavus, A.niger, Pencillium, Candida albicans.*
3. Instruments- Autoclave, culture plate, Inoculation chamber
4. Staining: Simple and differential staining.

NON-MAJOR ELECTIVE - I

AQUACULTURE

Credit: 3

Unit – I **6 hrs**

History of aquaculture – Purpose and importance of aquaculture – Physical and chemical characteristics features of water bodies (Freshwater brackish water and marine water) – Types of culture systems (Traditional, intensive, semi-intensive and extensive).

Unit – II **6 hrs**

Selection criteria for cultivable species – Site selection for fish farming – Construction of fish and Prawn ponds – Types of fish ponds (breeding pond, hatchery unit, brooders pond, nursery pond, stocking pond and rearing pond) – Maintenance and management of different ponds. Feeds for cultivable species – natural, supplementary and artificial feeds.

Unit – III **6 hrs**

Types of culture – Monoculture, Monosex-culture & Poly culture – Integrated fish farming (paddy cum fish culture, paddy cum prawn culture and Duck cum pig cum fish culture) – Induced breeding in Indian major carps.

Unit – IV **6 hrs**

Culture of air-breathing fishes (Mullet and Cat fish) Sewage fed fish culture – Culture of Pearl Oyster and Edible Oyster.

Unit – V **6 hrs**

Culture of marine and freshwater prawns – Common fish diseases (bacterial, fungal, viral and parasitic diseases) – Prevention and treatment – Fishing technology (Crafts and gears) – Preservation and Processing of Fish and Prawn – Agencies involved in Aquaculture.

Text Books:

1. R. Santhanam, N. Sukumaran and Natarajan, - A manual of fresh water aquaculture, Oxford and IBH Publishing Co Pvt. Ltd., Mumbai.
2. B.N. Yadav, - Fish and fisheries, Daya Publishing House, Delhi.

Reference Books:

1. Mathew Landan, 1991. Introduction to aquaculture, John Wilay and Sons Inc..
2. V.R.P. Sinha, 1993. Acompendium of aquaculture Technologies for developing countries, Oxford and IBH Publishing Company PVT. Ltd.
3. V.G. Jhingran,1991. Fish and fisheries of India, Hindustan Publishing Corporation, Delhi.
4. T.V.R. Pillay – Aquaculture principles and practices, Fishing new Books, Blackwell Science Ltd., Oxford.
5. Shanmugam, K. 1990. Fishery Biology and Aquaculture, Hindustan Pub. Corporation, New Delhi.
6. C.V. Kurian and Sebastein – Prawn and Prawn fisheries of India, Hindustan Publishing House, New Delhi.
7. Elvire Balugal, A. 1984. Aquaculture systems and practices – A selected Review, Daya Publishing House, New Delhi.
8. B.N.Yadav, 1995. Fish Endocrinology, Daya Publishing House, New Delhi.

NON MAJOR ELECTIVE - II

PUBLIC HEALTH AND HYGIENE

Credit: 3

Unit – I **6 hrs**

Scope of Public Health and Hygiene – Concepts of Health and Disease – History of Public Health in India. Nutrition and Health: Classification of foods – Nutritional deficiencies – Vitamin deficiencies – Balanced diet – Nutritional requirements of special groups.

Unit – II **6 hrs**

Environment and Health: water-sources, Pollution, purification – water quality standards. Air: Ventilation – Air pollution – Noise pollution – Radiation effects – Solid waste and excreta disposal – Sewage treatment.

Unit – III **6 hrs**

Communicable diseases: Respiratory infections: Measles, Rubella, Mumps, Diptheria. Intestinal infections: Poliomyelitis, Cholera, typhoid, Amoebiasis. Arthropod infections: Malaria, Filariasis, Dengue. Zoonosis: Rabies, Plague Japanese encephalitis. Surface infections: Tetanus, Leprosy, STD and AIDS

Unit – IV **6 hrs**

Non-Communicable Diseases: Coronary heart Disease – Hypertension – Diabetes – Obesity – Blindness – stroke. Occupational Health Hazards: Physical, Chemical, Mechanical, Biological and Psychological. Mental health: Causes of mental ill-health-alcoholism and Drug dependence.

Unit – V **6 hrs**

Health Education: Health planning in India – Health programmes in India – WHO – Non-governmental Voluntary Health Organizations. First aid and Nursing: Methods –Dressing – care – Duties – Preparations.

Reference Books:

1. Park and Park, 1995. Text Book of Preventive and Social Medicine. M/S. Banarsidas Bhanot Publishers, Jabalpur.
2. Verma S. 1998. Medical Zoology, Rastogi Publications, New Delhi.

SYLLABUS - ALLIED ZOOLOGY (THEORY)

Credit: 4

Paper – I

Unit – I: **20 Hours**

Introduction: Invertebrata- General characters and Classification.
Protozoa – Type study: *Plasmodium vivax*
Porifera – Type study :*Scypha* (Sycon)
Coelenterata – Type study: *Obelia geniculata*
Platyhelminthes- Type study : *Taenia solium*

Unit – II: **20 Hours**

Annelida – Type study: Leech
Arthropoda – Type study: Prawn
Mollusca – Type study: Unio (External morphology and Respiratory system)
Echinodermata – Type study: Starfish (External morphology and Water vascular system)

Unit – III: **15 Hours**

Chordata – General characters& Classification
Prochordates – *Amphioxus* – Structure
Vertebrates- Pisces- Type study : Shark

Unit – IV: **20 Hours**

Amphibia- Type study: Frog (External morphology, Digestive system, Circulatory System and Reproductive system)
Reptilia: Calotes (External morphology, Digestive system, Circulatory System and Reproductive system)

Unit – V: **15 Hours**

Aves- Type study: Pigeon (External morphology and Respiratory system)
Mammalia- Type study: Rabbit (External morphology and Circulatory system)

Text Book

1. Ekambaranatha Ayyar, M and Ananthakrishnan, T.N. 1993, Outlines of Zoology, Vol.I and II, Viswanathan and Co. Madras.

Reference Books:

1. P.S. Dhami and J.K. Dhami – Invertebrate Zoology – S. Chand and Co. New Delhi.
2. Jordan, E.K. and P.S. Verma, 1993. Chordate Zoology, 12th edition, S. Chand & Co. Ltd., Ram Nagar, New Delhi.

SYLLABUS - ALLIED ZOOLOGY (THEORY)

Credit: 4

Paper – II

Unit – I: **20 Hours**

Cell Biology – Structure of animal cell, Mitochondria, nucleus and nucleolus and Golgi bodies. **Genetics:** Molecular structure of Genes – Gene concept – Gene function – Inborn errors of metabolism – Genetic Engineering and its applications – X and Y – linked inheritance.

Unit – II: **20 Hours**

Developmental Biology: Gametogenesis – Fertilization - Cleavage and gastrulation of chick and pig.

Unit – III: **20 Hours**

Human Physiology: Digestion, Excretion, kidney failure and transplantation. Structure of heart, Cardiac cycle, composition of blood, Blood pressure. Heart diseases – Ischemia, Myocardial infarction, Rheumatic heart disease, Stroke. Endocrine glands – Hormones- feedback mechanism – Pituitary, thyroid, Islets of Langerhans, adrenal, sex organs.

Unit – IV: **15 Hours**

Environmental Biology: Physico-Chemical factors – Environmental Degradation treatment methods on sewage, effluents – Green house effect.

Unit – V: **15Hours**

Evolution – Lamarkism and Neo-Lamarckism – Darwinism and Neo-Darwinism - Factors responsible for speciation.

Text Book:

1. Verma, P.S. and V.K. Agarwal, 2010 Reprint, Cell Biology, Genetics, Molecular Biology, Physiology, Evolution and Ecology, S. Chand & Co., New Delhi – 110 055.

Reference Books:

1. Sambasiviah, I, Kamalakara Rao, A.P. Augustine Chellapa, S (1983). Text book of Animal Physiology, S. Chand & Co, New Delhi.
2. Verma, P.S. and Agarwal, V.K. (1983). Animal Ecology, S. Chand & Co, New Delhi.
3. Verma, P.S. and Agarwal, V.K. and Tyagi, B.S. (1991). Chordate Embryology S. Chand & Co, New Delhi.
4. Rastogi, V.B. and Jayaraj, M.S. (2000). Text book of Genetics, Kedarnath Ramnath Publishers, Meerut.
5. T.S.Gopalakrishnan, Itta Sambasivaiah and A.P.Kamalakararao, 1984 Principles of organic Evolution, Pearl publications, Chennai.

ALLIED ZOOLOGY

PRACTICAL

Credit: 4

I. Dissection:

Cockroach

1. Digestive System
2. Nervous System

II. Mounting:

1. Mouth parts of cockroach
2. Mouth parts of Mosquito
3. Prawn: Appendages

III. Spotters:

1. *Plasmodium*
2. *Sycon*
3. *Obelia geniculata*
4. *Taenia solium* (Entire)
5. *Taenia solium* (Transverse section)
6. Leech (Entire)
7. Leech (Transverse section)
8. Fresh water mussel
9. *Amphioxus*
10. Shark (Placoid scale)
11. Pigeon (Feathers)
12. Rabbit.

RULES AND REGULATIONS

I. CHOICE BASED CREDIT SYSTEM (CBCS) WITH GRADING

The College follows the CBCS with grades under the semester pattern. Every course paper is provided with a credit point based on the quantum of subject matter, complexity of the content and the hours of teaching allotment. This is done after a thorough analysis of the content of each subject paper by the members of the Board of studies and with the approval of the Academic Council. Students are also offered a variety of Job-oriented courses, Elective courses and courses involving Soft-skills as the part of curriculum. Students can earn extra credits by opting for Massive Open Online Courses (MOOCs) and Certificate Courses.

The evaluation method under CBCS involves a more acceptable grading system that reflects the personality of the student. This is represented as Cumulative Grade Point Average (CGPA) and Grade Point Average (GPA) which are indicators of Academic Performance of the student. It provides students scope for horizontal mobility and empowers them with the flexibility of learning at their convenience.

II. ELIGIBILITY FOR ADMISSION

Candidates admitted to the first year of the UG programme should have passed the higher secondary examinations (Academic or Vocational Stream) conducted by the Government of Tamil Nadu or an examination accepted as equivalent thereof by the Syndicate of the University of Madras. Students applying for the PG programme should have taken the UG degree in the concerned subject from a recognized university as per the norms of the University of Madras.

III. DURATION OF THE COURSE

The UG course is of three-year duration with six semesters and the PG course is of two-year duration with four semesters excluding MCA – three-year duration with six semesters. The odd semester includes the period from June to November and the even semester from December to April. There shall not be less than 90 working days for each semester.

IV. COURSE OF STUDY

The main subject of study for Bachelor's Degree shall consist of the following:

1. **FOUNDATION COURSES**
   a) PART – I Tamil or Classical Language (Hindi / Sanskrit / French)
   b) PART – II English

2. **CORE COURSES**
   a) PART – III consisting of (a) Main subjects, (b) Allied Subjects, (c) Elective subjects related to the main subject of study and project work.
   b) PART–IV
      I. Those who have not studied Tamil / Hindi up to XII standard and have taken a non- Tamil / non - Hindi language under Part – I shall opt for Basic Tamil / Basic Hindi in the first two semesters.
      II. Those who have studied Tamil up to XII standard, and taken a non - Tamil language under Part – I shall opt for Advanced Tamil in the first two semesters.
      III. Others, who do not come under either of the clauses mentioned above, can choose a Non-Major Elective (NME) in the first two semesters.
      IV. Soft Skills. (I, II, III & IV Semesters)
      V. Environmental Studies (IV Semester)
      VI. Value Education (V Semester)
   c) PART –V Compulsory Extension Service

A candidate shall be awarded one credit for compulsory extension service.

All the students shall enroll for NSS / NCC /Sports & Games/ Rotaract/ Youth Red Cross / Citizen Consumer Club / Enviro Club or any other service organization in the College and shall have to put in compulsory minimum attendance of 40 hours which shall be duly certified by the Principal of the College. If a student lacks 40 hours attendance in any Semester, he/she shall have to compensate the same during the subsequent Semesters. Literacy and population, educational field work shall be compulsory components in the above extension service activities.

V. COURSE STRUCTURE

The UG course consists of 15-18 Core papers, 3 Elective papers and 4 Allied papers. The Credit for each core paper shall be 3-4, while the elective and allied papers shall carry a credit of 5. The B. Com (Hons) course has 32 core papers of 4 credits each.

The PG course has 14-17 core papers with 4 credits, elective papers with 3-4 credits and a project work.

The MBA course has 13 core papers of 4 credits each, 8 elective and interdisciplinary papers of 3 credits each and a project work.

The MCA course has 26 papers of 2-4 credits, 6 elective papers of 3-4 credits and a project work.

Internship training is a compulsory component for all the PG courses.

- **The details of the course structure are given in the following table:**
-

CHOICE BASED CREDIT SYSTEM WITH GRADING

POST GRADUATE DEGREE

COMPONENTS	M.B.A.			M.Sc. Chemistry, M.Sc. Mathematics, MSW, M.Sc. Zoology, M.A.Economics, M.A Defence & Strategic Studies			M.C.A.			M. COM		
	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits
CORE COURSES INCLUDING PRACTICAL	13	4	52	14-17	4	60 - 70	26	2- 4	79	16	4	64
PROJECT	1	8	8	0 – 1	6	0 - 6	1	18	18	0	0	0
ELECTIVES INCLUDING EXTRA DISCIPLINARY COURSES	8	3	24	3-5	3 - 4	10 - 20	6	3 – 4	23	4	4	16
SKILL	4	2	8	4	2	8	6	2 – 3	13	4	2	8
INTERNSHIP	1	2	2	0 – 1	2	0 - 2	1	2	2	1	2	2
TOTAL			**94**			**90**			**135**			**90**

UNDER GRADUATE DEGREE

PART	COMPONENTS	B.Com (Gen.), B.Com (A&F), B.Com(B.M.), B.Com(M.M.), B.Com(ISM), B.B.A., B.C.A,B.Sc (IT)			B.Com (C.S)., B.Sc.(C.S.), B.Sc (Biotech), B.Sc. (Phy.), B.Sc.(Chem.), B.Sc.(Plant Bio.), B.Sc.(Adv.Zoo) B.Sc.(Mat.), B.Sc.(Viscom), B.A.(Eco.) & B.A.(Defence), B.A. (English).			B.Com (Honours)		
		No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits
Part I Foundation Course	Language (Tamil/ Hindi/ Sanskrit/ French)	2	3	6	4	3	12	2	3	6
Part II Foundation Course	English	2	3	6	4	3	12	2	3	6
Part III	Core Papers	18	4	72	15-18	3 – 4	60	32	4	132
	Allied Papers	4	5	20	4	5	20	-	-	-
	Elective Papers	3	5	15	3	5	15	-	-	-
Part IV	Non Major Electives/ Basic Tamil/ Advanced Tamil*	2	2	4	2	2	4	2	2	4
	Skill Based Elective	4	3	12	4	3	12	5	2 - 4	14
	Environmental Studies	1	2	2	1	2	2	1	2	2
	Value Education	1	2	2	1	2	2	-	-	-
Part-V	Extension Service	1	1	1	1	1	1	1	1	1
Total				140			140			165

Under Part IV of the Course, students should register separately for two Non-Major Elective papers, during the First and Second semester. The marks obtained under Part IV would not be included for classification of the candidate although a pass is mandatory. Students should have obtained the minimum credit under Part V to be eligible to receive the degree.

VI. EXAMINATIONS

Continuous Internal Assessment (CIA) will be for 50 percentage and End Semester Examination (ESE), will be for 50 percentage.

➢ CONTINUOUS INTERNAL ASSESSMENT (CIA)

Every semester has two centralized CIA examinations and one model examination for each paper. Each of the Continuous Assessment Tests (CAT) of one-and-a-half-hour duration will be conducted on completion of 30 and 60 working days respectively in each semester. A Model exam of three hours' duration will be conducted on completion of 80 working days in each semester.

The schedules for these tests are as follows:

C.I.A.Test	Schedule	Syllabus Coverage
I	After 30 working days from the commencement of the Semester	40%
II	After 60 working days of the Semester	80%
III (Model Examination)	After 80 working days of the Semester	95%

The components for the CIA are as follows:

Internal Components			
Assessment Type	**Nature**	**Maximum marks**	**% of Weightage**
CIA	Written Test - 1	50	5
	Written Test – 2	50	5
Model	Model Examination	100	10
	Assignment		10
	Class activity		15
	Attendance		5
	Total		**50**

The class activity relates to a programme of accepted innovative techniques such as seminars, quiz, portfolio creation, MCQ, power point presentation, objective tests, role play etc. The mode of evaluation of the class activity will be fixed before the commencement of the semester and an approval will be obtained from the HOD. Once the classes begin, the student would be informed.

A record of all such assessment procedures will be maintained by the department and is open for clarification. Students will have the right to appeal to the Principal in case of glaring disparities in marking.

CIA marks for practical subjects will be awarded by the respective faculty based on the performance of the student in the model practical examination, observation notebook, submission of record books, regularity and attendance for the practical classes. The attendance particulars for practical classes will be maintained by the concerned faculty.

Marks for attendance will be awarded as per the following:

Percentage of General Attendance	Marks Awarded
90-100	5
75-89	4
60-74	3
<60	0

- **END SEMESTER EXAMINATIONS (ESE)**

Examinations will be conducted during each semester after the completion of a minimum of 90 working days. Examinations will be held for all papers of the course in Nov/Dec and April/May for all UG and PG courses.

Practical examinations will be conducted only during the end of the odd / even semester either before, during or after the commencement of the theory exam. The schedule for ESE Practical's will be notified by the Controller of Examinations in consultation with the Dean (Academics).

A candidate will be permitted to appear for the End of Semester examinations for any semester if:

a) He / She secures not less than 75% of attendance in the working days during the semester.
b) His / Her conduct has been satisfactory
c) He / She should have applied for the examination
d) He / She should have paid the requisite examination fee

The attendance requirements to appear for the ESE are as follows:

1. Students must have 75% of attendance in each part of the course of study to appear for the examination.
2. Students who have 65% to 74.9% of attendance shall apply for condonation in the prescribed form along with the prescribed fee after obtaining permission from the Principal. Students cannot claim condonation as a matter of right. Submission of Medical Certificate is normally not accepted to condone shortage of attendance.
3. Students who have 50% to 64.9% of attendance will fall under the—Withheld category. Such students cannot take up the ESE exams. They should apply to the Principal for permission to write the next supplementary examination and pay the requisite fee for this purpose. However, they can appear for previous semester supplementary paper.
4. Students who have less than 50% of attendance fall under the—detained **category would not be permitted to appear for the examination. They shall redo the semesters after completion of the course and appear for the examination after securing the required percentage of attendance. The decision of the Principal remains final and binding in all respects.**
5. Students who do not get the minimum marks to pass in the ESE shall compulsorily re-appear for the paper in the subsequent semester after paying the required fee.

A Student who for whatever reasons is not able to complete the program within the normal period (N) or the minimum duration prescribed for the programme, may be allowed two years period beyond the normal period to clear the backlog to be qualified for the degree. (Time Span = N +2 +1 years for the completion of programme).

In exceptional cases like Major accidents and child birth an extension of one year be considered beyond maximum span of time (Time Span = N + 2 + 1 years for the completion of programme)

If they fail to do so, they shall re-register their names and take the examination in the revised regulations/syllabus of the paper in force at the time of their reappearance. In the event of removal of that paper consequent to the change of regulation and/or curriculum after 5-year period, the candidate shall have to take up an equivalent paper in the revised syllabus as suggested by the Chairman of the concerned Board of Studies. Students qualifying during the extended period, shall not be eligible for **RANKING.**

- **INSTANT EXAMINATIONS (SPECIAL SUPPLEMENTARY EXAMINATION)**

In order to provide an opportunity to the final UG and PG students to obtain the degree in the same year and also to facilitate vertical mobility, special supplementary End Semester Examinations will be conducted in about 30 days from the date of publication of results every year for the final semester theory papers and also for the candidates who had failed in **ONLY ONE** theory paper of the previous semesters. Students, who wish to apply for special supplementary End Semester Examinations, can do so within 7 days from the date of publication of results.

Students involved in Malpractice will not be permitted to appear for Supplementary Examination.

The details of the ESE are as follows:

External Component			
Assessment type	**Comprehensive Test**	**Maximum mark**	**% of Weightage**
External Exam	3 Hours examination	100	50
	Grand total(CIA+ESE)		100

VII. CONDUCT OF EXAMINATION

Chief Superintendent of Examinations will be the Principal or a person appointed by him. The conduct of End Semester Examinations lies with the team led by the Chief Superintendent.

The time-table for examinations will be finalized by the office of the Controller of Examinations and will be displayed well in advance i.e., 20 days prior to the commencement of examinations.

The Hall tickets for eligible students will be issued 3 days prior to the commencement of examinations. For Subjects like Environmental Studies / Value Education, End Semester Examinations may be conducted on-line or along with the regular ESE.

VIII. VALUATION

Valuation of the answer scripts are undertaken at the central valuation camp led by the Controller of Examinations or the Camp Officer appointed by the Controller of Examinations. Single valuation of answer scripts by external examiners is adopted for both UG and PG Courses.

IX. PUBLICATION OF RESULTS

The Examination results will be published on the web portal during the third / fourth week of May for the II, IV and VI semester examinations and during the third / fourth week of December for the I, III and V semester examinations

A. GUIDELINES FOR OBTAINING PHOTOCOPY OF THE ANSWER SCRIPT

Candidates seeking photocopy of the answer scripts are advised to go through these rules and regulations before they apply

1. Photocopy is allowed only for Regular theory papers in PART I, II and III. **(Supplementary excluded).**
2. Select the papers carefully in which you wish to get the photocopy. No second application for additional papers would be accepted.

B. GUIDELINES FOR APPLYING REVALUATION OF THE ANSWER SCRIPT

Candidates seeking revaluation are advised to go through these rules and regulations before they apply

1. Revaluation is allowed only for Regular theory papers in PART I, II and III. **(Supplementary excluded).**
2. Select the papers carefully in which you wish to get the revaluation. No second application for additional papers would be allowed.
3. The application is to be filled in by the candidate in his/her own hand-writing and not by anyone else on his/her behalf.
4. Entries made by the candidate are to be verified by the HOD and forwarded to the Principal for his endorsement.
5. Prescribed Fee payment receipt or challan to be attached with the Application Form and submitted to the Principal's Office, the candidate will be given an acknowledgement for submission mentioning date and time.
6. Candidate to be aware that when applying for revaluation, He/She SURRENDERS the original performance and will now accept the revised performance in which
   (a) There can be NO CHANGE in the marks (or)
   There can be INCREASE in the marks

❖ CLASSIFICATION OF PERFORMANCE – GRADING SYSTEM FOR THE SEMESTER

A candidate shall be declared to have qualified for the award of the Degree provided the candidate has successfully completed the Programme requirements and has passed all prescribed subjects of study in all the semesters.

Passing Minimum: UG CIA 40% AGGREGATE 40%
B. Com (Hons.) and PG CIA 50% ESE 50% AGGREGATE 50% OF THE MAXIMUM OF THE COMPONENT IN THAT PAPER / COURSE

P: Pass, U: Re-Appear, WH: Withheld, AAA: Absent, CIA: Continuous Internal Assessment, ESE: End Semester Examination, GPA: Grade Point Average. CGPA: Cumulative Grade Point Average

UNDER GRADUATE DEGREE

PART – I TAMIL / OTHER LANGUAGES
PART – II ENGLISH
PART – III CORE, ALLIED AND ELECTIVE
PART – IV TAMIL / NON MAJOR ELECTIVE, SKILL BASED ELECTIVES, ENVIORNMENTAL STUDIES AND VALUE EDUCATION
PART – V EXTENSION ACTIVITIES

POST GRADUATE DEGREE

PART – A: CORE, ELECTIVE, and MAJOR PROJECT PART – B: SOFT SKILL COURSE, INTERNSHIP Grade Points and Letter Grade (Performance in a paper / course)

RANGE OF MARKS FOR GRADES UG Also for Certificate / Diploma			
Range of Marks	**Grade Points**	**Letter Grade**	**Description**
90 - 100	9.0 - 10.0	O	Outstanding
80 - 89	8.0 - 8.9	D+	Excellent
75 - 79	7.5 - 7.9	D	Distinction
70 - 74	7.0 - 7.4	A+	Very Good
60 - 69	6.0 - 6.9	A	Good
50 - 59	5.0 - 5.9	B	Average
40 - 49	4.0 - 4.9	C	Satisfactory
00 - 39	0.0 - 3.9	U	Re - appear
ABSENT	0	AAA	Absent

RANGE OF MARKS FOR GRADES UG B.Com. (Hons.), PG and also for PG Diploma			
Range of Marks	**Grade Points**	**Letter Grade**	**Description**
90 - 100	9.0 - 10.0	O	Outstanding
80 - 89	8.0 - 8.9	D+	Excellent
75 - 79	7.5 - 7.9	D	Distinction
70 - 74	7.0 - 7.4	A+	Very Good
60 - 69	6.0 - 6.9	A	Good
50 - 59	5.0 - 5.9	B	Average
40 - 49	4.0 - 4.9	U	Re - appear
ABSENT	0	AAA	Absent

Ci = Credits earned for course / in any semester

Gi = Grade Point obtained for course / in any semester /year.

n refers to the semester / year in which such courses were credited.

- **CGPA Grades:**

<table>
<tr><th colspan="2">CGPA</th><th colspan="2">GRADE</th><th colspan="2">CLASSIFICATION OF FINAL RESULT</th></tr>
<tr><td colspan="2">9.5-10.0</td><td colspan="2">O+</td><td colspan="2" rowspan="2">First Class –Exemplary*</td></tr>
<tr><td colspan="2">9.0 and above but below 9.5</td><td colspan="2">O</td></tr>
<tr><td colspan="2">8.5 and above but below 9.0</td><td colspan="2">D++</td><td colspan="2" rowspan="3">First Class with Distinction*</td></tr>
<tr><td colspan="2">8.0 and above but below 8.5</td><td colspan="2">D+</td></tr>
<tr><td colspan="2">7.5 and above but below 8.0</td><td colspan="2">D</td></tr>
<tr><td colspan="2">7.0 and above but below 7.5</td><td colspan="2">A++</td><td colspan="2" rowspan="3">First Class</td></tr>
<tr><td colspan="2">6.5 and above but below 7.0</td><td colspan="2">A+</td></tr>
<tr><td colspan="2">6.0 and above but below 6.5</td><td colspan="2">A</td></tr>
<tr><td colspan="2">5.5 and above but below 6.0</td><td colspan="2">B+</td><td colspan="2" rowspan="2">Second Class</td></tr>
<tr><td colspan="2">5.0 and above but below 5.5</td><td colspan="2">B</td></tr>
<tr><td>B.Com(Hons)</td><td>UG</td><td>B.Com(Hons.)</td><td>UG</td><td>B.Com(Hons.)</td><td>UG</td></tr>
<tr><td rowspan="3">0.0 and above but below 5.0</td><td>4.5 and above but below 5.0</td><td rowspan="3">U</td><td>C+</td><td rowspan="2">Re – Appear</td><td rowspan="2">Third Class</td></tr>
<tr><td>4.0 and above but below 4.5</td><td>C</td></tr>
<tr><td>0.0 and above but below 4.0</td><td>U</td><td>Re-appear</td></tr>
</table>

The candidates who have passed in the first appearance and within the prescribed semester of the UG/PG Programme (Core, Allied and Elective) alone are eligible.

- **Grading for a Semester:**

For a Semester :

GRADE POINT AVERAGE [GPA] = $\sum i$ Ci Gi / $\sum i$ Ci

$$\text{GPA} = \frac{\text{Sum of the multiplication of grade points by the credits of the courses}}{\text{Sum of the credits of the courses (passed) in a semester,}}$$

For the entire programme:

CUMULATIVE GRADE POINT AVERAGE [CGPA] =$\sum n \sum i$ Cni Gi / $\sum n \sum i$ Cni

$$\text{CGPA} = \frac{\text{Sum of the multiplication of grade points by the credits of the entire programme}}{\text{Sum of the credits of the courses of the entire programme}}$$

(CGPA is calculated only if the candidate has passed in all the courses in the entire programme)

X. INTERDISCIPLINARY ELECTIVE (IDE)

It has been proposed that the UG students admitted from the academic year 2019 – 2020 onwards would take up an Interdisciplinary Elective (IDE) Paper in their Fifth Semester for the students admitted in the year 2019 onwards.

❖ **The following Departments functioning in Shift I will be offering IDE Papers to students only from Shift I:**

S.NO	DEPARTMENT	IDE(TITLE OF THE PAPER)
1	Mathematics	Business Mathematics
2	Physics	Integrated Electronics
3	Chemistry	Chemistry in Everyday Life
4	Plant Biology and Plant Biotechnology	Horticulture and Mushroom Cultivation
5	Advanced Zoology and Biotechnology	Wildlife Conservation
6	Commerce (General)	Entrepreneurial Development
7	Corporate Secretaryship	Entrepreneurial Development
8	Economics	Economics of Insurance
9	Defence and Strategic Studies	An Introduction to Defence Journalism
10	Department of Hindi	Communication Hindi : Oral and Written

❖ **The following Departments functioning in Shift II will be offering IDE Papers to students only from Shift II:**

S.NO	DEPARTMENT	IDE(TITLE OF THE PAPER)
1	Commerce (General)	Entrepreneurial Development
2	Commerce (A&F)	Indian Constitution and Human Rights
3	Commerce (BM)	Personal Investment Planning
4	Commerce (MM)	Tourism Management

5	Commerce (Hons)	Business Venture
6	Corporate Secretaryship	Entrepreneurial Development
7	BBA	Managerial Skill Development
8	BCA	Introduction to Web Designing(HTML & CSS) -Practical
9	Computer Science	Internet And Its Applications
10	Visual Communication	Film Appreciation

- **The following Departments from Shift II, functioning in Shift I timings can only offer IDE Papers to the students functioning within the same Shift I timings:**

S.NO	DEPARTMENT	IDE(TITLE OF THE PAPER)
1	Commerce (ISM)	Essentials of office Automation Tools and E-Mail Etiquette
2	B.Sc. IT	Web Designing
3	B.Sc. Biotechnology	Intellectual Property Rights
4	B.A. English	Travel Writing

XI. OPTION TO EARN ADDITIONAL CREDITS

A. MOOCs (Massive open Online Courses)

- UG students can opt for a minimum of one Course and a maximum of 6 Credits can be earned by only three courses during their three-year period of study.
- PG students can opt for a minimum of one Course and a maximum of 4 Credits can be earned by only two courses during their two-year period of study.
- This is completely optional.

B. CERTIFICATE COURSES

The Certificate courses are offered by the departments for a duration of 30 hours which will enable the students to earn 2 additional credits.

REQUIREMENT FOR PROCEEDING FOR SUBSEQUENT SEMESTER

1. Candidates shall register their names for the first semester examination after admission in the UG / PG courses.
2. Candidates shall be permitted to proceed from the first semester up to final semester irrespective of their failure in any of the semester examinations subject to the condition that the candidate had registered for all the arrear subjects of earlier semesters along with current semester subjects.

XII. ISSUE OF CERTIFICATES

A Statement of Marks will be issued to every student who has written the examination.

❖ Consolidated Mark Sheet

Consolidated mark sheets will be given to final year students along with total credits earned only to those who have passed in all the papers prescribed for the respective degree.

❖ Transcript

Students who are desirous to obtain any Transcript certificate for joining courses of study in other Universities in India or abroad or for obtaining scholarships, can obtain these certificates from the office of the Controller of Examinations. A requisition letter duly signed by the Student and forwarded by the Principal along with fee challan is to be submitted to the office of the Controller of Examinations. The Certificate will be provided within 15 working days in a sealed envelope.

❖ Provisional Certificate

A copy of the results of the successful final year students will be sent to the University of Madras in the prescribed format in July/August and the University will issue a Provisional Certificate through the College. A soft copy can be downloaded from the University of Madras website and a hard copy will be provided by them within 90 days of the issue of soft copy.

❖ Corrections in the Certificates

Any corrections like name, date of birth etc., can also be made in the certificate. A letter of request duly signed by the student, HOD and Principal along with the prescribed fee paid challan is to be forwarded to the office of the Controller of Examinations. The time line to update will be 15 working days. The amount once paid will not be refunded under any circumstances.

❖ **Duplicate Mark Sheet**

In case of loss of mark sheet / certificate, a duplicate will be provided after submitting a non-traceable certificate issued from the Police station duly signed by an Inspector or Sub Inspector. A letter of request duly signed by the student, HOD and Principal along with the prescribed fee paid challan is to be forwarded to the office of the Controller of Examinations.

❖ **Duplicate Provisional Certificate / Degree Certificate:**

Students have to apply directly to the University of Madras for duplicate provisional certificate and degree certificate.

❖ **Verification of Qualification**

Agencies which request for verification of educational qualification of students under autonomous mode of this college and students who opt for higher studies / employment and who require verification of educational qualification, shall verify online through the QR code in the consolidated mark sheet through online payment. They can also apply to the Principal to this effect along with the prescribed fees which has to be forwarded to the OCOE. The relevant certificate will be issued within 15 working days from the receipt of the forwarded request of the Principal and the same office.

XIII. CONVOCATION AND NOTICE

❖ **Convocation**

Every year after the Convocation is conducted by the University of Madras, the College will hold a Graduation day / Convocation in which the Degree Certificates will be distributed to the students who are present. For others it will be issued by the College Office. Students should collect the same within 30 days of convocation after which a search fee will be charged. **Students are responsible to collect their Certificates and the College shall not be liable for the same.**

❖ **Notice**

Candidates, who have completed the duration of the course and left the College, can get information regarding Supplementary Examinations, issue of examination application forms,

certificates and application for Graduation day through the college web site and general notice board. Regular students will however be informed of the examinations by circulation, in addition to the modes mentioned above.

No candidate will be communicated individually.

Modus Operandi for the Syllabus

1) The department will finalize the syllabus.
2) Finalization implies a change in the existing syllabus or a revamp of entire syllabus
3) They will place it on the BOS meeting. After approval of the syllabus in the BOS, the concerned department will submit the minutes along with the modified syllabus book / sheet (five copies) to the Deans office within ten days of the BOS meeting
4) A Soft copy of the batch-wise syllabus approved by the BOS in PDF format is to be sent to the Deans mail ID within ten days of the BOS meeting.

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GURU NANAK COLLEGE (AUTONOMOUS)
VELACHERY, CHENNAI – 42.

B.Sc., DEGREE COURSE IN CHEMISTRY

S. No	Course Component	Name of the Course	Semester	Hours	Credits	Max. Marks		
						Ext. mark	Int. mark	Total
I SEMESTER								
1	PART - I	Language	I	6	3	50	50	100
2	PART - II	English	I	6	3	50	50	100
3	Core – 1	Basic Chemistry - I	I	5	4	50	50	100
4	Core Practical - I	Volumetric Analysis and Inorganic Preparations	I	3	*	*	*	*
5	Allied - I	Mathematics - I	I	8	5	50	50	100
6	NME	Non Major Elective – I**	I	2	2	50	50	100
7	Soft Skill		I		3	50	50	100
II SEMESTER								
8	PART - I	Language - II	II	6	3	50	50	100
9	PART - II	English - II	II	6	3	50	50	100
10	Core Theory - 2	Basic Chemistry - II	II	5	4	50	50	100
11	Core Practical - I	Volumetric Analysis and Inorganic Preparation	II	3	3	50	50	100
12	Allied - II	Mathematics - II	II	8	5	50	50	100
13	NME	Non Major Elective- II**	II	2	2	50	50	100
14	Soft Skill		II		3	50	50	100
III SEMESTER								
15	PART - I	Language – III	III	6	3	50	50	100
16	PART - II	English – III	III	6	3	50	50	100
17	Core Theory - 3	Organo Oxygen Compounds	III	6	4	50	50	100
18	Core Practical - 2	Inorganic Qualitative Analysis	III	3	*	*	*	*
19	Allied –II	Physics - I	III	6	3	50	50	100
20	Allied Practical	Allied Physics Practical	III	3	*	*	*	*
21	Soft Skill		III		3	50	50	100

IV SEMESTER								
22	PART - I	Language – IV	IV	6	3	50	50	100
23	PART - II	English – III	IV	6	3	50	50	100
24	Core Theory - 4	Chemistry of s and p Block Elements	IV	5	4	50	50	100
25	Core Practical- 2	Inorganic Qualitative Analysis	IV	3	3	50	50	100
26	Allied - II	Physics – II	IV	5	3	50	50	100
27	Allied Practical	Allied Physics Practical	IV	3	4	50	50	100
28		EVS	IV	2	2	50	50	100
29	Soft Skill		IV		3	50	50	100
V SEMESTER								
30	Core Theory - 5	Organo Nitrogen Compounds and Natural Products	V	4	4	50	50	100
31	Core Theory - 6	Chemical Kinetics and Electrochemistry	V	4	4	50	50	100
32	Core Theory - 7	Special topics in Chemistry	V	4	4	50	50	100
33	Core Theory - 8	Analytical Chemistry - I	V	4	4	50	50	100
34	Core Practical- 3	Gravimetric Analysis	V	5	*	*	*	*
35	Core Practical - 4	Analysis and Preparation of Organic Compounds	V	2	*	*	*	*
36	Core Practical - 5	Physical Chemistry Practical	V	3	*	*	*	*
37	Elective - 1	Elective – I (IDE) #	V	4	5			100
38		Value Education	V		2			100
VI SEMESTER								
39	Core Theory - 9	Thermodynamics and solutions	VI	4	4	50	50	100
40	Core Theory- 10	Chemistry of d & f block elements and Coordination chemistry	VI	4	4	50	50	100
41	Core Theory- 11	Analytical Chemistry - II	VI	4	4	50	50	100
42	Elective – 2	Elective – II***	VI	4	5	50	50	100
43	Elective - 3	Elective – III***	VI	4	5	50	50	100
44	Core Practical - 3	Gravimetric Analysis	V	5	4	50	50	
45	Core Practical - 4	Analysis and preparations of Organic Compounds	VI	2	3	50	50	100
46	Core Practical- 5	Physical Chemistry Practical	VI	3	3	50	50	100
47		Extension activities	VI		1			
		TOTAL			**140**			

* The Practical Examinations will be conducted at the end of even semester.

** The Students must choose one NME paper in semester – I and one NME paper in semester – II.

*** The students must choose Two Elective papers in Semester - VI from the list of offered electives.

The students must choose Inter Disciplinary Elective (IDE) offered by other departments.

CORE THEORY - 1: BASIC CHEMISTRY–I

SEMESTER I	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

Objectives:

Introduction to fundamental concepts of Physical, Organic and Inorganic Chemistry.

UNIT - 1: Atomic Structure **(10 hrs)**

Rutherford's atomic model. Bohr's theory of Hydrogen atom - Postulates, Bohr's radius, energy of hydrogen like species - Planck's quantum theory - Photoelectric effect - Compton effect- Hydrogen atomic spectrum - Particle and wave nature of electron - deBroglie equation - Heisenberg's uncertainty principle.

Quantum mechanical postulates, Operators - addition, subtraction, multiplication, linear, Hermitian, Commutator, Vector, Laplacian and Hamiltonian. Schrodinger's wave equation (Derivation not required). Significance of Ψ and Ψ^2.Wave mechanical concept of atomic orbitals - Shapes of orbitals - Quantum numbers. Zeeman effect.

Pauli's exclusion principle, Hund's rule - its basis and applications.

UNIT - 2: Periodic Classification and Periodicity in Properties **(10 hrs)**

Aufbau principle, effective nuclear charge, screening effect, Slater's rule - applications and limitations. Electronic configuration of elements- extra stability of half - filled and completely filled atomic orbitals.

Classification of elements - s, p, d and f block elements. Modern periodic table - position of hydrogen in the periodic table. Periodicity of the following properties - atomic radius, ionic radius, ionization potential, electron affinity and electro negativity, horizontal, vertical and diagonal relationships in the periodic table.

Scales of electronegativity - Pauling, Mulliken and Allred - Rochow.

UNIT - 3: Chemical Bonding **(15 hrs)**

Types of bond - ionic bond – factors influencing the formation of ionic compounds - ionization energy, electron affinity and lattice energy. Determination of lattice energy - Born - Haber cycle, Inert pair effect, Fajan's rule.

Covalent bond – polarity of covalent bond, percentage ionic character of covalent bond, dipole moment- Molecular structures of CO_2, H_2O, NH_3 and CH_4- Bond characteristics - bond length, bond strength, bond angle and bond energy.

Valence Bond theory – sigma (σ) and pi (π) bonds- Hybridisation, Valence shell electron pair repulsion theory (VSEPR) and geometries of molecules – $BeCl_2$, H_2O, BF_3, NH_3, XeF_4, BrF_3, PCl_5, SF_6 and IF_7.

Molecular Orbital Theory - Bonding and antibonding orbitals, bond order, applications of MO theory to H_2, He_2, N_2, O_2, O^{2+}, O^{2-}, HF and CO. Comparison between VBT and MO theory - Hydrogen bonding – types and consequences.

UNIT - 4: Nomenclature of Organic Compounds and Isomerism (10 hrs)

Nomenclature of organic compounds: IUPAC system of nomenclature of organic compounds – mono and bifunctional compounds.

Hybridisation and shapes of molecules - methane, ethane, ethylene, acetylene and benzene. Structural isomerism: chain isomerism, position isomerism, functional isomerism, metamerism and tautomerism.

UNIT - 5: Electronic Effects, Types of Reactions, Types of Intermediates (15 hrs)

Organic reactions – types (Substitution, Elimination, Addition, Rearrangement) with examples. Electron displacement effects - inductive, electromeric, mesomeric, resonance, hyperconjugation, steric effect and their applications (acid, base strength and dipole moment)

Cleavage of bonds – homolytic and heterolytic fissions. Reactive intermediates - carbocations, carbanions, free radicals, carbenes, nitrenes and benzynes - their formation and stability.

TEXT BOOKS:

1. Arun Bahl and B. S. Bahl, Advanced Organic Chemistry, S. Chand & Company Pvt. Ltd, second edition, 2006.
2. M. K. Jain and S. C. Sharma, Modern Organic Chemistry, Vishal Publishing Co., fourth edition, 2003.
3. S. M. Mukherji and S. P. Singh, Reaction Mechanism in Organic Chemistry, Macmillan India Ltd, third edition, 1994.
4. B. R. Puri, L. R. Sharma and K. C. Kalia, Principles of Inorganic Chemistry, Milestone Publishers and Distributors, New Delhi, thirtieth edition, 2009.
5. P. L. Soni and Mohan Katyal,Textbook of Inorganic Chemistry, Sultan Chand & Sons, twentieth edition, 2006.

REFERENCE BOOKS:

1. J.E.Huheey, E.A. Kieter and R.L. Keiter, Inorganic Chemistry, Harper Collins, NewYork, fourth edition,1993.
2. D.F. Shriver and P. W. Atkins, Inorganic Chemistry, W. H. Freeman and Co, London, fifth edition, 2010.
3. R. T. Morrison and R. N. Boyd, Organic Chemistry, Printice - Hall of India Limited, New Delhi, sixth edition,1992.

CORE THEORY –2: BASIC CHEMISTRY–II

SEMESTER II	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

Objectives:

To provide knowledge on fundamentals of chemistry.

UNIT –1: Nuclear chemistry (15 hrs)

Fundamental particles of the nucleus - nucleon - terminology, nucleides, isotopes, isobars, isotones, mirror nuclei, nuclear radius, nuclear mass and nuclear forces operating between the nucleons. n/p ratio, curves, stability belts. Nuclear binding energy, Mass defect, simple calculations involving mass defect and bond energy per nucleon. Shell model - Magic numbers - liquid drop model.

Radioactivity - group displacement law, natural radioactivity – radioactive series including neptunium series. Artificial radioactivity – induced radioactivity – uses of radio isotopes. Nuclear fission – Nuclear energy - Nuclear reactors – Breeder reactor – Nuclear fusion.

UNIT –2: Solid State (10 hrs)

Classification of solids, isotropic and anisotropic crystals, elements of symmetry, crystal systems, space lattices - bravais lattice, designation of planes, Miller indices, unit cell. Packing of ions in crystals (CCP, BCC and HCP).

X - ray diffraction – derivation of Bragg's equation, Discussion of structures of NaCl, CsCl and ZnS. Determination of Avogadro's number, Problems related to solid state chemistry. Defects in crystals - Frenkel and Schotky defects.

UNIT –3: Hydrocarbons (10 hrs)

Alkanes – mechanism of free radical substitution in alkanes. Cycloalkanes - general methods of preparation (Wurtz's reaction, Dieckmann's reaction) – Bayer's strain theory and theory of strainless rings.

Alkenes - preparation and properties – Electrophilic and free radical addition - Orientation of addition reaction (Markovnikov's rule and peroxide effect) – addition reaction, oxidation, ozonolysis and hydroboration. Hydroxylation with $KMnO_4$, OsO_4, allylic substitution by NBS. Diene – Classification – stability and reactivity of 1, 2 and 1, 4 - addition. Synthesis of diene - 1, 3 - butadiene, isoprene and chloroprene.

Alkynes – preparation and properties – acidity of alkynes, formation of acetylides, addition reaction, oxidation, ozonolysis and hydroboration.

UNIT –4: Principles of Quantitative and Qualitative Analysis (10 hrs)

Volumetric analysis – Principles involved in acid - base, precipitation, complexometric and redox titrations – indicators and their choice. Definition and calculation of normality , molality, molarity, mole fraction and ppm.

Definition and examples of primary and secondary standards. Calculation of equivalent weights of acid, base, salt, metal, oxidizing and reducing agents.

Qualitative analysis – theory behind separation of groups - solubility product - common ion effect - Interfering anions and their removal. Brown ring test, Nessler's reagent, Prussian blue-Detection of phosphate, borate, fluoride, oxalate and chloride.

Unit-5: Aromatic Hydrocarbons, Nucleophilic Substitution and Elimination Reactions (15 hrs)

Aromaticity – Huckel's rule with respect to benzene, naphthalene, anthracene, phenanthraene- Electrophilic substitution in aromatic compounds-general mechanism; nitration, sulphonation, halogenations, Friedel-Crafts alkylation and acylation. Orientation (directive influence) and reactivity in mono substituted benzenes.

Polynuclear hydrocarbons-naphthalene, anthracene, phenanthraene - preparation, properties, uses and carcinogenicity.

Nucleophilic substitution: S_N1, S_N2, S_Ni reactions-mechanisms. Elimination reactions: E1 and E2 reactions and mechanisms. Elinination Vs Substitution.

TEXT BOOKS:

1. M. K. Jain, S. C. Sharma, Modern Organic Chemistry, Vishal Publishing, fourth reprint, 2003.
2. S.M. Mukherji and S.P. Singh, Reaction Mechanism in Organic Chemistry, Macmillan India Ltd., third edition, 1994.
3. B.R. Puri, L.R. Sharma and K.C. Kalia, Principles of Inorganic Chemistry, Milestone Publishers and Distributors, New Delhi, thirtieth edition, 2009.
4. J.D. Lee, Concise Inorganic Chemistry, Blackwell Science, fifth edition, 2005.
5. P.L. Soni and Mohan Katyal, Textbook of Inorganic Chemistry, Sultan Chand & Sons, twentieth edition, 2006.

REFERENCE BOOKS :

1. Arun Bahl and B.S. Bahl, Advanced Organic Chemistry, S.Chand & Company Pvt. Ltd., Multicolour edition, 2012.
2. T.W. Graham Solomons, Organic Chemistry, John Wiley & Sons, eleventh edition, 2012.
3. R.T. Morrison and R.N. Boyd, Organic Chemistry, Pearson Education, Asia, sixth edition, 2002.
4. O.P. Agarwal, Organic Chemistry Reactions and Reagents, Goel Publishing house, 2005.

CORE PRACTICAL – 1: VOLUMETRIC ANALYSIS AND INORGANIC PREPARATION

SEMESTER I& II	SUBJECT CODE:	PRACTICAL	MARKS 100	CREDITS 3	HOURS 45

Objectives:

To expertise the practical skill in the quantitative chemical analysis and chemical preparations.

A) Volumetric Analysis

1. Estimation of HCl by NaOH using standard oxalic acid solution.
2. Estimation of Na_2CO_3 by HCl using standard Na_2CO_3 solution.
3. Estimation of oxalic acid by $KMnO_4$ using standard oxalic acid solutions.
4. Estimation of Fe (II) sulphate by $KMnO_4$ using standard Mohr's salt solution.
5. Estimation of $KMnO_4$ by thio using standard $K_2Cr_2O_7$ solution.
6. Estimation of Fe (II) by $K_2Cr_2O_7$ solution using standard Fe(II) solution.
7. Estimation of Cu(II) sulphate using standard $K_2Cr_2O_7$solution.
8. Estimation of Mg(II) by EDTA.
9. Estimation of total hardness of water.
10. Analysis of mixture of carbonate and bicarbonate.
11. Estimation of Vitamin C in fruit juices.

B) Preparation of Inorganic Complexes

1. Ferrous ammonium sulphate
2. Tetraamminecopper(II) sulphate
3. Microcosmic salt
4. Prussian Blue
5. Hexaamminenickel(II) chloride

1. A.L. Vogel, Text book of Inorganic Quantitative Analysis, ELBS, third edition, 1976.
2. G.S.Vehla, Vogel's Textbook of Macro and Semimicro Qualitative Inorganic Analysis, fifth edition, Revised, 1979.

NON - MAJOR ELECTIVE: DAIRY CHEMISTRY

SEMESTER I & II	SUBJECT CODE	NON-MAJOR ELECTIVE	MARKS 100	CREDITS 2	HOURS 30

Objectives:

To learn the chemistry of milk and milk products and also the processes involved in the preservation and formation of milk products.

UNIT - 1: Composition of Milk

Milk - definition - general composition of milk - constitutents of milk - lipids, proteins, carbohydrates, vitamins and minerals - physical properties of milk - colour, odour, acidity, specific gravity, viscosity and conductivity - Factors affecting the composition of milk - adulterants, preservatives with neutralizer - examples and their detection - estimation of fat, acidity and total solids in milk.

UNIT - 2: Processing of Milk

Microbiology of milk - destruction of micro - organisms in milk, physico - chemical changes taking place in milk due to processing - boiling, pasteurization - types of pasteurization - Bottle, Batch and HTST (High Temperature Short Time) - Vacuum pasteurization - Ultra High Temperature Pasteurization.

UNIT - 3: Major Milk Products

Cream - definition - composition - chemistry of creaming process - gravitational and centrifugal methods of separation of cream - estimation of fat in cream. Butter - definition - composition - theory of churning – desi butter - salted butter, estimation of acidity and moisture content in butter. Ghee - major constituents - common adulterants added to ghee and their detection - rancidity - definition - prevention - antioxidants and synergists - natural and synthetic.

UNIT - 4: Special Milk

Standardised milk - definition - merits - reconstituted milk - definition - flow diagram of manufacture - Homogenised milk - flavoured milk - vitaminised milk - toned milk - Incitation milk - Vegetable toned milk - humanized milk - condensed milk - definition, composition and nutritive value.

UNIT - 5: Fermented and other Milk Products

Fermented milk products - fermentation of milk - definition, conditions, cultured milk - definition of culture - example, conditions - cultured cream, butter milk - Bulgarious milk - acidophilous milk – Yoheer Indigeneous products - khoa and chhena definition - Ice cream - definition - percentage composition - types - ingredients - manufacture of ice - cream

stabilizers - emulsifiers and their role - milk powder - definition - need for making milk powder - drying process - types of drying.

REFERENCE BOOKS:

1. Robert Jenness and S. Patom, Principles of Dairy Chemistry, S.Wiley, New York, 2005.
2. K. S. Rangappa and K.T. Acharya, Indian Dairy Products, Asia Publishing House New Delhi, 1974.
3. F.P. Wond, Fundamentals of Dairy Chemistry, Springer, Singapore, 2006.
4. K. Bagavathi Sundari, Applied Chemistry, MJP Publishers, first edition, 2006.
5. Sukumar De, Outlines of Dairy Technology, Oxford University Press, New Delhi, 1980.

NON-MAJOR ELECTIVE: FOOD CHEMISTRY

SEMESTER I & II	SUBJECT CODE	NON-MAJOR ELECTIVE	MARKS 100	CREDITS 2	HOURS 30

Objectives:

To create knowledge on chemistry of various food products, adulteration and toxicology.

UNIT - 1: Food Adulteration

Sources of food, types, advantages and disadvantages. Food adulteration - contamination of wheat, rice, milk, butter etc. with clay stones, water and toxic chemicals - Common adulterants, Ghee adulterants and their detection. Detection of adulterated foods by simple analytical techniques.

UNIT - 2: Food Poison

Food poisons - natural poisons (alkaloids - nephrotoxin) - pesticides, (DDT, BHC, Malathion) - Chemical poisons - First aid for poison consumed victims.

UNIT - 3: Food Additives

Food additives - artificial sweeteners - Saccharin - Cyclomate and Aspartate-Food flavours - esters, aldehydes and heterocyclic compounds-Food colours – Emulsifying agents – preservatives - leavening agents. Baking powder - yeast - taste makers – MSG- vinegar.

UNIT - 4: Beverages

Beverages - soft drinks - soda - fruit juices - alcoholic beverages- examples. Carbonation - addiction to alcohol – diseases of liver and social problems.

UNIT - 5: Edible Oils

Fats and oils - Sources of oils - production of refined vegetable oils - preservation. Saturated and unsaturated fats - iodine value - role of MUFA and PUFA in preventing heart diseases - determination of iodine value, RM value, saponification values and their significance.

REFERENCEBOOKS:

1. M. Swaminathan, Food Science and Experimental Foods, Ganesh and Company, 1979.
2. Jayashree Ghosh, Fundamental Concepts of Applicated Chemistry, S. Chand & Co. Publishers, second edition, 2006.
3. Thanlamma Jacob, Text Books of Applied Chemistry for Home Science and Allied Sciences, Macmillan, 1979.

NON-MAJOR ELECTIVE: FORENSIC CHEMISTRY

SEMESTER I & II	SUBJECT CODE	NON-MAJOR ELECTIVE	MARKS 100	CREDITS 2	HOURS 30

Objectives:

To deliver knowledge on chemistry involved in the forensic science.

UNIT - 1: Poisons

Poisons - types and classification - diagnosis of posions in the living and the dead - clinical symptoms - postmortem appearances. Heavy metal contamination (Hg, Pb, Cd) of sea foods - use of neutron activation analysis in detecting arsenic in human hair. Treatment in cases of poisoning - use of antidotes for common poisons.

UNIT - 2: Crime Detection

Accidental explosion during manufacture of matches and fireworks (as in Sivakasi). Human bombs - possible explosives (gelatin sticks and RDX) - metal detector devices and other security measures for VVIP - composition of bullets and detecting powder burns.

UNIT - 3: Forgery and Counterfeiting

Documents - different types of forged signatures - simulated and traced forgeries - inherent signs of forgery methods - writing deliberately modified - uses of ultraviolet rays - comparison of type written letters – checking silver line water mark in currency notes - alloy analysis using AAS to detect counterfeit coins - detection of gold purity in 22 carat ornaments - detecting gold plated jewels - authenticity of diamond.

UNIT - 4: Tracks and Traces

Tracks and traces - small tracks and police dogs - foot prints - costing of foot prints - residue prints, walking pattern or tyre marks - miscellaneous traces and tracks - glass fracture - tool marks - paints - fibers - Analysis of biological substances - blood, semen, saliva, urine and hair - Cranial analysis (head and teeth) DNA Finger printing for tissue identification in dismembered bodies - detecting steroid consumption in athletes and race horses.

UNIT - 5: Medical Aspects

Aids - causes and prevention - misuse of scheduled drugs - burns and their treatment by plastic surgery. Metabolite analysis using mass spectrum - Gas chromatography-Arson - natural fires and arson - burning characteristics and chemistry of combustible materials - nature of combustion. Ballistics - classification - internal and terminal ballistics - small arms - laboratory examination of barrel washing and detection of powder residue by chemical tests.

REFERENCEBOOKS:

1. T. H. James, Forensic Sciences, Stanley Thornes Ltd, 1987.
2. Richard Saferstin and Criminalistics - An Introduction to Forensic Science (College Version), Sopfestein, Printice hall, eighth edition, 2003.

NON-MAJOR ELECTIVE: CHEMISTRY IN EVERY DAY LIFE

SEMESTER I & II	SUBJECT CODE	NON-MAJOR ELECTIVE	MARKS 100	CREDITS 2	HOURS 30

Objectives:

To learn chemistry involved in our day-by-day life.

UNIT –1

General survey of chemicals used in everyday life. Air - components and their importance; photosynthetic reaction, air pollution, green - house effect and the impact on our life style. Water - Sources of water, qualities of potable water, soft and hard water, methods of removal of hardness - water pollution.

UNIT –2

Building materials - cement, ceramics, glass and refractories - definition, composition and application only. Plastics - polythene, PVC, bakelite, polyesters, melamine-formaldehyde resins - preparation and uses only.

UNIT - 3

Food and Nutrition - Carbohydrates, Proteins, Fats - definition and their importance as food constituents - balanced diet - Calorie - minerals and vitamins (sources and their physiological importance). Cosmetics - tooth paste, face powder, soaps and detergents, shampoos, nail polish, perfumes - general formulation and preparations - possible hazards of cosmetic use.

UNIT - 4

Chemicals in food production - fertilizers - need, natural sources; urea, NPK fertilizers and super phosphate. Fuel - classification - solid, liquid and gaseous; nuclear fuel - examples and uses.

UNIT - 5

Pharmaceutical drugs - analgesics and antipyretics - paracetamol and aspirin. Colour chemicals - pigments and dyes - examples and applications. Explosives - classification and examples.

REFERENCE BOOKS:

1. Randolph. Norris Shreve, Chemical Process Industries, McGraw-Hill, Texas, fourth edition, 1977.
2. W. A. Poucher, Joseph A. Brink, Jr. Perfumes, Cosmetics and Soaps, Springer, 2000.
3. A. K. De, Environmental Chemistry, New Age International Public Co., 1990.

CORE THEORY – 3: ORGANO-OXYGEN COMPOUNDS

SEMESTER III	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

UNIT-I : CHEMISTRY OF ALCOHOLS, ETHERS AND PHENOLS. (15 HRS)

Monohydric alcohols: Nomenclature, preparation of alcohols from alkenes (by oxymercuration -demercuration), alkyl halides, Grignard reagent and carbonyl compounds (by reduction). Reactions of alcohols- Dehydration, oxidation, action of hot reduced copper.

Ethers: Nomenclature, preparation by Williamson ether synthesis, Reactions-acid catalysed cleavage of ethers. Epoxides (Oxirane) - preparation and reactions of epoxides.

Phenols: Nomenclature, synthesis of phenol from benzene sulphonic acid, chloro benzene and cumene. Properties – Acidity of phenols (explanation on the basis of resonance stabilization). Electrophilic substitution reaction of phenol (orientation of electrophiles) - halogenation, nitration, sulphonation, Riemer-Tiemann reaction, Kolbe-Schmidt reaction and coupling with diazonium salts.

UNIT-II : CHEMISTRY OF CARBONYL COMPOUNDS (10 HRS)

Nomenclature, structure of carbonyl compounds, acidity of alpha-hydrogen atom. Mechanism of nucleophilic addition with RMgX, HCN, ROH, $NaHSO_3$, NH_3 and its derivatives.

Mechanism of Meerwein-Pondorf Verley reduction, Clemmensen reduction, Wolf-Kishner reduction, aldol condensation, Claisen-Schmidt reaction, Cannizaro reaction, haloform reaction, Knoevenagel, Perkin and Benzoin condensation reactions.

UNIT-III : CHEMISTRY OF CARBOXYLIC ACIDS AND THEIR DERIVATIVES. (15 HRS)

Acidity of carboxylic acids, effect of substituents on acidity, comparison of acid strengths of halogen substituted acetic acids, acid strengths of substituted benzoic acids.

Dicarboxylic acids: Preparation – from alkyl cyanides, cyclic ketones and halo esters. Reactions – action of heat, action of PCl_5 and NH_3.

Acid derivatives (Aliphatic): Synthesis and important properties of acid derivatives (acid chlorides, acid anhydrides, esters and amides). Relative reactivity of acyl compounds.

UNIT –IV: ACTIVE METHYLENE COMPOUNDS (10 HRS)

Active methylene compounds - keto-enol tautomerism. Compounds containing active methylene group- acetoacetic, malonic and cyanoacetic esters. Preparation and synthetic applications.

UNIT –V: CARBOHYDRATES (10 HRS)

Carbohydrates – Definition and classification of carbohydrates with examples. Mono saccharides: Explanation of enantiomers, diastereomers, epimers and anomers with examples. Mechanism of mutarotation, Osazone formation.

Absolute configurations of glucose and fructose (includes cyclic and Haworth structure). Interconversion (aldose to ketose, ketose to aldose, arabinose to glucose, glucose to arabinose and glucose to mannose).

Disaccharides – Sucrose, Maltose – structural elucidation.

Polysaccharides -Starch and cellulose (Elementary treatments)

TEXT BOOKS:

1. M. K. Jain, S. C. Sharma, Modern Organic Chemistry, Vishal Publishing, fourth reprint, 2003.
2. S.M. Mukherji, and S.P. Singh, Reaction Mechanism in Organic Chemistry, Macmillan India Ltd., third edition, 1994.
3. Arun Bahl and B.S. Bahl, Advanced organic chemistry, New Delhi, S.Chand & Company Pvt. Ltd., Multicolour edition, 2012.
4. R. T. Morrison, R. N. Boyd, and S. N. Bhattacharjee, Organic Chemistry, Pearson Education, Asia, seventh edition, 2012.

REFERENCE BOOKS:

1. T. W. Graham Solomons, Organic Chemistry, John Wiley & Sons, fifth edition, 1992.
2. A. Carey Francis Organic Chemistry, Tata McGraw-Hill Education Pvt., Ltd., New Delhi, seventh edition, 2009.
3. I. L. Finar, Organic Chemistry, Wesley Longman Ltd, England, sixth edition, 1996.
4. P. L. Soni, and H. M.Chawla - Text Book of Organic Chemistry, New Delhi, Sultan Chand & Sons, twenty ninth edition, 2007.

CORE THEORY – 4: CHEMISTRY OF s-BLOCK & p-BLOCK ELEMENTS

SEMESTER IV	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

Objectives:

To know the nature of compounds formed by s - and p - block elements; to understand the aspects in gaseous, liquid and solid states; to understand the crystal structures of ionic compounds.

UNIT - 1: Chemistry of s-Block Elements **(10 hrs)**

Characteristic properties of s-block elements, preparation, properties and uses of NaOH, Na_2CO_3, KBr and $KClO_3$. Hydrides – Classification as ionic, molecular and metallic hydrides, preparation, important properties and uses of $LiAlH_4$ and CaH_2. Comparative study of the element with respect to oxides, hydroxides, halides, carbonates and bicarbonates. Diagonal relationship of Li and Mg. Anomalous behavior of Li and Be. Extraction of beryllium. Chemical properties of metals: reaction with water, air and nitrogen.

UNIT - 2: Boron and Carbon Family **(15 hrs)**

Extraction of B and Si - Compounds of boron with oxygen - preparation, properties and uses of boron sesquioxide, borates, borax, sodium peroxoborates. - Compounds of Boron with nitrogen - preparation, properties and uses of boron nitride, borazine. Boron hydrides - preparation, properties, uses and structure of diborane, reaction with ammonia, hydroboration.

Aluminium - Extraction of Aluminium and its uses, Alloys of Aluminium, amphoteric behavior, aluminates. Comparison of carbon with silicon, Manufacture and uses of CO and CO_2 (includes dry ice); allotropy of carbon and carbides. Preparation, types and industrial applications of carbides, interstitial carbides and covalent carbides.

Silicates - Types of silicates – application of silicates in technology - alkali silicates, ceramics and glass. Preparation, properties and uses of silicones. Tin – Allotropic forms of Tin, alloys of tin, tinning, tin plating. Lead - lead accumulator (discharging and recharging), lead pigments.

UNIT - 3: Nitrogen and Oxygen Group Elements **(15 hrs)**

Metallic and non metallic character of group 15 elements; hydrides and halides of group-15 elements - hydrazine, hydroxylamine, phosphene, ammonium nitrate, sodium bismuthate - properties and uses. Oxides of group 15 elements: oxides of nitrogen - dinitrogen tetroxide, dinitrogen pentoxide; oxides of phosphorus - oxoacids of nitrogen: nitrous acid, nitric acid, hyponitrous acidp; oxoacids of phosphorus - orthophosphorous acid,

metaphosphorous acid, hypophosphorous acid; orthophosphoric acid, di-, tri- and tetra polyphosphoric acids;

Group-16 (oxygen group): Ozone, oxides - normal oxides, peroxides, suboxides, basic oxides, amphoteric oxides, acidic oxides, neutral oxides. Oxides of sulphur - SO_2, SO_3; oxoacids of sulphur - thionic acid series, peroxoacid series, oxohalides - thionyl compounds, sulfuryl compounds (methods of preparation and properties).

UNIT - 4: Halogens **(10 hrs)**

Ionic – covalent - bridging halides, reactivity of halogens, reduction of halogens by thiosulphate. Halogen oxides: oxygen difluoride, dioxygen difluoride, dichlorine monoxide, chlorine dioxide, dichlorine hexoxide, dichlorine heptoxide; bleaching powder - estimation of available chlorine; bromine dioxide, iodine pentoxide. Oxoacids of halogens: hypohalous acid (HOX), halous acid (HXO_2), halic oxide (HXO_3), perhalic acid (HXO_4), strength of oxoacids. Inter-halogen compounds: ClF, ICl, ClF_3, BrF_3, IF_3, ClF_5, BrF_5, IF_5; poly halides.

UNIT - 5: Noble Gases **(10 hrs)**

Noble gases: position in the periodic table – general characteristics – structure and shape of Xenon compounds – XeF_2, XeF_4, XeF_6, $XeOF_4$ – uses of Noble gases. Chemical reactivity of noble gases, preparation, structure and bonding of noble gas compounds. Chemistry of xenon: structure and bonding of xenon fluorides, - oxides and oxyfluorides of xenon.

TEXT BOOKS:

1. B. R. Puri, L. R. Sharma and K. C. Kalia, Principles of Inorganic Chemistry, Milestone publishers and distributors, thirteenth edition,2009.
2. P. L. Soni and Mohan katyal, Textbook of Inorganic Chemistry, Sultan Chand & Sons, twentieth edition,2006.
3. J. D. Lee, Concise Inorganic Chemistry, Blackwell science, fifth edition, 2005.

REFERENCE BOOKS:

1. A. K. De, Text book of Inorganic Chemistry, Wiley East Ltd, seventh edition, 1992.
2. W.U. Malik, G.D. Tuli and R.D. Madan, Selected Topics in Inorganic Chemistry; S. Chand and Co, 2014.
3. R. C. Agrawal, Modern Inorganic Chemistry, Kitab Mahal, first edition, 1987.
4. K. N. Upadhayaya, Text book of Inorganic Chemistry, Vikas Publishing House, New Delhi, 1990.
5. Peter Atkins, Tina Overton, Jonathan Rourke and Mark Weller, Inorganic Chemistry, Oxford University Press, sixth edition, 2014.

CORE PRACTICAL – 2: INORGANIC QUALITATIVE ANALYSIS

SEMESTER III &IV	SUBJECT CODE	PRACTICAL	MARKS 100	CREDITS 3	HOURS 45

Objectives:

To develop the skill on systematic analysis of inorganic salts.

Semi - Micro Qualitative Analysis

1. Analysis of simple acid radicals:
   Carbonate, sulphide, sulphate, thiosulphite, chloride, bromide, iodide, nitrate
2. Analysis of interfering acid radicals:
   Fluoride, oxalate, borate, phosphate, arsenate, arsenite.
3. Elimination of interfering acid radicals and Identifying the group of basic radicals
4. Analysis of basic radicals (group wise):
   Lead, copper, bismuth, cadmium, tin, antimony, iron, aluminium, arsenic, zinc, manganese, nickel, cobalt, calcium, strontium, barium, magnesium, ammonium
5. Analysis of a mixture - I to VIII containing two cations and two anions (of which one is interfering type)

REFERENCE BOOK:

1. V. Venkateswaran, R. Veeraswamy and A. R. Kulandivelu, Basic Principles of Practical Chemistry, Sultan Chand & Sons, New Delhi, second edition, 1997.

CORE THEORY – 5: ORGANO NITROGEN COMPOUNDS AND NATURAL PRODUCTS

SEMESTER V	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

Objectives:

To introduce chemistry of nitrogen compounds and natural products namely amino acids, proteins and alkaloids.

UNIT – 1: Amines, Diazonium Compounds and Nitro Compounds (15 hrs)

Aliphatic and aromatic amines: Preparation of primary, secondary and tertiary amines. Reactions: basicity of amines, effect of substituent on basicity of aromatic amines. Some sulpha drugs, Diazonium salts: Preparation, diazotization reactions, replacement reactions (Sandmeyer, Gatterman and Gomberg reactions), coupling reactions.

Nitro compounds: Nomenclature and classification, aliphatic and aromatic nitro compounds, general properties, preparation by nitration. Reactions: reduction by chemical and electrolytic methods. Di- and tri- substitution of aromatic nitro compounds: synthesis of o- , m- , p- dinitrobenzenes and trinitrobenzene.

UNIT –2: Amino acids and Proteins (15 hrs)

Classification, structure and stereochemistry of amino acids, Acid - base behavior isoelectric point and electrophoresis, preparation and reactions of α - amino acids, structure and nomenclature of peptides and proteins, classification of proteins, peptide structure determination, end group analysis, selective hydrolysis of peptides, classical peptide synthesis, solid - phase peptide synthesis, Structure of peptides and proteins, Protein denaturation / renaturation.

UNIT –3: Nucleic acids and Heterocyclic Compounds (10 hrs)

Introduction, constituents of nucleic acids, nucleosides and nucleotides. The double helical structure of DNA. Molecular orbital picture and aromatic characterisatics of pyrrole, furan, thiophene and pyridine. Methods of synthesis and chemical reactions with particular emphasis on the mechanism of electrophilic substitution, mechanism of nucleophilic substitution reaction in pyridine derivatives, comparison of basicity of pyridine, piperidine and pyrrole.

Introduction to condensed five and six membered heterocycles. Preparation and reactions of indole, quinoline and isoquinoline with special reference to Fisher indole synthesis, Skraup synthesis, Bischler-Napieralski synthesis. Electrophilic substitution reactions mechanism of indole, quinoline and isoquinoline.

UNIT –4: Alkaloids **(10 hrs)**

Alkaloids: Definition, Occurrence, extraction of alkaloids from plants, general properties, determination of the chemical constitution of the alkaloids, functional group analysis, estimation of groups, degradation and synthesis. Structural elucidation of Coniine, Piperine and Nicotine.

UNIT –5: Terpenoids **(10 hrs)**

Terpenoids: Classification, isoprene rule, isolation and general properties, occurrence, structural elucidation of geraniol, citral, menthol, α - pinene and camphor.

REFERENCE BOOKS:

1. R. T. Morrison and R. N. Boyd, Organic Chemistry, Pearson Education, Asia, sixthedition, 2002.
2. T.W. Graham Solomons, Organic Chemistry, John Wiley & Sons, eleventh edition, 2012.
3. A. Carey Francis, Organic Chemistry, Tata McGraw-Hill Education Pvt. Ltd., New Delhi, seventh edition, 2009.
4. I. L. Finar, Organic Chemistry, Vol. (1& 2), England, Wesley Longman Ltd, sixth edition, 1996.
5. J. A. Joule, and G. F. Smith, Heterocyclic Chemistry, Van Nostrand Reinhold (UK) Co. Ltd., England, second edition, 1984.
6. P. L.Soni and H. M. Chawla, Text Book of Organic Chemistry, Sultan Chand & Sons, New Delhi, twenty ninth edition, 2007.

CORE THEORY – 6: CHEMICAL KINETICS AND ELECTROCHEMISTRY

SEMESTER V	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

Objectives:

To understand the concepts of kinetics of chemical reaction and electrochemistry.

UNIT –1: Chemical Kinetics - I **(10 hrs)**

Rate of reaction - average and instantaneous rate - rate equation – order and molecularity - rate laws - rate constants - derivation of rate constants and characteristics of first, second, third and zero order reactions - derivation of time for half change with examples - methods for determination of order of reaction – experimental methods of determination of rate constant of reactions – volumetry, manometry and polarimetry.

UNIT –2: Chemical Kinetics - II **(15 hrs)**

Effect of temperature on reaction rates - concept of activation energy - Arrhenius equation - Collision Theory - derivation of rate constant for bimolecular reactions - failure of collision theory - Lindemann's Theory of unimolecular reactions – theory of absolute reaction rates - derivation of rate constant for bimolecular reaction - significance of entropy and free energy of activation - comparison of collision theory and ARRT - consecutive, parallel and reversible reactions (no derivation, only examples)

Catalysis: Definition - characteristics of a catalyst - homogeneous and heterogeneous catalysis - function of a catalyst in terms of Gibb's free energy of activation - kinetics of acid-base and enzyme catalysis - heterogeneous catalysis - kinetics of unimolecular surface reactions.

Adsorption: Physisorption and chemisorption - Freundlich adsorption isotherm - Langmuir adsorption isotherm – applications of adsorption.

UNIT - 3: Electrical Conductance **(15 hrs)**

Electrical transport, conductance in metal and in electrolytic solution. Specific conductance and equivalent conductance. Measurement of equivalent conductance using Kohlraush's bridge - Arrhenius theory of electrolytic dissociation and its limitation - Weak and strong electrolyte according to Arrhenius theory, Ostwald's dilution law - applications and limitation - Variation of equivalent conductance with concentration.

Migration of ion, ionic mobility. Kohlraush's law and its applications. The elementary treatment of the Debye-Huckel-Onsager equation for strong electrolytes, evidence for ionic atmosphere, the conductance at high fields (Wien effect) and high frequencies (Debye - Falkenhagen effect), Transport number and Hittorf rule. Determination by Hittorf method and moving boundary method. Application of conductance measurements - Determination of

λo of strong electrolytes. Determination of K_a of weak acids. Determination of solubility product of a sparingly soluble salt, common ion effect and conductometric titrations.

UNIT - 4: Electrochemical Cells - I **(10 hrs)**

Electrolytic and Galvanic cells – Reversible and irreversible cells. Conventional representation of electrochemical cells. Electromotive force of a cell and its measurement - calculation of thermodynamic quantities of cell reactions (ΔG, ΔH, ΔS and K) - application of Gibbs-Helmholtz equation and Nernst equation.

Types of reversible electrodes – Gas/metal - metal ion/ metal - insoluble salt and redox electrodes. Electrode reactions – Nernst equation – Derivation of cell EMF and single electrode potential, standard hydrogen electrode – reference electrodes – standard electrode potentials – sign convention – Electrochemical series and its significance.

UNIT - 5: Electrochemical Cells - II **(10 hrs)**

Concentration cell with and without transport - Liquid junction potential - Application of EMF concentration cells. Valence of ion, solubility product and activity co-efficient. Potentiometric titrations. Determination of pH using hydrogen, quinhydrone and glass electrodes - Corrosion – general and electrochemical theory – passivity – prevention of corrosion.

TEXT BOOKS:

1. B.R. Puri, L.R. Sharma and M.S. Pathania, Principles of Physical Chemistry, Shobanlal Nagin Chand and Co. Jalendhar, forty first, edition, 2001
2. S. H. Maron and J. B. Lando, Fundamentals of Physical Chemistry, Macmillan limited, New York, 1992.
3. S. K. Dogra and S. Dogra, Physical Chemistry through Problems: New Age International, fourth edition, 1996.

REFERENCE BOOKS:

1. Gilbert. W. Castellen, Physical Chemistry, Narosa Publishing House, third edition, 1985.
2. P. W. Atkins, and Julio de Paula, Physical Chemistry, Oxford University press, seventh edition, 2002.
3. K. L. Kapoor, A Textbook of Physical Chemistry, Macmillan India Ltd, third edition, 2009.

CORE THEORY – 7: SPECIAL TOPICS IN CHEMISTRY

SEMESTER V	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

Objectives:

To emphasize the fundamentals of stereochemistry, group theory and photochemistry, molecular rearrangement and their applications.

UNIT - 1: Stereochemistry - I **(10 hrs)**

Stereoisomerism – classification; Optical isomerism – optical activity, specific rotation (calculation) – asymmetric center – chirality – achiral molecules. Elements of symmetry. Optical activity of biphenyls, allenes and spiranes. Racemisation – methods of racemisation (by substitution and tautomerism); resolution and methods of resolution (mechanical, biochemical and chemical).

Asymmetric synthesis: Partial and absolute – Cram's rule (Elementary approach only).

UNIT –4: Stereochemistry - II **(15 hrs)**

Projection formula – flying wedge, Fischer, Sawhorse and Newmann – interconversion - d, l and D, L notations of optical isomers – CIP rules – R and S nomenclature - optical isomers up to three chiral carbon atoms. Meso, dl, erythro and threo representations.

Geometrical isomerism – cis and trans, syn-anti and E-Z nomenclature. Geometrical isomerism in maleic, fumaric acids and unsymmetrical ketoximes. Methods of distinguishing geometrical isomers. Geometrical isomerism of disubstituted cyclohexanones.

Conformational analysis - conformers, configuration, dihedral angle and torsional strains. Conformational analysis of ethane and disubstituted ethane derivatives, conformers of cyclohexane, bonds - ring flipping, mono and disubstituted cyclohexanes.

UNIT –3: Group Theory **(15 hrs)**

Symmetry elements and symmetry operations - symmetry operation of water molecule, illustration of mathematical rules for the group using symmetry operations of water molecule. Construction of group multiplication table for water molecule. Point groups - definition. Symmetry elements and symmetry operations of the following groups – C_2, C_3, C_{2v}, C_{3v}, C_{2h}.

UNIT –4: Photochemistry **(10 hrs)**

Laws of photochemistry – Lambert - Beer's law – Grothus – Draper law and Stark Einstein law–Quantum efficiency –reasons for high and low quantum yield - comparison between thermal and photochemical reactions – rate law – kinetics of H_2 and Cl_2 ; H_2 and Br_2 reactions.

UNIT –5: Molecular Rearrangements **(10 hrs)**

Types of rearrangements - mechanism of pinacol-pinacolone, benzyl-benzilic acid, bezindine, Favorski, dienone- phenol, Claisen, Fries, Hoffmann, Curtius, Schmidt and Beckmann rearrangements.

TEXT BOOKS:

1. B. R. Puri, Sharma. L. R and Kalia, K. C,Principles of Inorganic Chemistry, S. Chand Publications, New Delhi, twenty third edition, 1993.
2. J. D. Lee, Concise Inorganic Chemistry, UK Blackwell Science, (Oxford), fifth edition, 1996.
3. P.L. Soni, Mohankatyal, Text Book of Inorganic Chemistry, Sultan Chand & sons, New Delhi, twentieth edition, 2006.
4. S. Swarnalakshmi, T. Saroja, R. M. Ezhilarasi; A Simple Approach to Group Theory in Chemistry Universities Press (India) Pvt. Ltd., first edition, 2008.
5. M. K. Jain, S. C. Sharma Modern Organic Chemistry, Vishal Publishers, fourth edition, 2009.
6. B.R. Puri Sharma and M.S. Pathania, Principles of Physical Chemistry, Vishal Publishing Co., fourty second, edition, 2008.
7. P. S. Kalsi, Stereochemistry - Conformation & Mechanism, New Age International limited, sixth edition, 2006.
8. P. S. Kalsi, Stereochemistry and Mechanisms through Solved Problems, New Age International limited, third edition, 2001.

REFERENCE BOOKS:

1. S.H. Maron and C.F. Prutton, Physical Chemistry, McMillan, London fourth edition, 1965.
2. P. W. Atkins and Julio de Paula, Physical Chemistry, Oxford University Press, seventh edition, 2002.
3. G. W. Castellan, Physical Chemistry, Narosa Publishers, fourth edition, 2004.
4. H. J. Arnikar, Essentials of Nuclear Chemistry, New Age International Publishers, fourth edition, 1995.

CORE THEORY - 8: ANALYTICAL CHEMISTRY-I

SEMESTER V	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

Objectives:

- *To build a basic knowledge on generation of analytical data in an appropriate manner; to provide thorough knowledge on gravimetry.*
- *To expertise the instrumental methods of chemical analysis for microgram level; to cultivate the analytical skill in the structural identification of chemical compounds.*

UNIT –1: Data Analysis and Sampling **(15 hrs)**

Precision, accuracy, theory of errors, idea of significant figures and its importance with examples, methods of expressing accuracy, error analysis, minimizing errors, methods of expressing precision, average, deviation, standard deviation and confidence limit; analytical balance; elementary aspect of calibration, calibration of glassware and other equipments for quantitative chemical analysis.

Sampling – Significance of sampling, types of sample, sampling methods for solids, liquids and gases.

UNIT –2: Gravimetry **(10 hrs)**

Gravimetric analysis – principle, precipitating agent, condition of precipitation; selective and specific precipitants–DMG, cupferron, salicylaldehyde, ethylenediamine; use of sequestering agent, coprecipitation and post precipitation, peptisation, calculations in gravimetric method and gravimetric factor.

UNIT –3: Separation Techniques **(15 hrs)**

Separation by precipitation; solvent extraction–types and applications; Chromatographic techniques – types, principle, theory and applications of thin layer, paper chromatography, column and ion–exchange chromatography; gas liquid chromatography and high performance liquid chromatography.

UNIT –4: Purification Techniques **(10 hrs)**

Drying of solid, distillation–principle, types, and experiments of simple distillation, fractional, steam, azeotrope and vacuum distillation; Soxhlet extraction, recrystallization, fractional crystallization, sublimation.Testing of purity – determination of melting point, boiling point, refractive index and density.

UNIT –5: Polarimetry and Thermal analysis **(10 hrs)**

Polarimetry – principle, instrumentation and applications; estimation of glucose.

Thermo–analytical methods: Principle involved in thermo gravimetric analysis and differential thermal analysis, discussion of various components with block diagram, characteristics of TGA and DTA – factors affecting TGA and DTA curves.

TEXT BOOKS:

1. R. Gopalan, K. Rengarajan, P. S. Subramanian, Elements of Analytical Chemistry, Sultan Chand & Sons, third edition, 2003.
2. David Harvey, Modern Analytical Chemistry, Tata McGraw-Hill, first edition, 2000.
3. J. Mendham, R. C. Denney, J. D. Barnes and M. Thomas, Vogel's Text book of Quantitative Chemical Analysis, Pearson Education Pvt. Ltd, sixth edition,2004.

REFERENCE BOOKS:

1. Douglas A. Skoog, Donald M. West and F. James Holler, Fundamentals of Analytical Chemistry Harcourt Asia Pvt. Ltd., ninth edition, 2001.
2. Douglas A. Skoog, Donald M. West and F. James Holler, Analytical Chemistry, An Introduction; Saunders College Publishers, seventh edition, 2000.
3. Dean, John A. Merritt, Lynne L., Jr. Settle, Frank A., Jr. Willard, Hobart H, Instrumental Methods of Analysis, Wadsworth Publishing Co Inc., seventh edition, 1988.
4. Skoog D. A., Principles of Instrumental Analysis, Saunders College Publishing, fifth edition, 1998.

Visits to:

i. Quality Control laboratories.
ii. Various chemical industries with established laboratories.
iii. BIS & FSSAI approved establishments.

CORE THEORY–9: THERMODYNAMICS AND SOLUTIONS

SEMESTER V	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

Objectives:

To strengthen the knowledge on Thermodynamics and Solutions.

UNIT – 1: Thermodynamics I **(15 hrs)**

Definition and explanation of terms - System –surrounding - open, closed and isolated systems - state of system - intensive and extensive properties - Thermodynamic equilibrium - Thermodynamic processes - isothermal, adiabatic, reversible, irreversible and cyclic processes - state and path functions - exact and inexact differentials - concept of heat and work - work of expansion at constant pressure and free expansion.

First law of Thermodynamics - statement and equation - definition of internal energy(U), Enthalpy(H) and heat capacity - relation between C_p and C_v - Calculation of W, q, ΔU and ΔH for expansion of ideal gases under reversible isothermal and adiabatic conditions – Joule - Thomson effect - Calculation of μ_{JT} for ideal and real gases - inversion temperature and its significance. Thermo chemistry - Relation between enthalpy of reaction at constant volume (q_v) and at constant pressure(q_p), variation of enthalpy of reaction with temperature - Kirchhoff's equation - enthalpy of combustion - flame and explosion temperature - heat of neutralization - heat of formation - integral heat of solution and dilution - Bond energy and its calculation from thermo chemical data - Hess's law and its applications.

UNIT –2: Thermodynamics II **(10 hrs)**

Second law of Thermodynamics - need for second law - different statements of second law - spontaneous process - concept of entropy – definition - entropy of an ideal gas - entropy changes in reversible, cyclic and physical transformations - physical significance of entropy - calculation of entropy changes with changes in P, V, T and entropy of mixing - Entropy criterion for spontaneous and equilibrium processes - Gibb's free energy(G) and Helmholtz free energy (A) – variation of G and A with P, V and T - Criteria for Spontaneity - Gibb's - Helmholtz equation and its applications.

UNIT –3: Thermodynamics III **(10 hrs)**

Third law of Thermodynamics - Nernst heat theorem - statement of third law of Thermodynamics - determination of absolute entropy from heat capacity measurements - exceptions to third law.

Thermodynamic treatment of law of mass action – van't Hoff reaction isotherm - Standard free energy change with equilibrium constant - Variation of equilibrium constant with temperature change - van't Hoff isotherm. Partial molar properties – Basic concept of

Chemical potential - fugacity, activity and activity coefficient – Clapeyron-Clausius equation - derivation and its uses.

UNIT –4: Solutions and Colloids **(15 hrs)**

Ideal and non - ideal solutions - solutions of liquids in liquids - Raoult's law - binary liquid mixtures - deviations from ideal behaviour - vapour pressure – composition and vapour pressure - temperature curves - azeotropic distillation – Ethanol-water system and HCl-Water system - partially miscible liquid systems - phenol - water system, triethylamine - water, Nicotine - water system - effect of impurities on CST - completely immiscible liquids - steam distillation - solutions of gases in liquids - Henry's law.

Dilute solutions: Colligative properties - relative lowering of vapour pressure - thermodynamic derivation of elevation of boiling point - depression of freezing point – calculation of molecular weight – osmosis - laws of osmotic pressure- distribution law - thermodynamic derivation and application.

UNIT –5: Phase Equilibria **(10 hrs)**

Definition of terms in phase rule – derivation and application to one component system - water and sulphur – super cooling, sublimation. Two component systems – Solid liquid equilibria, simple eutectic lead – silver (desilverisation of lead), Bi-Cd; compound formation with congruent melting point (Mg - Zn, $FeCl_3$ – H_2O) and incongruent melting point (Na - K, Na_2SO_4 - H_2O).

REFERENCE BOOKS:

1. B.R. Puri and L.R. Sharma, Principles of Physical Chemistry, ShobanLalNagin Chand and Co., thirty three edition, 1992.
2. S.H. Maron and J.B. Lando, Fundamentals of Physical Chemistry, Macmillan limited, NewYork, 1966.
3. S.K. Dogra and S. Dogra, Physical Chemistry Through Problems, New age international, fourth edition, 1996.
4. Gilbert. W. Castellan, Physical Chemistry, Narosa publishing house, third edition, 1985.
5. P. W. Atkins, and Julio de Paula, Physical Chemistry, Oxford University press, seventh edition, 2002.
6. J. Rajaram and J.C. Kuriacose, Thermodynamics, ShobanLalNagin Chand and CO., 1986.
7. K. L. Kapoor, A Textbook of Physical chemistry, (volume-2 and 3), Macmillan, India Ltd, third edition, 2009.

CORE THEORY–10: CHEMISTRY OF d-BLOCK & f-BLOCK ELEMENTS AND COORDINATION CHEMISTRY

SEMESTER V	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

Objectives:

To learn the chemistry of elements present in the d- and f-blocks of periodic table.

UNIT - 1: Transition Elements **(15 hrs)**

Characteristic properties of d-block elements: magnetic property, reactivity, variable oxidation states, catalytic properties, comparative study of the elements of the first transition series with reference to size, ionization potentials, redox potentials, magnetic behaviour, oxidation states and ability to form complex compounds, trends in chemical and physical properties in passing from first to second and third series; important uses of transition metals and their alloys. Extraction of Ti, V, W, Cr.

UNIT - 2: Chemistry of f-Block Elements **(10 hrs)**

General characteristics of f-block elements- Lanthanides: lanthanide contraction, similarity in properties, occurrence, oxidation states, chemical properties of Ln(III) cations, magnetic properties. Separation of lanthanides: solvent extraction, ion exchange.

Actinides: occurrence, oxidation states, magnetic properties. Extraction of Uranium and thorium. Preparation, properties and uses of ceric ammonium sulphate, thorium dioxide, thorium nitrate, uranium hexafluoride, uranyl acetate. Comparison of lanthanides and actinides.

UNIT - 3: Coordination Chemistry **(15 hrs)**

Review of the fundamentals of coordination chemistry: Distinction between double salts and coordination compounds - Terminology, types of ligands - monodentate, bidentate, polydentate and ambidendate ligands, IUPAC rules for nomenclature of coordination compounds, applications of complexes in qualitative and quantitative analysis.

Isomerism: linkage, ionization, hydrate, coordination, coordination position isomerism, geometrical (cis and trans; facial and meridional), optical isomerism in 4 - coordinated and 6-coordinated complexes, trans effect, stability of coordination compounds – overall and step wise stability constants. Factors affecting the stability of complexes.

UNIT - 4: Theories of Coordination Complexes **(10 hrs)**

Werner's coordination theory, Sidgwick theory - EAN rule and stability, valence bond theory, 4-coordinate complexes, 6-coordinate complexes - Inner and outer orbital complexes, hybridization, geometry, magnetism, limitations of VBT. Crystal field theory: crystal field effects, crystal field splitting in octahedral, tetragonally distorted octahedral geometry, tetrahedral geometries and square planar complexes - high spin and low spin complexes;

CFSE and factors affecting it; computation of CFSE; evidences of crystal field splitting; spectrochemical series.

UNIT - 5: Reaction Mechanisms, synthesis and biological importance of Coordination Compounds (10 hrs)

Substitution reactions in octahedral complexes and square planar complexes: dissociative and associative and interchange mechanisms (simple approach). Cis- and trans-effects in synthesis of square planar and octahedral complexes. Biological importance of transition metals: biological roles of Cr, Mo, Mn, Fe, Co, Cu, Zn.

TEXTBOOKS:

1. B.R. Puri, L.R. Sharma and K.C. Kalia, Principles of Inorganic Chemistry, Milestone publishers, New Delhi, thirtieth edition, 2009.
2. P.L. Soni and Mohan katyal, Textbook of Inorganic Chemistry, Sultan Chand & Sons, twentieth edition, 2006.
3. J.D. Lee, Concise Inorganic Chemistry, Blackwell science, fifth edition, 2005.

REFERENCE BOOKS:

1. A. K. De, Text book of Inorganic Chemistry, Wiley East, seventh edition, 1992.
2. Wahid U Malik, G. D.Tuli and R. D. Madan, Selected Topics in Inorganic Chemistry S. Chand and Co, nineteenth edition, 2014.
3. R. C. Agrawal, Modern Inorganic Chemistry, Kitab Mahal, first edition, 1987.
4. K. N. Upadhayaya, Text book of Inorganic Chemistry, Vikas Publishing House, New Delhi,1990.

CORE THEORY – 11: ANALYTICAL CHEMISTRY–II

SEMESTER V	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

Objectives:

To provide a knowledge on instrumental methods of analytical techniques and spectroscopy.

UNIT –1: Polarography and Diffraction Methods **(15 hrs)**

Polarography - principle, concentration polarization, dropping mercury electrode, advantages and disadvantages, migration and diffusion currents. Ilkovic equation and significance. Instrumentation - experimental assembly and electrodes. Current voltage curve - oxygen wave - influence of temperature and agitation on diffusion layer. Applications - qualitative and quantitative applications for inorganic systems.

Theory, instrumentation and applications of X - ray, electron and neutron diffraction analyses.

UNIT –2: Atomic and Molecular Spectroscopy **(15 hrs)**

Principle, instrumentation and applications of Atomic Absorption Spectroscopy and Flame Photometry.

Ultraviolet and Visible spectroscopy: theory, instrumentation and application (qualitative and quantitative) – photometric titrations. Infrared Spectroscopy: Theory, instrumentation and applications. Raman Spectroscopy: Theory, instrumentation and application.

UNIT –3: NMR Spectroscopy **(10 hrs)**

Nuclear Magnetic Resonance Spectroscopy: Theory, instrumentation and application to the structural determination of organic compounds (simple organic molecule).

UNIT –4: Mass Spectrometry **(10 hrs)**

Mass Spectrometry: Principle, details of components of mass spectrometer, various analyzers, principles of fragmentation and applications to the organic molecules for structure identification.

UNIT –5: Radio - Analytical Techniques and Computers in Chemistry **(10 hrs)**

Radio-Analytical technique: Tracer technique, radiocarbon dating, activation analysis, radiometric analysis and titrations and isotopic dilution analysis.

Essentials of computers in chemistry, Fundamentals and applications in chemistry (Data interpretation – softwares for basic chemical calculations and chemical structures).

TEXT BOOKS:

1. R Gopalan, K. Rengarajan, P.S. Subramanian, Elements of Analytical Chemistry, Sultan Chand & Sons, third edition , 2003.
2. David Harvey, Modern Analytical Chemistry, McGraw-Hill, first edition, 2000.
3. R. C. Mendham, J. D. Denney, and Barnes M. Thomas, Vogel's Text Book of Quantitative Chemical Analysis, Pearson Education Pvt. Ltd., sixth edition, 2004.
4. K. V. Raman, Computers in Chemistry, Tata McGraw-Hill Education, first edition,1993.

REFERENCE BOOKS:

1. Douglas A. Skoog, Donald M. West and F. James Holler, Fundamentals of Analytical Chemistry, Harcourt Asia Pvt. Ltd., ninth edition, 2001.
2. Douglas A. Skoog, Donald M. West and F. James Holler, Analytical Chemistry- An Introduction, Saunders College Publishers, seventh edition, 2000.
3. Dean, John A., Merritt, Lynne L., Settle, Frank A., Willard, Hobart H; Instrumental Methods of Analysis, Wadsworth Publishing Co Inc., seventh edition, 1988.
4. D. A. Skoog, Principles of Instrumental Analysis, Saunders College Publishing, Philadelphia, London, fifth edition, 1998.

CORE PRACTICAL – 3: GRAVIMETRIC ANALYSIS

SEMESTER V	SUBJECT CODE	PRACTICAL	MARKS 100	CREDITS 3	HOURS 45

Objectives:

To develop experimental skill in the gravimetric analysis of inorganic elements.

Gravimetric Estimation:

1. Estimation of Lead as Lead chromate
2. Estimation of Barium as Barium chromate
3. Estimation of Nickel as Nickel-DMG complex
4. Estimation of Calcium as Calcium oxalate
5. Estimation of Barium as Barium sulfate
6. Estimation of sulfate as Barium sulfate
7. Estimation of lead in solder by gravimetry*
8. Estimation of Nickel from stainless steel*

(* For Internal assessment only)

REFERENCE BOOKS:

1. V.Venkateswaran, R.Veeraswamy and A.R. Kulandaivelu, Basic Principles of Practical Chemistry, Sultan Chand & Sons, New Delhi, second edition, 1997.
2. B. S. Furniss, Vogel's Textbook of Practical Organic Chemistry, ELBS - Longman, London, seventh edition, 1984.

CORE PRACTICAL – 4: ANALYSIS AND PREPARATION OF ORGANIC COMPOUNDS

SEMESTER V	SUBJECT CODE	PRACTICAL	MARKS 100	CREDITS 3	HOURS 45

Objectives:

To exercise the laboratory skill on analysis of organic compounds and preparation of organic compounds.

A. Organic Analysis

a) Qualitative analysis of simple organic compounds:

b) Confirmation by preparation of solids derivatives / characteristics colour reaction.

Note :1. Mono - functional compounds are given for analysis. In the case of bi- functional compounds, students are required to report any one of the functional groups.

2. Each student is expected to do the analysis of at least 15 different organic substances.

B. Organic Preparations and Chromatography Techniques

1. Preparation of Organic compounds involving the following chemical conversions:
   i.Oxidation ii.Reduction iii.Esterification iv.Acetylation v.Hydrolysis vi.Nitration vii.Bromination viii.Diazotization ix.Osazone formation.

2. Separation of chlorophyll from the plant extract by column chromatography*.

3. Identification of food colorants by TLC*.

(* For Internal assessment only)

REFERENCE BOOKS:

1. V.Venkateswaran, R.Veeraswamy and A.R. Kulandaivelu, Basic Principles of Practical Chemistry, Sultan Chand & Sons,New Delhi, second edition, 1997.
2. B. S. Furniss, Vogel's Textbook of Practical Organic Chemistry, ELBS - Longman, London, seventh edition, 1984.

CORE PRACTICAL – 5: PHYSICAL CHEMISTRY PRACTICAL

SEMESTER V	SUBJECT CODE	PRACTICAL	MARKS 100	CREDITS 3	HOURS 45

Objectives:

To perform the laboratory experiments in order to understand the concepts of physical changes in chemistry.

List of Experiments

1. Critical Solution Temperature
2. Effect of Electrolyte on Critical Solution Temperature
3. Transition Temperature
4. Kinetics of Ester Hydrolysis
5. Kinetics of Persulphate - Iodide Reaction.
6. Rast Method
7. Phase Diagram (Simple eutectic System)
8. Conductometric : Acid - Base Titration
9. Potentiometric: Acid - Base Titration

REFERENCE BOOKS

1. V.Venkateswaran, R.Veeraswamy and A.R.Kulandaivelu, Basic Principles of Practical Chemistry, Sultan Chand & Sons, New Delhi, second edition, 1997.
2. Daniel, Experimental Physical Chemistry, McGraw-Hill, New York, seventh edition, 1970.
3. A. Findlay, Practical Physical Chemistry, Logman, London, seventh edition, 1959.
4. V. K. Ahluwalia, Sunith Dhingra, and Adarsh. Gulati, College Practical Chemistry, Orient Longman Pvt. Ltd., 2008.
5. K. K. Sharma and D. S. Sharma, Introduction to Practical Chemistry, Vikas Publishing House, New Delhi, 1982.

ELECTIVE-1: NANOCHEMISTRY AND TECHNOLOGY

SEMESTER VI	SUBJECT CODE	ELECTIVE	MARKS 100	CREDITS 5	HOURS 75

Objectives:

To create general awareness on nanomaterials and applications.

UNIT - 1: Background to Nanotechnology (10 hrs)

Origin of nanotechnology - scientific revolution - atomic structures - molecular and atomic size - Bohr radius - Heisenberg's principle. Definitions - Nano, nanoscience, and nano technology, nanograins, nanoclusters, nanoinclusions (Lycurgus cup etc). Nano in nature - difference between bulk and nanomaterials - challenges in nanotechnology - carbon age - new form of carbon (from Graphene sheet to CNT).

UNIT - 2: Preparation and Properties of Nanomaterials – I (15 hrs)

Influence of nucleation rate on the size of the crystals - macroscopic to microscopic crystals and nanocrystals - large surface to volume ratio, top-down and bottom-up approaches - self-assembly process - grain boundary volume in nanocrystals - defects in nanocrystals - surface effects on the properties. Size dependent properties - magnetic, electronic, transport and optical.

UNIT - 3: Preparation and Properties of Nanomaterials – II (20 hrs)

Synthesis of bulk nanostructured materials - Sol gel processing - mechanical alloying and milling - inert gas condensation technique - bulk and nano composite materials - grinding – high energy ball milling - types of balls - WC and ZrO_2- materials – ball ratio – limitations - melt quenching and annealing. Preparation and properties of Carbon Nanotubes (CNT) - Metals (Au, Ag) - Metal oxides (TiO_2, ZnO) - Semiconductors (Si, CdS) - nanocomposites - Dilute magnetic semiconductor. Organic nanomaterials – dendrimers, etc.

UNIT - 4: Applications of Nanotechnology (20 hrs)

Applications - electronics, sensors, catalysis, Nanocomposites (NCMs) and environmental. Current medical practice - treatment methodology - principles of nanomedicine – nanomedical perspective and the medical applications – Nanomedicine: diagnosis, nanopharmaceuticals, biocompatible nanomedical materials. Industrial applications of nanomaterials: nanocoatings and nanotextilesas antibacterial and anti - odour agents in deodorant/antiperspirant, shaving/depilatory products, foot powder, oral care.

UNIT –5: Nanotoxicity **(10 hrs)**

Ethical, safety and regulatory issues of nanomedicine. Nano toxicology: toxicity of carbon nanomaterials, handling of nanomaterials, health implication of nanomaterials, environmental toxicity. Green Nanochemistry.

REFERENCE BOOKS:

1. M. Wilson, K. Kannangara, G Smith, M. Simmons, B. Raguse, Nanotechnology: Basic Science and Emerging Technologies, Overseas Press India Pvt. Ltd., New Delhi, first edition, 2005.
2. C. N. R. Rao, A. Muller, A. K. Cheetham , The Chemistry of Nanomaterials Synthesis, Properties and Applications, Wiley VCH Verlag Gmbh &Co., Weinheim, 2004.
3. Kenneth J. Klabunde , Nanoscale Materials Science, John Wiley & Sons, Inc., 2001.
4. C. S. S. R. Kumar, J. Hormes, C. Leuschner, Nanofabrication Towards Biomedical Applications, Wiley –VCH Verlag GmbH & Co, Weinheim, 2004.
5. W. Rainer, Nano Electronics and information Technology, Wiley, 2003.
6. K. E. Drexler, Nano systems, Wiley, 1992.
7. G. Cao, Naostructures and Nanomaterials: Synthesis, Properties and Applications, Imperical College Press, 2004.
8. M. Madou, Fundamentals of Micro-fabrication, CRC press, 1997.
9. G. Timp, Nanotechnology, AIP press, Springer Verlag, New York, 1999.
10. M. J. Jackson, Micro fabrication and Nanomanufacturing, CRC press. 2005.
11. G. Cao, Naostructures and Nanomaterials: Synthesis, Properties and Applications, Imperical College Press, 2004
12. W. T. S Huck, Nanoscale assembly: Chemical Techniques (Nanostructure Science and Technology, Springer, 2005.
13. Robert A. Freitas Jr., Nanomedicine, Volume I: Basic Capabilities, Landes Bioscience, Georgetown, TX, 1999.
14. Robert A. Freitas Jr., Nanomedicine, Volume IIA: Biocompatibility, Landes Bioscience, Georgetown, TX, 2003.
15. Kewal K. Jain, The Hand Book of Nanomedicine, Humana Press, Springer 2008.
16. Challa S. S. R. Kumar, Nanomaterials for Medical Diagnosis and Therapy, Wiley - VCH, 2007.
17. Parag Diwan and Ashish Bharadwaj, Nano Medicines, Pentagon Press, 2006.
18. Nancy A. Monteiro - Riviere and C. Lang Tran, Nanotoxicology, Characterization, Dosing and Health Effects, Informa Healthcare, 2007.
19. Kumar, Challa S. S. R., Nanomaterials - Toxicity, Health and Environmental Issues, Wiley - VCH, Weinheim, 2006.

ELECTIVE-2: INDUSTRIAL CHEMISTRY

SEMESTER VI	SUBJECT CODE	ELECTIVE	MARKS 100	CREDITS 5	HOURS 75

Objectives:

To have the thorough knowledge on various chemical industries and their manufacturing processes.

UNIT - 1: Industrial Requirements **(15 hrs)**

Requirements of an industry - location - water - industrial water treatment - safety measures - pilot plants. Fuels - types of fuels with examples - coal - carbonization of coal - coal far distillation - liquid fuels - gaseous fuels - selection of fuels - nuclear fuels. Energy - sources of energy - renewable and non - renewable energies - non conventional energies.Industrial catalysts - Types of catalysts - Functions and applications of Raney Nickel, Pd, $CuCrO_4$, TiO_2, Al, V and Pt based catalysts and zeolites.

UNIT - 2: Petrochemical Industries **(15 hrs)**

Crude oil - constitution and distillation - composition of different distillates - pour points, depressants, drag reducers, viscosity reducers, ignition point, flash point octane number - cracking - catalysts used in petroleum industries - strucutre, selectivty and applications. Manufacture of synthetic petrol - Dergius and Fischer Tropsh processes - Manufacture of petrochemicals and petrochemical polymers - Manufacture of higher olefins, Acetaldehyde, Acetic acid, Ethylene glycol, Glycerine, Acetone, Phenol, Carbon disulphide, Vinylacctate, Cumene, Chlorophrene, Butane diols, Xylenes.

UNIT - 3: Fertilizers and Speciality Chemicals **(15 hrs)**

Manufacture - Properties and industrial uses of solvents - DMF, DMSO, THF and Diozane. Fertilizers - Raw materials, manufacture (flow chart chemical process with equations) of ammonium nitrate, ammonium sulphate, urea, calcium cyanamide, calcium ammonium nitrate, sodium nitrate, ammonium chloride, ammonium phosphate, super phosphate of lime, NPK fertilizers, Manufacture in pure form of the following - Sodium carbonate, Oxalic acid, Potassium dichromate, Perchloric acid.

UNIT - 4: Oils, Soaps and Detergents **(15 hrs)**

Manufacture of Cl_2, NaOH and Chlorates of Na and K - manufacture of perchlorate. Oils - difference between oils and fats - manufacture of cotton seed oil and soybean oil - refining of oil - manufacture of soaps - toilet and transparent soaps - Detergents - synthetic detergents - surface active agents and their classification - manufacture of anionic, cationic and non ionic detergents and shampoo.

Sugar industry - manufacture of sugar from cane sugar and beet root. Manufacture of leather - hides - Vegetable and chrome tanning finishing. Manufacture of dinitrophenols, malathion, parathion, schradan and dementon.

UNIT - 5: Metallurgy **(15 hrs)**

General methods of metallurgy - ores - types - methods of concentration of ores - hydro metallurgy, phyrometallurgy - various reduction process, refining of metals - extraction of Cr, Mn, V, Co, Pt, U and Th. Environmental problems of chemicals industries - methods of control - sewage treatment and waste management.

REFERENCEBOOKS

1. B.K. Sharma, Industrial Chemistry, Goel Publishing House, Meerut,2003
2. C. E.Drydense, Outlines of Chemical Technology, Gopala Rao, Eastwest Press, New Delhi, third edition, 1997.
3. G.T. Austin, R.N. Shreve, Chemical Process Industries, Tata McGraw Hill publishing company, Mumbai, fifth edition, 1984.
4. H. Steines, Introduction to Petrochemicals, Pergaman Press, 1961.
5. Alan Cottrel, An Introduction to Metallurgy, Orient Longman, 2000.

ELECTIVE-3: PHARMACEUTICAL CHEMISTRY

SEMESTER VI	SUBJECT CODE	ELECTIVE	MARKS 100	CREDITS 5	HOURS 75

Objectives:

- *To understand the pharmacology, drugs and their mechanism of action, various diseases and their cure.*
- *To introduce the knowledge on pharmaceutical industries and their functioning.*

UNIT - 1: Introduction **(15 hrs)**

Common diseases – Infective diseases – insect - born, air - born and water - born – hereditary diseases. Terminology of drugs, pharmacology, pharmacognesy, pharmacodynamics, pharmacokinetics, antimetabolites. Indian medicinal plants – Tulsi, Neem, Keezhanelli and their importance.

UNIT - 2: Pharmacology and Metabolism **(15 hrs)**

Mechanism of drug action – Action at cellular and extra cellular sites. Absorption of drugs – routes of administration , factors affecting absorption – Assay of drugs – chemical, biological, immunological assays, LD_{50} and ED_{50}, therapeutic index, drug dosage. Metabolism of drugs through oxidation, reduction, hydrolysis and conjugate processes; factors affecting metabolism.

UNIT - 3: Drugs **(15 hrs)**

Definition and two examples each: Anaesthetics – General and local; Analgesics – Narcotic and synthetic; Antipyretics and anti inflammatory agents. Antibiotics: penicillin, streptomycin, chloramphenicol and tetracyclins – Antivirals, AIDS: symptoms, prevention, treatment – Cancer and neoplastic agents.

UNIT - 4: Common Body Ailments **(15 hrs)**

Diabetes – Causes, hyper and hypoglycemic drugs – Blood pressure – Systolic and Diastolic, Hypertensive drugs – cardiovascular drugs – antiarrhythmic, antianginals, vasodialators – Psychedelic drugs, hypnotics, sedatives – Lipid profile – HDL, LDL cholesterol, lipid lowering drugs. Composition of Blood: Blood grouping and Matching – Role of blood as Oxygen carrier, Coagulation of Blood - Coagulants, Anticoagulants. Anaemia – Causes and control.

UNIT - 5: Pharma Industries: Functioning and Documentations **(15 hrs)**

Introduction of pharma industry - research and development unit - process development and batch manufacturing - quality control and quality assurance – specifications - Standard Operating Procedures (SOP) – Standard Testing Procedures (STP) – Material

safety data sheets– journals – pharmacopeia – patents (product and process) – reports and records. Regulatory affairs for pharma industries like GLP, GMP, ISO, and FDA.

REFERENCE BOOKS

1. Jayashree Ghosh, Pharmaceutical Chemistry, S. Chand and Company Ltd., New Delhi, first edition, 2006,
2. S. Lakshmi, Pharmaceutical Chemistry S. Chand & Sons New Delhi, third edition, 1995.
3. Ashutosh Kar, Medicinal Chemistry, New Age International Ltd., New Delhi, 1993.
4. Divid A. William, Thomas Lemke, O. Foyes, Principles of Medicinal Chemistry, Bl publishers, fifth Edition, 2005.
5. Bertram G. Katzung, Basic & Clinical Pharmacology, McGraw-Hill Medical, twelth edition, 2012.
6. E. Prichard, Quality in the Analytical Chemistry Laboratory, John Wiley and sons NewYork, 1997.
7. W Funk, V Dammann, G. Donnevert, Quality Assurance in Analytical, VCH Weinheim, New York, 1995.

ELECTIVE-4: APPLIED ELECTROCHEMISTRY

SEMESTER VI	SUBJECT CODE	ELECTIVE	MARKS 100	CREDITS 5	HOURS 75

Objectives:

To know the applications of electrochemistry in industrial processes viz., metallurgy, coating, cells and corrosion.

UNIT - 1: Industrial Electrochemistry **(15 hrs)**

Electrochemical process in industry - components of electrochemical reactions - Types of electrolytes - Cathodes and anodes in electrochemical reactor - separators. Inorganic Electrochemicals: Caustic soda and chlorine production, mercury cells, diaphragm cells, membrane cells - Advantage chlorates, perchlorates, hydrogen peroxide. Organic Electrochemicals: Special feature of electro-organic synthesis - electro chemical oxidation. Kolbe synthesis - electro reduction of carbonyl compounds - adiponitrile synthesis.

UNIT - 2: Electrometallurgy **(15 hrs)**

Electro deposition of metals - principles - nucleation and growth of crystals - nature of electro deposits. Hydrometallurgy: Recovery of meals. Recovery of silver from photographic emulsion - electro refining - production of high copper; process description. Pyro-metallurgy: Necessity for using molten electrolytes - reactors for molten salt electrolytes - Production of aluminium - electrodes and electrode reactions in cryolite melt. Electrochemical purification of aluminium - other metals through molten salt electrolysis - Magnesium and sodium brief outline.

UNTI 3 :Electroplating **(15 hrs)**

Fundamental principles - nature of deposits for electroplating - Hull cell experiments - operating conditions and nature of deposits - throwing power - preparation of samples for electroplating - chemical and electrochemical cleaning - electroplating of copper, nickel and cadmium. Electroless plating: Importance, plating of non-metals - both composition - electroless plating of copper and nickel.

UNIT - 4: Electrochemical Power Sources **(15 hrs)**

Basic principles, chemical and electrical energies - inter conversion - changing and discharging - requirements for a good power source - Types of power sources. Primary Batteries: Description of primary cells - alkaline, manganese cells - silver oxide - zinc cells - lithium primary cells - applications. Secondary Batteries: Importance applications - charge discharge efficiency - cycle life - energy density - lead acid batteries for electric vehicles. Fuel Cells: Basic principles - Hydrogen, oxygen fuel cells - gas diffusion electrodes for fuel cells - alkaline fuel cells.

UNIT - 5: Corrosion and Prevention **(15 hrs)**

Principles - stability of metals - EMF series - active and noble metals. pH effect of stability - Pourbaix diagram - Kinetics of corrosion - mixed potential process - cathodic reaction - anodic reaction - corrosion current - active dissolution - passivation - break down of passivity - Evans diagram. Method of corrosion protection. Principles and inhibition of anodic, cathodic processes - Inhibitive additives for corrosion protection - protective coatings - types of coatings - protection of structures and pipelines - cathodic protection - examples - sacrificial anodes - protection of ships in sea water.

REFERENCE BOOKS:

1. D. Pletcher and F.C. Waish, Industrial Chemistry, second edition, 1990.
2. C.H. Hamann, A. Hamnett and W. Vielstich, Electrochemistry, Weinheim-Wiely VCH,1998.
3. D.B. Hibbert, Introduction to Electrochemistry, McMillan, London, 1993.

ELECTIVE - 5: POLYMER CHEMISTRY

SEMESTER VI	SUBJECT CODE	ELECTIVE	MARKS 100	CREDITS 5	HOURS 75

Objectives:

To develop the knowledge on chemistry of polymers and their applications.

UNIT - 1: Introduction to Polymers **(15 hrs)**

Importance of polymers: Basic concept - Monomers and polymers - definition. Classification of polymers on the basis of microstrucutres, macrostructures and applications (thermosetting and thermoplastics). Distinction among plastics, elastomers and fibers. Homo and hetero polymers and copolymers.

Chemistry of polymerization: Chain polymerisation, free radical, ionic, coordination and step polymerisation. Polyaddition and polycondensation - miscellaneous ring - opening and group transfer polymerisations.

UNIT - 2: Physical Properties and Reactions of Polymers **(15 hrs)**

Properties: Glass transition temperature (Tg) - Definition - Factors affecting Tg - relationships between Tg and molecular weight and melting point. Importance of Tg. Molecular weight of polymers: Number average, weight average, sedimentation and viscosity average molecular weights. Molecular weights and degree of polymerisation. Reactions: hydrolysis - hydrogenation - addition - substitutions - cross-linking, vulcanisation and cyclisations reactions. Polymer degradation: Basic idea of thermal, photo and oxidative degradations of polymers.

UNIT - 3: Polymerization Techniques and Processing **(15 hrs)**

Polymerisation techniques: Bulk, solution, suspension, emulsion, melt condensation and interfacial polycondensation polymerisations. Polymer processing: Calendering - die casting, rotational casting - compression. Injection moulding.

UNIT - 4: Chemistry of Commercial Polymers **(15 hrs)**

General methods of preparation, properties and uses of the following: Teflon, polymethylmethacrylate. Polythylene, polystyrene, PAN, polyesters, polycarbonates, polyamides (Kevlar), polyurethanes, PVC, epoxy resins, rubber - styrene and neoprene rubbers, Phenol-formaldehydes and urea - formaldehyde resins.

UNIT - 5: Advances in Polymers **(15 hrs)**

Biopolymers – biomaterials; polymers in medical field. High temperature and fire - resistant polymers – Silicones - carbon Fibers (Basic idea only).

TEXT BOOK

1. F.W. Billmeyer, Text book of Polymer Science, Jr. John Wiley & Sons, 1984.

REFERENCE BOOKS:

1. V.R. Gowariker, N.V. Viswanathan and Jayader Sreedhar, Polymer Science, Wiley Eastern Ltd., New Delhi, 1978.
2. B.K. Sharma, Polymer Chemistry, Goel Publishing House, Meerut, 1989.
3. M.G. Arora, and M.S. Yadav, Polymer Chemistry, Anmol Publications Private Ltd., New Delhi, second revised edition,1989.

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ALLIED CHEMISTRY

(For B.Sc., Physics,

Mathematics,

Plant Biology & Plant Biotechnology

and

Advanced Zoology & Biotechnology)

SYLLABUS FOR ALLIED CHEMISTRY

ALLIED CHEMISTRY - I
(For Mathematics & Physics Students)

SEMESTER I	SUBJECT CODE	THEORY	MARKS 100	CREDITS 3	HOURS 45

UNIT – 1: Chemical Bonding and Nuclear Chemistry

Chemical Bonding**:** Molecular Orbital Theory-bonding, antibonding and nonbonding orbitals. Molecular orbital diagrams for Hydrogen, Helium, Nitrogen; discussion of bond order and magnetic properties.

Nuclear Chemistry: Fundamental particles - Isotopes, Isobars, Isotones and Isomers- Differences between chemical reactions and nuclear reactions - group displacement law. Nuclear binding energy - mass defect - calculations. Nuclear fission and nuclear fusion - differences – Stellar energy. Applications of radioisotopes - carbon dating, rock dating and medicinal applications.

UNIT – 2: Industrial Chemistry

Fuels: Fuel gases: Natural gas, water gas, semiwater gas, carbureted water gas, producer gas, CNG, LPG and oil gas (manufacturing details not required). Silicones**:** Synthesis, properties and uses of silicones.

Fertilizers: Urea, ammonium sulphate, potassium nitrate, NPK fertilizer, super phosphate, triple superphosphate.

UNIT – 3: Fundamental Concepts in Organic Chemistry

Hybridization: Orbital overlap, hybridization and geometry of CH_4, C_2H_4, C_2H_2 and C_6H_6.

Electronic effects: Inductive effect and consequences on K_a and K_b of organic acids and bases, electromeric , mesomeric, hyperconjugation and steric- examples and explanation.

Reaction mechanisms: Types of reactions - aromaticity- aromatic electrophilic substitution; nitration, halogenation, Friedel - Craft's alkylation and acylation.

Heterocyclic compounds: Preparation, properties of pyrrole and pyridine.

UNIT - 4: Thermodynamics and Phase Equilibria

Thermodynamics: Types of systems, reversible and irreversible processes, isothermal and adiabatic processes and spontaneous processes. Statements of first law and second law of thermodynamics. Carnot's cycle and efficiency of heat engine. Entropy and its significance. Free energy change and its importance (no derivation). Conditions for spontaneity in terms of entropy and Gibbs free energy. Relationship between Gibbs free energy and entropy.

Phase Equilibria**:** Phase rule - definition of terms in it. Applications of phase rule to water system. Two component system - Reduced phase rule and its application to a simple eutectic system (Pb-Ag).

UNIT – 5: Analytical Chemistry

Introduction to qualitative and quantitative analysis. Principles of volumetric analysis. Separation and purification techniques – extraction, distillation and crystallization.

Chromatography: principle and application of column, paper and thin layer chromatography.

REFERENCE BOOKS:

1. V. Veeraiyan, Text book of Ancillary Chemistry; Highmount publishing house, Chennai, first edition, 2009.
2. S. Vaithyanathan, Text book of Ancillary Chemistry; Priya Publications, Karur, 2006.
3. Arun Bahl, B. S. Bahl, Advanced Organic Chemistry; S. Chand and Company, New Delhi, twenty third edition, 2012.
4. P. L. Soni, H. M. Chawla, Text Book of Organic Chemistry; Sultan Chand & sons, New Delhi, twenty ninth edition, 2007.
5. P. L. Soni, Mohan Katyal, Text book of Inorganic chemistry; Sultan Chand and Company, New Delhi, twentieth edition, 2007.
6. B. R. Puri, L. R. Sharma, M. S. Pathania, Text book Physical Chemistry; Vishal Publishing Co., New Delhi, forty fourth edition, 2010.
7. B. K, Sharma, Industrial Chemistry; GOEL publishing house, Meerut, sixteenth edition, 2014.

ALLIED CHEMISTRY - II

SEMESTER I	SUBJECT CODE	THEORY	MARKS 100	CREDITS 3	HOURS 45

UNIT – 1: Co-ordination Chemistry and Water Technology

Co-ordination Chemistry: Definition of terms - IUPAC Nomenclature - Werner's theory - EAN rule - Pauling's theory – Postulates - Applications to $[Ni(CO)_4]$, $[Ni(CN)_4]^{2-}$, $[Co(CN)_6]^{3-}$ Chelation - Biological role of Haemoglobin and Chlorophyll (elementary idea) - Applications in qualitative and quantitative analysis.

Water Technology: Hardness of water, determination of hardness of water using EDTA method, zeolite method - Purification techniques - BOD, COD.

UNIT – 2: Carbohydrates and Amino acids

Carbohydrates: Classification, preparation and properties of glucose, fructose and sucrose. Discussion of open chain ring structures of glucose and fructose. Glucose –fructose interconversion. Properties of starch and cellulose.

Amino acids: Classification - preparation and properties of alanine, preparation of dipeptides using Bergmann method. RNA and DNA (elementary idea only).

UNIT – 3: Electrochemistry

Galvanic cells - Standard hydrogen electrode - calomel electrode - standard electrode potentials - electrochemical series. Strong and weak electrolytes - ionic product of water - pH, pKa, pKb. Conductometric titrations - pH determination by colorimetric method - buffer solutions and its biological applications - electroplating - Nickel and chrome plating - Types of cells - fuel cells - corrosion and its prevention.

UNIT – 4: Kinetics and Catalysis

Order and molecularity. Integrated rate expression for I and II (2A → Products) order reactions. Pseudo first order reaction, methods of determining order of a reaction - Half life period – Catalysis - homogeneous and heterogeneous, catalyst used in Contact and Haber's processes. Concept of energy of activation and Arrhenius equation.

UNIT – 5: Photochemistry

Grothus-Drapper's law and Stark-Einstein's law of photochemical equivalence, Quantum yield - Hydrogen-chloride reaction. Phosphorescence, fluorescence, chemiluminescence and photosensitization and photosynthesis (definition with examples).

REFERENCE BOOKS:

1. V. Veeraiyan, Text book of Ancillary Chemistry; Highmount publishing house, Chennai, first edition, 2009.

2. S. Vaithyanathan, Text book of Ancillary Chemistry; Priya Publications, Karur, 2006.
3. Arun Bahl, B. S. Bahl, Advanced Organic Chemistry; S. Chand and Company, New Delhi, twenty third edition, 2012.
4. P. L. Soni, H. M. Chawla, Text Book of Organic Chemistry; Sultan Chand & sons, New Delhi, twenty ninth edition, 2007.
5. P. L. Soni, Mohan Katyal, Text book of Inorganic chemistry; Sultan Chand and Company, New Delhi, twentieth edition, 2007.
6. B. R. Puri, L. R. Sharma, M. S. Pathania, Text book Physical Chemistry; Vishal Publishing Co., New Delhi, forty fourth edition, 2010.
7. B. K, Sharma, Industrial Chemistry; GOEL publishing house, Meerut, sixteenth edition, 2014.

ALLIED CHEMISTRY - I
(For Botany and Zoology Students)

SEMESTER I	SUBJECT CODE	THEORY	MARKS 100	CREDITS 3	HOURS 45

UNIT – 1: Chemical Bonding and Nuclear Chemistry

Chemical Bonding: Molecular Orbital Theory-bonding, antibonding and nonbonding orbitals. M. O diagrams for Hydrogen, Helium, Nitrogen; discussion of bond order and magnetic properties.

Nuclear Chemistry: Fundamental particles - Isotopes, Isobars, Isotones and Isomers- Differences between chemical reactions and nuclear reactions - group displacement law. Nuclear binding energy - mass defect - calculations. Nuclear fission and nuclear fusion - differences – Stellar energy. Applications of radioisotopes - carbon dating, rock dating and medicinal applications.

UNIT – 2: Industrial Chemistry

Fuels: Fuel gases: Natural gas, water gas, semiwater gas, carbureted water gas, producer gas, CNG, LPG and oil gas (manufacturing details not required).

Silicones: Synthesis, properties and uses of silicones.

Fertilizers: Urea, ammonium sulphate, potassium nitrate NPK fertilizer, super phosphate, triple superphosphate.

UNIT – 3: Fundamental Concepts in Organic Chemistry

Hybridization: Orbital overlap hybridization and geometry of CH_4, C_2H_4, C_2H_2 and C_6H_6.

Polar effects: Inductive effect and consequences on K_a and K_b of organic acids and bases, electromeric , mesomeric, hyperconjugation and steric- examples and explanation.

Reaction mechanisms: Types of reactions - aromaticity- aromatic electrophilic substitution; nitration, halogenation, Friedel - Craft's alkylation and acylation.

Heterocyclic compounds: Preparation, properties of pyrrole and pyridine.

UNIT – 4: Useful Organic compounds

Definition, structure and uses: Antibiotics viz., Penicillin, Chloramphenicol and Streptomycin; Anaesthetics viz., Chloroform and ether; Antipyretics viz., aspirin, paracetamol and ibuprofen; Artificial sugar viz., saccharin, Aspartame and cyclamate; Organic Halogen compounds viz., Freon, Teflon.

UNIT – 5: Analytical Chemistry

Introduction qualitative and quantitative analysis. Principles of volumetric analysis. Separation and purification techniques: extraction, distillation and crystallization. Chromatography: principle and application of column, paper and thin layer chromatography.

REFERENCE BOOKS:

1. V. Veeraiyan, Text book of Ancillary Chemistry; Highmount publishing house, Chennai, first edition, 2009.
2. S. Vaithyanathan, Text book of Ancillary Chemistry; Priya Publications, Karur, 2006.
3. Arun Bahl, B. S. Bahl, Advanced Organic Chemistry; S. Chand and Company, New Delhi, twenty third edition, 2012.
4. P. L. Soni, H. M. Chawla, Text Book of Organic Chemistry; Sultan Chand & sons, New Delhi, twenty ninth edition, 2007.
5. P. L. Soni, Mohan Katyal, Text book of Inorganic chemistry; Sultan Chand and Company, New Delhi, twentieth edition, 2007.
6. B. R. Puri, L. R. Sharma, M. S. Pathania, Text book Physical Chemistry; Vishal Publishing Co., New Delhi, forty fourth edition, 2010.
7. B. K, Sharma, Industrial Chemistry; GOEL publishing house, Meerut, sixteenth edition, 2014.
8. Jayashree gosh, Fundamental Concepts of Applied Chemistry; Sulan & Chand, Edition – 2006.

ALLIED CHEMISTRY - II
(For Botany and Zoology Students)

SEMESTER I	SUBJECT CODE	THEORY	MARKS 100	CREDITS 3	HOURS 45

UNIT – 1: Co-ordination Chemistry and Water Technology

Co-ordination Chemistry**:** Definition of terms - IUPAC Nomenclature - Werner's theory - EAN rule - Pauling's theory – Postulates - Applications to $[Ni(CO)_4]$, $[Ni(CN)_4]^{2-}$, $[Co(CN)_6]^{3-}$ Chelation - Biological role of Haemoglobin and Chlorophyll (elementary idea) - Applications in qualitative and quantitative analysis.

Water Technology: Hardness of water, determination of hardness of water using EDTA method, zeolite method - Purification techniques – BOD and COD.

UNIT – 2: Carbohydrates

Classification, preparation and properties of glucose and fructose. Discussion of open chain ring structures of glucose and fructose. Glucose-fructose interconversion. Preparation and properties of sucrose, starch and cellulose.

UNIT – 3: Amino Acids and Essential elements of biosystem

Classification - preparation and properties of alanine, preparation of dipeptides using Bergmann method - Proteins-classification – structure - Colour reactions - Biological functions –nucleosides - nucleotides - RNA and DNA – structure. Essentials of trace metals in biological system- Na, Cu, K, Zn, Fe, Mg.

UNIT – 4: Electrochemistry

Galvanic cells - Standard hydrogen electrode - calomel electrode - standard electrode potentials - electrochemical series. Strong and weak electrolytes - ionic product of water - pH, pKa, pKb. Conductometric titrations - pH determination by colorimetric method - buffer solutions and its biological applications - electroplating - Nickel and chrome plating - Types of cells - fuel cells - corrosion and its prevention.

UNIT – 5: Photochemistry

Grothus-Drapper's law and Stark-Einstein's law of photochemical equivalence, Quantum yield - Hydrogen-chloride reaction. Phosphorescence, fluorescence, chemiluminescence and photosensitization and photosynthesis (definition with examples).

REFERENCE BOOKS:

1. V. Veeraiyan, Text book of Ancillary Chemistry; Highmount publishing house, Chennai, first edition, 2009.
2. S. Vaithyanathan, Text book of Ancillary Chemistry; Priya Publications, Karur, 2006.
3. Arun Bahl, B. S. Bahl, Advanced Organic Chemistry; S. Chand and Company, New Delhi, twenty third edition, 2012.
4. P. L. Soni, H. M. Chawla, Text Book of Organic Chemistry; Sultan Chand & sons, New Delhi, twenty ninth edition, 2007.
5. P. L. Soni, Mohan Katyal, Text book of Inorganic chemistry; Sultan Chand and Company, New Delhi, twentieth edition, 2007.
6. B. R. Puri, L. R. Sharma, M. S. Pathania, Text book Physical Chemistry; Vishal Publishing Co., New Delhi, forty fourth edition, 2010.
7. B. K, Sharma, Industrial Chemistry; GOEL publishing house, Meerut, sixteenth edition, 2014.

ALLIED CHEMISTRY PRACTICAL
(Common for Mathematics, Physics, Botany and Zoology students)

SEMESTER ODD & EVEN	SUBJECT CODE	PRACTICAL	MARKS 100	CREDITS 4	HOURS 60

1. VOLUMETRIC ANALYSIS

1. Estimation of Sodium hydroxide using standard Sodium Carbonate.
2. Estimation of Hydrochloric acid using standard Oxalic acid.
3. Estimation of Ferrous sulphate using standard Mohr's salt
4. Estimation oxalic acid using standard Ferrous Sulphate.
5. Estimation of Potassium permanganate using standard Sodium hydroxide.
6. Estimation of Magnesium using EDTA.
7. Estimation of Ferrous ion using diphenylamine as internal indicator.

2. SYSTEMATIC ANALYSIS OF ORGANIC COMPOUNDS

The analysis must be carried out as follows:

a) Functional group tests [phenol, acids (mono & di) aromatic primary amine, amides (mono & di), aldehyde and glucose].
b) Detection of elements (N, S, Halogens)
c) Distinguish between aliphatic and aromatic
d) Saturated and unsaturated compounds.

REFERENCE BOOK:

V. Venkateswaran, R. Veerasamy, A. R. Kulandaivelu, Basic Principles of Practical Chemistry; Sultan Chand & sons, second edition, 1997.

Inter-disciplinary Elective

(***For Students other than Chemistry major***)

(w.e.f. 2019-2020)

SEMESTER V	SUBJECT CODE:	THEORY 100	CREDIT 5	HOURS 60

CHEMISTRY IN EVERYDAY LIFE

Unit – I Dairy chemistry **(10 hrs)**

1.1 Milk Definition, general composition - physico - chemical changes taking place in milk due to boiling, pasteurization, sterilization and homogenisation - explanation.

1.2 Components of milk - lipids, proteins, carbohydrates, vitamins, ash and mineral matters - names and functions.

1.3 Definition and compositions of cream, butter, ghee, icecrearn, stabiliser ,emulsifier and emulsifier.

Unit – II Food Chemistry **(10 hrs)**

2.1 Sources of food, types, Food adulteration- Common adulterants, Detection of adulterated foods by simple analytical techniques.

2.2 Food additives - artificial sweetners - Saccharin - Cyclomate and Aspartate.Food flavours - esters, aldehydes and heterocyclic compounds. Food colours – Emulsifying agents – preservatives - leavening agents. Baking powder - yeast - taste makers - MSG vinegar

2.3 Beverages-soft drinks-soda-fruit juices-alcoholic beverages, examples.

Unit – III Pharmaceutical chemistry **(15 hrs)**

3.1 Definition of the following terms - drug, bacteria, virus and vaccine. Causes, symptoms and drugs for anaemia, jaundice, cholera, malaria, filarial, AIDS, Diabetes, Blood pressure, Cancer.

3.2. Indian medicinal plants and uses - tulasi, neem, kizhanelli, mango, semparuthi, adadodai and thoothuvalai.

3.3 Definition and examples for the following – Analgesics, Antipyretics, Anaesthetics, Antibacterials, Antiseptics and Disinfectants (Structures not required)

Unit – IV Industrial Chemistry **(15 hrs)**

4.1 Fats and oils - Sources of oils - production of refined vegetable oils - preservation.

4.2 Soaps and Detergents – toilet and transparent soaps-synthetic detergents-surface active agents and their classification.

4.3 Fertilisers- Types and Importance of fertilizers-. Examples for insecticides, fungicides, pesticides and herbicides - ill effects of use of chemical fertilisers and insecticides.

4.4 Water – sources of water – Hard and soft water-methods of removal of hardness of water. (equations not needed)

Unit- V Polymer Chemistry **(10 hrs)**

5.1 Classification and special properties of polymers - natural and synthetic - rubber, cellulose, starch, wool, silk - synthetic rubber, polyalkenes, acrylics, polyamides, polyesters, PVC polyurethane - starting materials and uses only. (structures not required for examination)

5.2 International Resin Identification Coding System and its significance in use - recycling. Bio-degradable polymers. Polymer waste management.

CERTIFICATE COURSE -

ENTREPRENEUR SKILLS IN CHEMISTRY

Objectives: To develop entrepreneur skills and to give hands on training to the preparation of the products for the start of small scale industries.

UNIT - 1: Food Chemistry

- Food adulteration - contamination of food items with clay stones, water and toxic chemicals - Common adulterants.
- Food additives, Natural and synthetic anti-oxidants, glazing agents (hazardous effect), food colourants, Preservatives, leavening agents, Baking powder and baking soda, yeast, MSG, vinegar.

UNIT – II: Dairy Chemistry

- Milk - General Composition of milk, constituents of milk- carbohydrates, lipids, proteins, vitamins and minerals. Processing of milk - Pasteurization, Homogenization.
- Special milk - standardized milk, homogenized milk, flavoured milk, toned milk, vitaminized milk, condensed milk-definition, composition and nutritive value.

UNIT- III: Hands on Experience

- Detection of adulterants in food items like coffee, tea, pepper, chilli powder, turmeric powder, butter, ghee, milk, honey etc., by simple techniques.
- Preparation of Jam, squash and Jelly, Gulkand, cottage cheese.
- Preparation of products like candles, soap, detergents, cleaning powder, shampoos, pain balm, tooth paste/powder and disinfectants in small scale.
- Extraction of oils from spices and flowers.
- Testing of water samples using testing kit.

MOOC [Optional]

Students can opt for Massive Open Online Courses during odd semesters.

Two credits will be given for each course.

Students can choose a maximum of three courses.

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A - Grade' by NAAC
(Affiliated to the University of Madras)

BACHELOR OF SCIENCE
(B.Sc – COMPUTER SCIENCE)

Regulations and Syllabus

(For the Candidates admitted in 2019 - 2020 and thereafter)

SEMESTER SYSTEM WITH CREDITS

(Effective from the Academic year 2019-2020 and thereafter)

RULES AND REGULATIONS

I. CHOICE BASED CREDIT SYSTEM (CBCS) WITH GRADING

The College follows the CBCS with grades under the semester pattern. Every course paper is provided with a credit point based on the quantum of subject matter, complexity of the content and the hours of teaching allotment. This is done after a thorough analysis of the content of each subject paper by the members of the Board of studies and with the approval of the Academic Council. Students are also offered a variety of Job-oriented courses, Elective courses and courses involving Soft-skills as the part of curriculum. Students can earn extra credits by opting for Massive Open Online Courses (MOOCs) and Certificate Courses.

The evaluation method under CBCS involves a more acceptable grading system that reflects the personality of the student. This is represented as Cumulative Grade Point Average (CGPA) and Grade Point Average (GPA) which are indicators of Academic Performance of the student. It provides students scope for horizontal mobility and empowers them with the flexibility of learning at their convenience.

II. ELIGIBILITY FOR ADMISSION

Candidates admitted to the first year of the UG programme should have passed the higher secondary examinations (Academic or Vocational Stream) conducted by the Government of Tamil Nadu or an examination accepted as equivalent thereof by the Syndicate of the University of Madras. Students applying for the PG programme should have taken the UG degree in the concerned subject from a recognized university as per the norms of the University of Madras.

III. DURATION OF THE COURSE

The UG course is of three-year duration with six semesters and the PG course is of two-year duration with four semesters excluding MCA – three-year duration with six semesters. The odd semester includes the period from June to November and the even semester from December to April. There shall not be less than 90 working days for each semester.

IV. COURSE OF STUDY

The main subject of study for Bachelor's Degree shall consist of the following:

1. FOUNDATION COURSES

a) PART - I : Tamil or Classical Language (Hindi / Sanskrit/French)

b) PART - II : English

2. CORE COURSES

a) PART - III : Consisting of (a) Main subjects, (b) Allied Subjects, (c) Elective subjects related to the main subject of study and project work.

b) PART - IV

i. Those who have not studied Tamil / Hindi up to XII standard and have taken a non- Tamil / non – Hindi language under Part – I shall opt for Basic Tamil / Basic Hindi in the first two semesters.

ii. Those who have studied Tamil up to XII standard, and taken a non -Tamil language under Part – I shall opt for Advanced Tamil in the first two semesters.

iii. Others, who do not come under either of the clauses mentioned above, can choose a Non-Major Elective (NME) in the first two semesters.

iv. Soft Skills. (I, II, III&IV Semesters)

v. Environmental Studies (IV Semester)

vi. Value Education (V Semester)

c) PART - V : Compulsory Extension Service

A candidate shall be awarded one credit for compulsory extension service.

All the students shall enroll for NSS / NCC /Sports & Games/ Rotaract/ Youth Red Cross / Citizen Consumer Club / Enviro Club or any other service organization in the College and shall have to put in compulsory minimum attendance of 40 hours which shall be duly certified by the Principal of the College. If a student lacks 40 hours attendance in any Semester, he/she shall have to compensate the same during the subsequent Semesters. Literacy and population, educational field work shall be compulsory components in the above extension service activities.

V. COURSE STRUCTURE

The UG course consists of 15-18 Core papers, 3 Elective papers and 4 Allied papers. The Credit for each core paper shall be 3-4, while the elective and allied papers shall carry a credit of 5. The B.Com (Hons) course has 32 core papers of 4 credits each.

The PG course has 14-17 core papers with 4 credits, elective papers with 3-4 credits and a project work.

The MBA course has 13 core papers of 4 credits each, 8 elective and interdisciplinary papers of 3 credits each and a project work.

The MCA Regular (3 Years) course has 26 core papers of 2-4 credits, 4 Elective papers of 3-4 credits, 1 Non – Major Elective of 4 credits, 1 Extra-disciplinary paper of 4 credits and a project work of 18 credits.

The MCA Lateral Entry (2 Years) course has 14 core papers of 2-4 credits, 4 Elective papers of 3-4 credits, 1 Non – Major Elective of 4 credits, 1 Extra-disciplinary paper of 4 credits and a project work of 18 credits.

The MSW course has 17 core papers with 3 credits for theory papers, 6 credits for field work, 2 credits for summer placement, 1 credit for study tour, 6 credits for research projects and 2 credits for block placement.

Internship training is a compulsory component for all the PG courses.

❖ **The details of the course structure are given in the following table:**

CHOICE BASED CREDIT SYSTEM WITH GRADING

POST GRADUATE DEGREE

COMPONENTS	M.Sc. Chemistry M.Sc. Mathematics M.Sc. Zoology M.A. Economics M.A. Defence & Strategic Studies			M. COM			M. S.W		
	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits
CORE COURSES INCLUDING PRACTICAL	14-17	4	60-70	16	4	64	17	3-6	65
PROJECT	0-1	6	0 - 6	0	0	0	1	6	6
ELECTIVES INCLUDING EXTRA DISCIPLINARY COURSES	3-5	3 - 4	10-20	4	4	16	7	2	14
SKILL	4	2	8	4	2	8	4	2	8
INTERNSHIP	0-1	2	0-2	1	2	2	0	0	0
TOTAL			**91**			**91**			**93**

COMPONENTS	M.C.A. REGULAR (3 YEARS)			M.C.A. LATERAL ENTRY (2 YEARS)			M.B.A.		
	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits
CORE COURSES INCLUDING PRACTICAL	26	2-4	81	14	2-4	41	13	4	52
PROJECT	1	18	18	1	18	18	1	8	8
ELECTIVES INCLUDING EXTRA DISCIPLINARY COURSES	6	3-4	21	6	3- 4	21	8	3	24
SKILL	6	2	12	4	2	8	4	2	8
INTERNSHIP	1	3	3	1	3	3	1	2	2
TOTAL			**135**			**91**			**94**

UNDER GRADUATE DEGREE

PART	COMPONENTS	B.Com(Gen.) B.Com(A&F) B.Com(B.M.) B.Com(M.M.) B.Com(ISM) B.B.A. B.C.A B.Sc (IT)			B.Com (C.S) B.Sc.(Mat.) B.Sc.(Phy.) B.Sc.(Chem.) B.Sc.(Plant Bio.) B.Sc.(Adv.Zoo) B.Sc.(C.S.) B.Sc.(Viscom) B.Sc (Biotech) B.A.(Eco.) B.A.(Defence), B.A. (English).			B.Com (Honours)		
		No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits
Part I Foundation Course	**Language (Tamil/ Hindi/ Sanskrit/ French)**	2	3	6	4	3	12	2	3	6
Part II Foundation Course	**English**	2	3	6	4	3	12	2	3	6
Part III	**Core Papers**	18	4	72	15-18	3-4	60	32	4	132
	Allied Papers	4	5	20	4	5	20	-	-	-
	Elective Papers	3	5	15	3	5	15	-	-	-
Part IV	**Non Major Electives/ Basic Tamil/ Advanced Tamil***	2	2	4	2	2	4	2	2	4
	Skill Based Elective	4	3	12	4	3	12	5	2-4	14
	Environmental Studies	1	2	2	1	2	2	1	2	2
	Value Education	1	2	2	1	2	2	1	2	2
Part-V	**Extension Service**	1	1	1	1	1	1	1	1	1
Total				**140**			**140**			**167**

Under Part IV of the Course, students should register separately for two Non-Major Elective papers, during the First and Second semester. The marks obtained under Part IV would not be included for classification of the candidate although a pass is mandatory. Students should have obtained the minimum credit under Part V to be eligible to receive the degree.

VI. EXAMINATIONS

Continuous Internal Assessment (CIA) will be for 50 percentage and End Semester Examination (ESE) will be for 50 percentage.

➢ CONTINUOUS INTERNAL ASSESSMENT (CIA)

Every semester has two centralized CIA examinations and one model examination for each paper. Each of the Continuous Assessment Tests (CAT) of one-and-a-half-hour duration will be conducted on completion of 30 and 60 working days respectively in each semester. A Model exam of three hours' duration will be conducted on completion of 80 working days in each semester.

The schedules for these tests are as follows:

C.I.A.Test	Schedule	Syllabus Coverage
I	After 30 working days from the commencement of the Semester	40%
II	After 60 working days of the Semester	80%
III (Model Examination)	After 80 working days of the Semester	95%

The components for the CIA are as follows:

Internal Components			
Assessment Type	**Nature**	**Maximum Marks**	**% of Weightage**
CIA	Written Test - 1	50	5
	Written Test – 2	50	5
Model	Model Examination	100	10
	Assignment		10
	Class activity		15
	Attendance		5
	Total		**50**

The class activity relates to a programme of accepted innovative techniques such as seminars, quiz, portfolio creation, MCQ, power point presentation, objective tests, role play etc. The mode of evaluation of the class activity will be fixed before the commencement of the semester and an approval will be obtained from the HOD. Once the classes begin, the student would be informed.

A record of all such assessment procedures will be maintained by the department and is open for clarification. Students will have the right to appeal to the Principal in case of glaring disparities in marking.

CIA marks for practical subjects will be awarded by the respective faculty based on the performance of the student in the model practical examination, observation notebook, submission of record books, regularity and attendance for the practical classes. The attendance particulars for practical classes will be maintained by the concerned faculty.

Marks for attendance will be awarded as per the following:

Percentage of General Attendance	Marks Awarded
90-100	5
75-89	4
60-74	3
<60	0

- **END SEMESTER EXAMINATIONS (ESE)**

Examinations will be conducted during each semester after the completion of a minimum of 90 working days. Examinations will be held for all papers of the course in Nov/Dec and April/May for all UG and PG courses.

Practical examinations will be conducted only during the end of the odd / even semester either before, during or after the commencement of the theory exam. The schedule for ESE Practicals will be notified by the Controller of Examinations in consultation with the Dean (Academics).

A candidate will be permitted to appear for the End of Semester examinations for any semester if:

a) He / She secures not less than 75% of attendance in the working days during the semester.
b) His / Her conduct has been satisfactory
c) He / She should have applied for the examination
d) He / She should have paid the requisite examination fee

The attendance requirements to appear for the ESE are as follows:

i. Students must have 75% of attendance in each part of the course of study to appear for the examination.

ii. Students who have 65% to 74.9% of attendance shall apply for condonation in the prescribed form along with the prescribed fee after obtaining permission from the Principal. Students cannot claim condonation as a matter of right. Submission of Medical Certificate is normally not accepted to condone shortage of attendance.

iii. Students who have 50% to 64.9% of attendance will fall under the - **Withheld category**. Such students cannot take up the ESE exams. They should apply to the Principal for permission to write the next supplementary examination and pay the requisite fee for this purpose. However, they can appear for previous semester supplementary paper.

iv. Students who have less than 50% of attendance fall under the - **Detained category would not be permitted to appear for the examination. They shall redo the semesters after completion of the course and appear for the examination after securing the required percentage of attendance. The decision of the Principal remains final and binding in all respects.**

v. Students who do not get the minimum marks to pass in the ESE shall compulsorily re-appear for the paper in the subsequent semester after paying the required fee.

A Student who for whatever reasons is not able to complete the program within the normal period (N) or the minimum duration prescribed for the programme, may be allowed two years period beyond the normal period to clear the backlog to be qualified for the degree. (Time Span = N +2 +1 years for the completion of programme).

In exceptional cases like Major accidents and child birth an extension of one year be considered beyond maximum span of time (Time Span = N + 2 + 1 years for the completion of programme).

If they fail to do so, they shall re-register their names and take the examination in the revised regulations/syllabus of the paper in force at the time of their reappearance. In the event of removal of that paper consequent to the change of regulation and/or curriculum after 5-year period, the candidate shall have to take up an equivalent paper in the revised syllabus as suggested by the Chairman of the concerned Board of Studies. Students qualifying during the extended period, shall not be eligible for **RANKING.**

➢ INSTANT EXAMINATIONS (SPECIAL SUPPLEMENTARY EXAMINATION)

In order to provide an opportunity to the final UG and PG students to obtain the degree in the same year and also to facilitate vertical mobility, special supplementary End Semester Examinations will be conducted in about 30 days from the date of publication of results every year for the final semester theory papers and also for the candidates who had failed in **ONLY ONE** theory paper of the previous semesters. Students, who wish to apply for special supplementary End Semester Examinations, can do so within 7 days from the date of publication of results.

Students involved in Malpractice will not be permitted to appear for Supplementary Examination.

The details of the ESE are as follows:

External Component			
Assessment type	**Comprehensive Test**	**Maximum mark**	**% of Weightage**
External Exam	3 Hours Examination	100	50
	Grand Total (CIA+ESE)		100

VII. CONDUCT OF EXAMINATION

Chief Superintendent of Examinations will be the Principal or a person appointed by the Principal. The conduct of End Semester Examinations lies with the team led by the Chief Superintendent.

The time-table for examinations will be finalized by the office of the Controller of Examinations and will be displayed well in advance i.e., 20 days prior to the commencement of examinations.

The Hall tickets for eligible students will be issued 3 days prior to the commencement of examinations. For Subjects like Environmental Studies / Value Education, End Semester Examinations may be conducted on-line or along with the regular ESE.

VIII. VALUATION

Valuation of the answer scripts are undertaken at the central valuation camp led by the Controller of Examinations or the Camp Officer appointed by the Controller of Examinations. Single valuation of answer scripts by external examiners is adopted for both UG and PG Courses.

IX. PUBLICATION OF RESULTS

The Examination results will be published on the web portal during the third / fourth week of May for the II, IV and VI semester examinations and during the third / fourth week of December for the I, III and V semester examinations

A. GUIDELINES FOR OBTAINING PHOTOCOPY OF THE ANSWER SCRIPT

Candidates seeking photocopy of the answer scripts are advised to go through these rules and regulations before they apply

i. Photocopy is allowed only for Regular theory papers in PART I, II and III. **(Supplementary excluded).**

ii. Select the papers carefully in which you wish to get the photocopy. No second application for additional papers would be accepted.

B. GUIDELINES FOR APPLYING REVALUATION OF THE ANSWER SCRIPT

Candidates seeking revaluation are advised to go through these rules and regulations before they apply

i. Revaluation is allowed only for Regular theory papers in PART I, II and III. **(Supplementary excluded).**

ii. Select the papers carefully in which you wish to get the revaluation. No second application for additional papers would be allowed.

iii. The application is to be filled in by the candidate in his/her own hand-writing and not by anyone else on his/her behalf.

iv. Entries made by the candidate are to be verified by the HOD and forwarded to the Principal for endorsement.

v. Prescribed Fee payment receipt or challan to be attached with the Application Form and submitted to the Principal's Office. The candidate will be given an acknowledgement for submission mentioning date and time.

vi. Candidate to be aware that when applying for revaluation, He / She SURRENDERS the original performance and will now accept the revised performance in which

(a) There can be NO CHANGE in the marks (or)

(b) There can be INCREASE in the marks

X. CLASSIFICATION OF PERFORMANCE – GRADING SYSTEM FOR THE SEMESTER

A candidate shall be declared to have qualified for the award of the Degree provided the candidate has successfully completed the Programme requirements and has passed all prescribed subjects of study in all the semesters.

Passing Minimum :

UG CIA 40% AGGREGATE 40%

B.Com(Hons.) and PG CIA 50% ESE 50% AGGREGATE 50% OF THE MAXIMUM OF THE COMPONENT IN THAT PAPER / COURSE

P: Pass, U: Re-Appear, WH: Withheld, AAA: Absent, CIA: Continuous Internal Assessment, ESE: End Semester Examination, GPA: Grade Point Average. CGPA: Cumulative Grade Point Average

UNDER GRADUATE DEGREE

PART – I	**:**	**TAMIL / OTHER LANGUAGES**
PART – II	**:**	**ENGLISH**
PART – III	**:**	**CORE, ALLIED AND ELECTIVE**
PART – IV	**:**	**TAMIL / NON MAJOR ELECTIVE, SKILL BASED ELECTIVES, ENVIORNMENTAL STUDIES AND VALUE EDUCATION**
PART – V	**:**	**EXTENSION ACTIVITIES**

POST GRADUATE DEGREE

PART – A	**:**	**CORE, ELECTIVE, MAJOR PROJECT**
PART – B	**:**	**SOFT SKILL COURSE, INTERNSHIP**

RANGE OF MARKS FOR GRADES UG Also for Certificate / Diploma			
Range of Marks	**Grade Points**	**Letter Grade**	**Description**
90 - 100	9.0 - 10.0	O	Outstanding
80 - 89	8.0 - 8.9	D+	Excellent
75 - 79	7.5 - 7.9	D	Distinction
70 - 74	7.0 - 7.4	A+	Very Good
60 - 69	6.0 - 6.9	A	Good
50 - 59	5.0 - 5.9	B	Average
40 - 49	4.0 - 4.9	C	Satisfactory
00 - 39	0.0 - 3.9	U	Re-appear
ABSENT	0	AAA	Absent

RANGE OF MARKS FOR GRADES UG[B.Com.(Hons.)], PG and also for PG Diploma			
Range of Marks	**Grade Points**	**Letter Grade**	**Description**
90 - 100	9.0 - 10.0	O	Outstanding
80 - 89	8.0 - 8.9	D+	Excellent
75 - 79	7.5 - 7.9	D	Distinction
70 - 74	7.0 - 7.4	A+	Very Good
60 - 69	6.0 - 6.9	A	Good
50 - 59	5.0 - 5.9	B	Average
00 - 49	0.0 - 4.9	U	Re-appear
ABSENT	0	AAA	Absent

Ci= Credits earned for course *i* in any semester

Gi= Grade Point obtained for course *i* in any semester

n refers to the semester in which such courses were credited.

- **CGPA Grades:**

CGPA	GRADE	CLASSIFICATION OF FINAL RESULT
9.5-10.0	O+	First Class - Exemplary*
9.0 and above but below 9.5	O	
8.5 and above but below 9.0	D++	First Class with Distinction*
8.0 and above but below 8.5	D+	
7.5 and above but below 8.0	D	
7.0 and above but below 7.5	A++	First Class
6.5 and above but below 7.0	A+	
6.0 and above but below 6.5	A	
5.5 and above but below 6.0	B+	Second Class
5.0 and above but below 5.5	B	

B.Com (Hons.)	UG	B.Com (Hons.)	B.Com (Hons.)	UG	UG
0.0 and above but below 5.0	4.5 and above but below 5.0	U	Re-appear	C+	Third Class
	4.0 and above but below 4.5			C	
	0.0 and above but below 4.0			U	Re-appear

The candidates who have passed in the first appearance and within the prescribed semester of the UG/PG Programme (Core, Allied and Elective) alone are eligible.

GRADING SYSTEM

For a Semester:

GRADE POINT AVERAGE [GPA] = $\sum_i C_i G_i / \sum_i C_i$

$$GPA = \frac{\text{Sum of the multiplication of grade points by the credits of the courses}}{\text{Sum of the credits of the courses (passed) in a semester}}$$

For the entire programme:

CUMULATIVE GRADE POINT AVERAGE [CGPA] = $\sum_n \sum_i C_{ni} G_{ni} / \sum_n \sum_i C_{ni}$

$$CGPA = \frac{\text{Sum of the multiplication of grade points by the credits of the entire programme}}{\text{Sum of the credits of the courses of the entire programme}}$$

(CGPA is calculated only if the candidate has passed in all the courses in the entire programme)

XI. CONCESSIONS FOR DIFFERENTLY-ABLED STUDENTS

A. DYSLEXIA STUDENTS

For students who are mentally disabled, learning disability and mental retardation, who are slow learners, who are mentally impaired having learning disorder and seizure disorder and students who are spastic and cerebral Palsy, the following concessions shall be granted:

i. Part I Foundation course Tamil or any other Language can be exempted.
ii. One-third of the time of paper may be given as extra time in the examination.
iii. Leniency in overlooking spelling mistakes, and
iv. Amanuensis for all courses provided the request is duly certified by the Medical Board of the Government Hospital/ General Hospital/ District headquarters Hospitals and they shall be declared qualified for the degree if they pass the other examinations prescribed for the degree.

B. HEARING, SPEAKING IMPAIRED & MENTALLY RETARDED

For students who are hearing and speaking impaired and who are mentally challenged, the following concessions shall be granted:

i. One Language paper either Part I Foundation course Tamil or any other Language or Part II English or its equivalent can be exempted
ii. Part IV Non-Major Elective (NME) or Basic Tamil or Advanced Tamil can be exempted.

C. VISUALLY CHALLENGED STUDENTS:

i. Exempted from paying examination fees.
ii. A scribe shall be arranged by the College and the scribe be paid as per the College decision.

XII. INTERDISCIPLINARY ELECTIVE (IDE)

It has been proposed that the UG students admitted from the academic year 2019 – 2020 onwards would take up an Interdisciplinary Elective (IDE) Paper in their Fifth Semester for the students admitted in the year 2019 onwards.

❖ **The following Departments functioning in Shift I will be offering IDE Papers to students only from Shift I:**

S.NO	DEPARTMENT	IDE (TITLE OF THE PAPER)
1	Mathematics	Numerical Analysis
2	Physics	Integrated Electronics
3	Chemistry	Chemistry in Everyday Life
4	Plant Biology and Plant Biotechnology	Horticulture and Mushroom Cultivation
5	Advanced Zoology and Biotechnology	Wildlife Conservation
6	Commerce (General)	Entrepreneurial Development
7	Corporate Secretaryship	Entrepreneurial Development
8	Economics	Principles of Insurance and Risk Management
9	Defence and Strategic Studies	An Introduction to Defence Journalism
10	Department of Hindi	Communication Hindi : Oral and Written

❖ **The following Departments functioning in Shift II will be offering IDE Papers to students only from Shift II:**

S.NO	DEPARTMENT	IDE (TITLE OF THE PAPER)
1	Commerce (General)	Entrepreneurial Development
2	Commerce (A&F)	Indian Constitution and Human Rights
3	Commerce (BM)	Personal Investment Planning
4	Commerce (MM)	Tourism Management
5	Commerce (Hons)	Business Venture
6	Corporate Secretaryship	Entrepreneurial Development
7	BBA	Managerial Skill Development
8	BCA	Introduction to Web Designing(HTML & CSS) -Practical
9	Computer Science	Internet And Its Applications
10	Visual Communication	Understanding Films

❖ **The following Departments from Shift II, functioning in Shift I timings can only offer IDE Papers to the students functioning within the same Shift I timings:**

S.NO	DEPARTMENT	IDE (TITLE OF THE PAPER)
1	Commerce (ISM)	Essentials of office Automation Tools and E-Mail Etiquette
2	B.Sc.(IT)	Web Designing
3	B.Sc. (Biotechnology)	Intellectual Property Rights
4	B.A. (English)	Travel Writing

XIII. OPTION TO EARN ADDITIONAL CREDITS

A. MOOCs (Massive Open Online Courses)

- UG students can opt for a minimum of one Course and earn 2 credits, while a maximum of 6 Credits can be earned by opting three courses during their three-year period of study.
- PG students can opt for a minimum of one Course and earn 2 credits, while a maximum of 4 Credits can be earned by opting two courses during their two-year period of study.
- This is completely optional.

B. CERTIFICATE COURSES

The Certificate courses are offered by the departments for a duration of 30 hours which will enable the students to earn 2 additional credits.

C. ADDITIONAL CREDIT FOR EXTENSION SERVICES

All the students who have put in additional 40 hours or more apart from the compulsory minimum hours in NSS / NCC / Sports & Games / Rotaract / Youth Red Cross / Citizen Consumer Club / Enviro Club or any other service organization in the College and which shall be duly certified by the Principal of the College, will be eligible to earn an additional credit at the time of completion of their Course.

XIV. REQUIREMENT FOR PROCEEDING TO SUBSEQUENT SEMESTER

i. Candidates shall register their names for the first semester examination after admission in the UG / PG courses.

ii. Candidates shall be permitted to proceed from the first semester up to final semester irrespective of their failure in any of the semester examinations subject to the condition that the candidate had registered for all the arrear subjects of earlier semesters along with current semester subjects.

XV. ISSUE OF CERTIFICATES

A Statement of Marks will be issued to every student who has written the examination.

❖ **Consolidated Mark Sheet**

Consolidated mark sheets will be given to final year students along with total credits earned only to those who have passed in all the papers prescribed for the respective degree.

❖ **Transcript**

Students who wish to obtain any Transcript certificate for joining courses of study in other Universities in India or abroad or for obtaining scholarships, can obtain these certificates from the office of the Controller of Examinations. A requisition letter duly signed by the Student and forwarded by the Principal along with fee challan is to be submitted to the office of the Controller of Examinations. The Certificate will be provided within 15 working days in a sealed envelope.

❖ **Provisional Certificate**

A copy of the results of the successful final year students will be sent to the University of Madras in the prescribed format in July/August and the University will issue a Provisional Certificate through the College. A soft copy can be downloaded from the University of Madras website and a hard copy will be provided by them within 90 days of the issue of soft copy.

❖ **Corrections in the Certificates**

Any corrections like name, date of birth etc., can also be made in the certificate. A letter of request duly signed by the student, HOD and Principal along with the prescribed fee paid challan is to be forwarded to the office of the Controller of Examinations. The time line to update will be 15 working days. The amount once paid will not be refunded under any circumstances.

❖ **Duplicate Mark Sheet**

In case of loss of mark sheet / certificate, a duplicate will be provided after submitting a non-traceable certificate issued from the Police station duly signed by an Inspector or Sub Inspector. A letter of request duly signed by the student, HOD and Principal along with the prescribed fee paid challan is to be forwarded to the office of the Controller of Examinations.

❖ **Duplicate Provisional Certificate / Degree Certificate:**

Students have to apply directly to the University of Madras for duplicate provisional certificate and degree certificate.

❖ **Verification of Qualification**

Agencies which request for verification of educational qualification of students under autonomous mode of this college and students who opt for higher studies / employment and who require verification of educational qualification, shall verify online through the QR code in the consolidated mark sheet through online payment. They can also apply to the Principal to this effect along with the prescribed fees which has to be forwarded to the OCOE. The relevant certificate will be issued within 15 working days from the receipt of the forwarded request of the Principal and the same office.

XVI. CONVOCATION AND NOTICE

❖ **Convocation**

Every year after the Convocation is conducted by the University of Madras, the College will hold a Graduation day / Convocation in which the Degree Certificates will be distributed to the students who are present. For others it will be issued by the College Office. Students should collect the same within 30 days of convocation after which a search fee will be charged. **Students are responsible to collect their Certificates and the College shall not be liable for the same.**

❖ **Notice**

Candidates, who have completed the duration of the course and left the College, can get information regarding Supplementary Examinations, issue of examination application forms, certificates and application for Graduation day through the college web site and general notice board. Regular students will however be informed of the examinations by circulation, in addition to the modes mentioned above.

No candidate will be communicated individually.

XVII. MODUS OPERANDI FOR THE SYLLABUS

i. The department will finalize the syllabus.

ii. Finalization implies a change in the existing syllabus or a revamp of entire syllabus

iii. They will place it on the BOS meeting. After approval of the syllabus in the BOS, the concerned department will submit the minutes along with the modified syllabus book / sheet (five copies) to the Dean's office within ten days of the BOS meeting

iv. A Soft copy of the batch-wise syllabus approved by the BOS in PDF format is to be sent to the Dean's mail ID within ten days of the BOS meeting.

COURSE STRUCTURE

Sem	Part	Course Component	Subject Name	Cdt	Hrs	CIA	ESE	Total
I	I	Language	Language – I	3	6	50	50	100
	II	English	English – I	3	6	50	50	100
	III	Core I	Problem solving using C programming	4	5	50	50	100
		Core II	Problem solving using C practical	4	4	50	50	100
		Allied I	Mathematics I	5	9	50	50	100
	IV	1.NME/ Basic Tamil	HTML Practical / Basic Tamil I	2			100	100
		2.Skill based subjects	Soft Skill Elective I – Essentials of Language and Communication skill	3			100	100
II	I	Language	Language – II	3	6	50	50	100
	II	English	English – II	3	6	50	50	100
	III	Core III	Analysis of Algorithms and Data Structures	4	5	50	50	100
		Core IV	Analysis Of Algorithms And Data Structures Using C Practical	4	4	50	50	100
		Allied II	Mathematics II	5	9	50	50	100
	IV	1.NME/ Basic Tamil	Visual Basic Applications Practical / Basic Tamil –II	2			100	100
		2.Skill based subjects	Soft Skill Elective II – Essentials of Spoken and Presentation Skills	3			100	100
III	I	Language	Language – III	3	6	50	50	100
	II	English	English – III	3	6	50	50	100
	III	Core V	Programming in Java	4	6	50	50	100
		Core VI	Programming in Java Practical	4	4	50	50	100
		Allied III	Operations Research	5	8	50	50	100
	IV	1.Skill based Subjects	Soft Skill Elective III – Personality Enrichment	3			100	100
		2.EVS	Environmental Studies	*	*	*	*	*
IV	I	Language	Language – IV	3	6	50	50	100
	II	English	English – IV	3	6	50	50	100
	III	Core VII	VB.NET Programming and Database Management System	4	6	50	50	100
		Core VIII	RDBMS with VB.NET Practical	4	4	50	50	100
		Allied IV	Statistical Methods and their Applications	5	6	50	50	100
			Statistical Methods and their Applications – Practical	-	2	50	50	100
	IV	1.Skill based subjects	Soft Skill Elective IV – Quantitative Aptitude	3			100	100
		2.EVS	Environmental Studies	2			100	100
V	III	Core IX	Operating systems	4	6	50	50	100
		Core X	Digital Logic and Computer Architecture	4	6	50	50	100
		Core XI	Web Programming with PHP and MySQL	4	6	50	50	100
		Core XII	Web Programming with PHP and MySQL Practical	4	6	50	50	100
		Elective – I	Interdisciplinary Elective – Internet and its applications	5	6	50	50	100
	IV	Skill based subjects	Soft Skill Elective V – Value Education	2	*	*	100	100
VI	III	Core XIII	Software Engineering	4	6	50	50	100
		Core XIV	Python Programming	4	6	50	50	100
		Core XV	Python Programming Practical	4	6	50	50	100
		Elective II	Data Communication & Networking / Data Mining / Software Testing / Data Science / Cloud Computing	5	6	50	50	100
		Elective III	Mini Project / Fundamentals Of Multimedia /Android Application Development Practical / Artificial Intelligence	5	6	50	50	100
	V	Extension Activities	Participation in NSS/NCC/ROTRACT etc.	1	-	-	-	-
			Total Credit	**140**				

SEMESTER - I

914

CORE I
PAPER TITLE: PROBLEM SOLVING USING C PROGRAMMING

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: I	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

COURSE OBJECTIVES: This course introduces the basics of programming and concepts in C.

UNIT I: (15 Hours)
Planning the Computer Program: Problem definition, Program design, Debugging, Types of Errors in programming, Techniques of Problem Solving: Flowcharting, Algorithms.
C Fundamentals: Character set - Identifiers and Keywords - Data Types - Constants - Variables - Declarations - Expressions - Statements - Operators: Arithmetic, Unary, Relational and Logical, Assignment and Conditional.

UNIT II: (12 Hours)
Data input output functions - Simple C programs - Flow of control - if, if- else, while, do-while, for loop, nested control structures - switch, break and continue, go to statements - comma operator.

UNIT III: (11 Hours)
Functions: Definition - Proto-types - Passing arguments - Recursions. Storage Classes - automatic, external, static, register variables -Library functions.

UNIT IV: (10 Hours)
Arrays - Defining and Processing - Passing arrays to functions – Multi-dimension arrays - Arrays and String. Structures - User defined data types – Unions.

UNIT V: (12 Hours)
Pointers - Declarations - Passing pointers to Functions - Operation in Pointers - Pointer and Arrays - Arrays of Pointers - Files : Creating , Processing, Opening and Closing a data file.

PRESCRIBED BOOKS:
1. P. K. Sinha & Priti Sinha, "Computer Fundamentals", BPB Publications, 6th Edition.
2. Dr. Anita Goel, Computer Fundamentals, Pearson Education, 2010.
3. E. Balaguruswamy, 2016, 7th Edition, Programming in ANSI C, TMH Publishing Company Ltd.
4. Kanetkar Y., 1999, Let us C, BPB Pub., New Delhi.

REFERENCE BOOKS:
1. K.R.Venugopal,Programming with C,1997,McGraw-Hill
2. Varalakshmi,Programming using C,2000(Reprint July 2001), V.Ramesh5
3. R.Rajaram,C Programming Made Easy,V.Ramesh
4. B.W. Kernighan and D.M.Ritchie, 1988, The C Programming Language, 2nd Edition, PHI.
5. H. Schildt, C,2004, The Complete Reference, 4th Edition, TMH
6. Gottfried. B.S, 1996, Programming with C, Second Edition, TMH Pub. Co. Ltd., New Delhi.

WEBSITES:

1. http://www.cprogramming.com/
2. http://www.richardclegg.org/previous/ccourse/

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12	1-12	3	30
B	Answer any 5 out of 7	13-19	6	30
C	Answer any 4 out of 6	20-25	10	40
	Total			**100**

Distribution of Questions:

Sections	Units	NO. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE II

PAPER TITLE: PROBLEM SOLVING USING C PRACTICAL

SUBJECT CODE :	**PRACTICAL**	**100 MARKS**
SEMESTER: I	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 4**

COURSE OBJECTIVES: This course trains the students to solve the problems using C language.

(15 Hours)

1. Write a program to add, subtract, multiply and divide two numbers. (Arithmetic operation).
2. Write a program to check if a number is even or odd. (if-else)
3. Write a program to find the largest of three numbers. (using if-else, logical &&)
4. Write a program to find the maximum and minimum of n numbers. (using for-statement)

(15 Hours)

5. Write a program to check for prime number. (do while loop)
6. Write a program to check for Armstrong number. (while loop)
7. Write a program to accept day number and print the day of the week. (switch)
8. Write a program for counting the number of vowels, consonants, words, white spaces in a line of text. (switch)

(15 Hours)

9. Write a program to arrange a set of numbers in ascending order. (1D Array).
10. Write a program to implement linear search.(1D Array)
11. Write a program to implement binary search. (1D Array)
12. Write a program to add two matrices. (2D Arrays)

(15 Hours)

13. Write a program to check whether a string is a palindrome or not. (String)
14. Write a program to print Fibonacci series using function.
15. Write a program to find factorial of a number using recursive function.

COURSE COMPONENT: ALLIED MATHEMATICS – I

(For B.Sc. Computer Science and BCA)

SUBJECT CODE:	**THEORY & PROBLEMS**	**MARKS: 100**
SEMESTER: I	**CREDITS: 5**	**NO. OF HOURS PER WEEK : 9**

COURSE OBJECTIVES: To improve basics in Mathematics and analytical skills

UNITI: (18 hours)
ALGEBRA: Summation of Series - Binomial, Exponential and Logarithmic Series (Without proof) and Simple Problems.
Chapter 2, Section 2.1.3, 2.2, 2.2.1, 2.3, 2.3.3

UNIT II: (18 hrs)
MATRICES: Eigen Values – Eigen Vectors - Cayley - Hamilton Theorem (without proof)
Chapter 4 Section 4.5, 4.5.2, 4.5.3

UNIT III: (18 hrs)
THEORY OF EQUATIONS: Polynomial equations, irrational roots, complex roots, increasing and decreasing of roots, Reciprocal equations - Approximation of roots of a polynomial equation by Newton's Method.
Chapter 3, Section 3.1 to 3.4.1

UNIT IV: (18 hrs)
DIFFERENTIAL CALCULUS: n^{th} derivatives - Leibnitz Theorem - Jacobians - Radius of Curvature (Cartesian Coordinates only) – Maxima and Minima of functions of two variables.
Chapter 1, Section 1.1.1 to 1.3.1 and Section 1.4.3

UNIT V: (18 hrs)
TRIGONOMETRY: Expansions of Sinnθ, Cosnθ, tannθ - Expansions of $Sin^n\theta$, $Cos^n\theta$- Hyperbolic and Inverse hyperbolic functions.
Chapter 6, Section 6.1 to 6.3.

Content and treatment as in
Allied Mathematics Volume I and II by P. Duraipandian and S. Udayabaskaran, S. Chand Publications, 2016 Edition.

PRESCRIBED BOOKS :
1. Allied Mathematics,A.Singaravelu.
2. Ancillary Mathematics, A. ManickavasagamPillai and Narayanan.

REFERENCE BOOKS :

1. Allied Mathematics, S.G. Venkatachalapathy

2. P.Kandasamy and K.Thilagavathi,Allied Mathematics Volume I and Volume II -- 2004, S.Chand and Co, New Delhi.

3. Ancillary Mathematics Volume 1 and 2 by P.Balasubramanian&K.G. Subramanian.

WEBSITES

www.freetechbooks.com/mathematics-f38.html

www.e-booksdirectory.com

www.freebookcenre.net/SpecialCat/Free-Mathematics-Books-Download.html

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any **10** out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any **5** out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
				100

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1		2
	Unit – 2	1	2
	Unit – 3	1	1
	Unit – 4		2
	Unit – 5	1	2
Section B	Unit – 1		2
	Unit – 2		1
	Unit – 3		2
	Unit – 4		1
	Unit – 5		1
Section C	Unit – 1		1
	Unit – 2		2
	Unit – 3		1
	Unit – 4		1
	Unit - 5		1

NON MAJOR ELECTIVE
PAPER TITLE: HTML PRACTICAL

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: I	**CREDITS: 2**	**NO. OF HOURS PER WEEK:**

1) Create an HTML document with the following formatting options:
   I. Bold
   II. Italics
   III. Underline
   IV. Headings (Using H1 to H6 heading styles)
   V. Font (Type, Size and Color)
2) Ordered List
3) Create an HTML document which consists of Unordered List
4) Create an HTML document which implements Internal linking as well as external linking.
5) Create a table using HTML which consists of columns for Roll No., Student's name and grade.

Result		
Roll No.	Name	Grade

6) Create a form using HTML which has the following types of controls:
   I. Text Box
   II. Option/radio buttons
   III. Check boxes
   IV. Reset and Submit buttons

7) Create HTML documents (having multiple frames) in the following three formats

Frame1
Frame2

8) Create a HTML document to add image
9) Design mark sheet using HTML tags.
10) Create Guru Nanak College Website using HTML tags

SEMESTER - II

CORE III
PAPER TITLE: ANALYSIS OF ALGORITHMS AND DATA STRUCTURES

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: II	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

Objective: This course provides knowledge on design and analysis of algorithms, sorting techniques, data structure.

UNIT I: (18 Hours)
Introduction: Basic Design and Analysis techniques of Algorithms, Correctness of Algorithm.
Algorithm Design Techniques: Iterative techniques, Divide and Conquer Algorithms.

UNIT II :(18 Hours)
Sorting Techniques: Elementary sorting techniques - Bubble Sort, Insertion Sort, Merge Sort, Selection Sort - Advanced Sorting Techniques-Heap Sort, Quick Sort. Searching Techniques: Linear and Binary search.

UNIT III :(12 Hours)
Arrays: Single and Multi-dimensional Arrays, Sparse Matrices -Stacks: Implementing stack using array and linked list, Recursion - Prefix, Infix and Postfix expressions, Conversion from Infix to Postfix - Postfix evaluation.

UNIT IV: (12 Hours)
Queues: Array and Linked representation of Queue, De-queue, Priority Queues- Circular Queue-Linked Lists: Singly, Doubly, representation of Stack and Queue as Linked Lists.

UNIT V: (12 Hours)
Trees: Introduction; Binary Trees, Binary Search Tree: Creation and Traversal: Inorder, Preorder and Postorder. Graph: Definition, Types of Graphs, Traversal – Breadth First Search and Depth First Search.

PRESCRIBED BOOKS:

1. SartajSahni, Data Structures, "Algorithms and applications in C++", Second Edition, Universities Press, 2011.
2. E. Horowitz and S. Shani,1999,Fundamentals of Data Structures in C++ , Galgotia Pub, 2nd Edition

REFERENCE BOOKS:

1. T.H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Clifford Stein-Introduction to Algorithms, PHI, 3rd Edition 2009.
2. Sarabasse & A.V. Gelder Computer Algorithm –Introduction to Design and Analysis,Publisher–Pearson 3rd Edition 1999.
3. Adam Drozdek, "Data Structures and algorithm in C++", Third Edition, Cengage Learning, 2012.
4. Aaron M. Tenenbaum, Moshe J. Augenstein, YedidyahLangsam, "Data Structures Using C and C++:, Second edition, PHI, 2009.
5. Robert L. Kruse, "Data Structures and Program Design in C++", Pearson.
6. D.S Malik, Data Structure using C++, Second edition, Cengage Learning, 2010.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12	1-12	3	30
B	Answer any 5 out of 7	13-19	6	30
C	Answer any 4 out of 6	20-25	10	40
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	NO. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

CORE IV
PAPER TITLE: ANALYSIS OF ALGORITHMS AND DATA STRUCTURES USING C PRACTICAL

SUBJECT CODE :	**PRACTICAL**	**100 MARKS**
SEMESTER: II	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 4**

COURSE OBJECTIVES: This course train the students to solve problems on computer algorithms and introduce data structures

(15 Hrs)

1. Implement Insertion Sort (The program should report the number of comparisons)
2. Implement Merge Sort(The program should report the number of comparisons)
3. Implement Selection Sort ((The program should report the number of comparisons)
4. Implement Quick Sort (The program should report the number of comparisons)

(15 Hrs)

5. Array implementation of stack
6. Conversion of infix to postfix using stack operations
7. Postfix Expression Evaluation.
8. Array implementation of Queue

(15 Hrs)

9. Implementation of Recursive function –Fibonacci series

10. Implementation of Single Linked list
11. Implementation of stack using linked list
12. Implementation of queue using linked list

(15 Hrs)

13. Implementation of Doubly Linked list
14. Creation and traversal of Binary Search Tree. (Preorder, Inorder, Postorder)
15. Creation and traversal of Graph (DFS, BFS)

COURSE COMPONENT: ALLIED MATHEMATICS – II
(For B.Sc. Computer Science and BCA)

SUBJECT CODE :	THEORY& PROBLEMS	MARKS : 100
SEMESTER: II	CREDITS: 5	NO. OF HOURS PER WEEK : 9

COURSE OBJECTIVES: To improve basics in mathematics and analytical skills

UNIT - I: (18 hrs)
INTEGRAL CALCULUS: - Bernoulli's formula – Reduction formula for $\int \text{Sin}^n x\,dx$, $\int \text{Cos}^n x\,dx$ and $\int \text{Sin}^m x\,\text{Cos}^n x\,dx$.
Chapter 2, Sections 2.7 and 2.9

UNIT - II: (18 hrs)
FINITE DIFFERENCES: Operators E, differences tables, Newton's forward and backward interpolation formulae, Lagrange's Interpolation formulae.
Chapter 5, Section 5.1, 5.2

UNIT - III: (18 hrs)
DIFFERENTIAL EQUATION: Second order Differential Equation with Constant Coefficient differential equation of the form $(aD^2+bD+C)y = e^{ax}\,ø\,(x)$ where a, b, c are constants, $ø\,(x) = \text{Sin } mx$ (or) $\text{Cos } mx$ (or) x^m.
PARTIAL DIFFERENTIALEQUATION : Eliminating Arbitrary constants and functions - Four Standard types.f(p,q) = 0; f(x,p,q) = 0, f (y,p,q) = 0, f(z,p,q) = 0.
Chapter 5, Section 5.2, 5.2.1
Chapter 6, Section 6.1 to 6.3

UNIT - IV: (18 hrs)
Laplace Transformation - Properties and Problems -
$L[e^{at}f(t)]$, $L[t^n f(t)]$, $L[e^{at}\,t\,f(t)]$, $L[f(t)/t]$.
Chapter 7, Section 7.1.1 to 7.1.4

UNIT - V: (18 hrs)
Inverse Laplace Transformation: - Solving Differential Equation using Laplace Transformation (excluding simultaneous equations).
Chapter 7, Section 7.2 to 7.3

Content and treatment as in
Allied Mathematics Volume I and II by P. Duraipandian and S. Udayabaskaran, S. Chand Publications, 2016 Edition

REFERENCE BOOKS:

1. Allied Mathematics,A.Singaravelu.
2. Ancillary Mathematics, A. ManickavasagamPillai and Narayanan.
3. Allied Mathematics, S.G. Venkatachalapathy, Margham Publications, 2016 Edition
4. P.Kandasamy and K.Thilagavathi, Allied Mathematics Volume I and Volume II -- 2004, S.Chand and Co, New Delhi.
5. Ancillary Mathematics Volume 1 and 2 by P.Balasubramanian&K.G. Subramanian, Tata McGraw Hill, New Delhi.

WEBSITES:

www.freetechbooks.com/mathematics-f38.html

www.e-booksdirectory.com

www.freebookcenre.net/SpecialCat/Free-Mathematics-Books-Download.html

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any **10** out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any **5** out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1		2
	Unit – 2	1	1
	Unit – 3		3
	Unit – 4		3
	Unit – 5		2
Section B	Unit – 1		1
	Unit – 2		2
	Unit – 3		1
	Unit – 4		2
	Unit – 5		1
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		2
	Unit – 4		1
	Unit - 5		1

NON MAJOR ELECTIVE
PAPER TITLE: VISUAL BASIC APPLICATIONS PRACTICAL

SUBJECT CODE :	**PRACTICAL**	**100 MARKS**
SEMESTER:II	**CREDITS: 2**	**NO. OF HOURS PER WEEK:**

COURSE OBJECTIVES: This course trains the students to develop programming knowledge in VBA. The macro recorder makes it very easy to automate certain tasks.

- delete the contents of columns D and E
- move the contents of column F to column E
- move the contents of column G to column H

1. Type a page of Text and record a macro in MS-Word to do the following.
   - Font name – Times New Roman
   - Font size – 12pt
   - Font Color – blue
   - Justify text
   - Adjust line spacing and space before and after. Also make the macro run automatically.
2. Write VBA code for Picture Viewer
3. Create a macro in Excel that selects the cell that we specify.
4. Write VBA code that Assigning a color to the text in B1, border, background color for selected cells and color to tab of a worksheet.
5. Write a program to create the user forms using VBA code
6. Use the function to count the number of non-empty cells in the first column and use it to display the data in the dialog box.
7. In a list of student's data write a program to find the number of passes and failures and also the pass percentage.
8. Write a program to calculate number of words in a string.
9. Write a program to cut copy and paste from a macro.
10. Write a program to scroll horizontally and vertically.

SEMESTER - III

CORE V
PAPER TITLE: PROGRAMMING IN JAVA

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES: This course train students to solve the problems using Java language.

UNIT I: (12 Hours)
Introduction to Java – Object Oriented Concepts – Java Tokens- Java Statements – Constants – Variables - Data Types - Type Casting – Operators – Expressions -Control Statements: Branching and Looping Statements.

UNIT II: (20 Hours)
Classes – Objects – Methods - Constructors – Overloading methods – Inheritance – Overriding methods – Finalizer and Abstract Methods-Visibility Control- Arrays– String Class — String Arrays – String Methods - String Buffer Class.

UNIT III: (22 Hours)
Interfaces: Defining Interfaces-Extending Interfaces-Implementing Interfaces-Accessing Interfaces- Packages: Creating Packages- Accessing Packages – Importing Packages – Exception Handling throw and throws – Thread: Creating Threads-Stopping and Blocking a Thread-Life Cycle of a Thread-Using Thread Methods-Thread Priority-Synchronization-Implementing the Runnable Interface.

UNIT IV: **(14 Hours)**
Input / Output Files: Concept of Streams-Stream Classes-Byte Stream Classes-Character Stream Classes –Using the File Class-Creation of Files- Applet Programming: Applet Life Cycle –Java Utilities: Random Class, Vector Class.

UNIT V: **(22 Hours**)
Introducing the AWT: Working with Windows, Graphics: Drawing Lines, Drawing Rectangles, Drawing Ellipses and Circles, Drawing arcs and Drawing Polygons- Working with Text- AWT Classes- Working with Frames- Working with Color-Working with Fonts-Using AWT Controls: Labels - Button-Check Box-Radio Button-Choice-List – Scrollbars, Layout Managers and Menus. Layout Managers: Flow Layout-Border Layout - Grid Layout - Card Layout - Grid bag Layout- Menus-Dialogs-Mouse Events and their Listeners.

PRESCRIBED BOOKS:

1. P. Naughton and H.Schildt - Java 2(The Complete Reference) – 2018, 10th Edition TMH
2. Programming with Java, - A Primer – E. Balaguruswamy, 5th Edition.

REFERENCE BOOKS

1. Ken Arnold ,The Java Programming Language-Third Edition,Addison Wesley Longman ,2000
2. Ivan Bayross,HTMlJavascript, DHTML, and PHP,First Edition- 2015,Fourth Revised Edition: 2010
3. Sachin .B.Patil,FAQ's in Java, Mr.Purushothaman,2011 Scitech Publications(India) Pvt .ltd
4. Programming in Java – C.Muthu
5. Cay S. Horstmann, Gary Cornell – Paper Java 2 Volume I – Fundamentals, 5th Edition. PhI, 2000.
6. K.Arnold and J.Gosling – The Java Programming Language – Second Edition Addison Wesley, 1996.

WEBSITES:

1. http://www.vogella.com/tutorials/JavaIntroduction/article.html
2. http://www.math.hcmuns.edu.vn/~hvthao/courses/java_programming/lecture_notes/

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12	1-12	3	30
B	Answer any 5 out of 7	13-19	6	30
C	Answer any 4 out of 6	20-25	10	40
	TOTAL MARKS			**100**

Distribution of Questions:

Sections	Units	NO. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

CORE VI
PAPER TITLE: PROGRAMMING IN JAVA PRACTICAL

SUBJECT CODE :	**PRACTICAL**	**100 MARKS**
SEMESTER: III	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 4**

COURSE OBJECTIVES: This course trains the students to solve the problems using Java language.

Application **(40 Hrs)**

1. Calculate Simple and Compound Interest
2. Largest of 3 numbers
3. To illustrate class and object
4. Factorial using recursion
5. To illustrate constructors
6. Method overloading
7. To illustrate inheritance
8. Method overriding
9. To illustrate Thread
10. To illustrate Exception handling

Applet **(20 Hrs)**

11. Generate various shapes using Applet
12. Point class manipulation
13. Draw a Human face
14. Program to create Checkbox, choice, Radio Button, Label and Textbox
15. Change Font and Color

COURSE COMPONENT: OPERATIONS RESEARCH – III
(For B.Sc. Computer Science)

SUBJECT CODE :	**THEORY& PROBLEMS**	**MARKS : 100**
SEMESTER: III	**CREDITS : 5**	**No. OF HOURS PER WEEK : 6**

COURSE OBJECTIVES: To give an overall idea about the various Optimization techniques and their usages

UNIT - I: (18 hrs)
Linear Programming: - - Formulation - Graphical Solution - Simplex method
Chapter 2, Section 2.1 to 2.8
Chapter 3, Section 3.1.1to 3.1.3

UNIT - II: (18 hrs)
Transportation Problem: - – Mathematical formulation – Initial basic feasible solution – Test of optimality (MODI method) – Maximization problem – Unbalanced Transportation problem.
Chapter 7, Section 7.1 to 7.5

UNIT - III: (18 hrs)
Assignment Problem: - - Mathematical formulation – Optimality (Hungarian) – Maximization problem, Unbalanced assignment problem
Chapter 8, Section 8.1 to 8.7

UNIT - IV: (18 hrs)
Sequencing problem: - , n jobs through 2 machines, n jobs through 3 machines, 2 jobs through m machines, n jobs through m machines
Chapter 14
Section 14.1 to 14.7

Game theory :-Two person zero –sum games – Maximin-Minimax Principle –Saddle point and value of the game-Games without saddle point,Mixed Strategies – Dominance Property – solving 2 x n game or m x 2 game by graphical method
Chapter 16
Section 16.1 to 16.4 & 16.6 to 16.7

UNIT - V: (18 hrs)
Network Analysis:-PERT – CPM: Project Network Diagram – Critical Path (Crashing excluded) – PERT computation
Chapter 15, Section 15.1 to 15.7

Content and treatment as in

Resource Management Techniques (Operations Research) by V.Sundaresan, K.S.Ganapathy Subramanian, K.Ganesan (A.R Publications) Ninth edition-June 2015

REFERENCE BOOKS:

1. KantiSwaroop, Gupta P.K. and Manmohan – Problems in Operations Research, Sultan Chand & Sons.
2. Ravidran A., Philips,D.T. and Solberg J.J.,Operations Research, John Wiley & sons.
3. Taha H.A., Operations Research, Macmillian Publishing Company, Newyork.
4. Introduction to Operations Research, P.R.Vittal
5. Gupta P.K. and Hira D.S. Problems in Operations Research, S.Chand & Co.

WEBSITES:

www.researchgate.com
www.freecomputerbooks.com/special/operationsresearch.html
www.freetechbooks.com

Question Paper Pattern:

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Section A	**Definition / Principles** Answer any **10** out of 12 questions	1 – 12	3	**30**
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Section C	**Essay** Answer any **4** out of 6 questions	20–25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	1	1
	Unit – 2	1	1
	Unit – 3	1	1
	Unit – 4	1	2
	Unit – 5	1	2
Section B	Unit – 1		1
	Unit – 2		2
	Unit – 3		2
	Unit – 4		1
	Unit – 5		1
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		2
	Unit - 5		1

SEMESTER - IV

CORE VII
PAPER TITLE: VB.NET PROGRAMMING AND DATABASE MANAGEMENT SYSTEMS

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER:IV	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES: This course introduces the basic concepts of Visual Programming using Visual Basic and fundamentals of Database Management System.

UNIT I: **(18 Hrs)**

Visual Basic .NET and the .NET Framework: Introduction to .net framework -Features, Common Language Runtime (CLR) ,Framework Class Library(FCL).Visual Studio.Net – IDE, Languages Supported, Components. Visual Programming, VB.net- Features, IDE- Menu System, Toolbars, Code Designer, Solution Explorer, Object Browser, Toolbox, Class View Window, Properties Window, Server Explorer, Task List, Output Window, Command Window.
Elements of Visual Basic .net -Properties, Events and Methods of Form, Label, TextBox, ListBox, Combo Box, RadioButton, Button, Check Box, Progress Bar, Date Time Picker, Calendar, Picture Box,HScrollbar, VScrollBar, Group Box, ToolTip,Timer

UNIT II: **(18 Hrs)**

Programming in Visual basic .net: Data Types, Keywords, Declaring Variables and Constants, Operators, Understanding Scope and accessibility of variables, Conditional Statements- If- Then, If-Then-Else, Nested If, Select Case, Looping Statement- Do loop, For Loop, For Each-Next Loop, While Loop, Arrays- Static and Dynamic.
Functions, Built-In Dialog Boxes, Menus and Toolbar: Menus and toolbars- Menu Strip, Tool Strip, Status Strip, Built-In Dialog Boxes –Open File Dialogs, Save File Dialogs, Font Dialogs, Color Dialogs, Print Dialogs, InputBox, Msg Box, Interfacing With End user.

UNIT III: **(18 Hrs)**

Creating MDI Parent and Child, Functions and Procedures- Built-In Functions- Mathematical and String Functions, User Defined Functions and Procedures.
Introduction to Database Management Systems:
Introduction – Databases and Application Development – **Components of Database Management System:** Database Engine – Data Dictionary – Query Processor – Report Writer – Forms Generator – Application Generator – Communication and Integration – Security and other Utilities. **Advantages of the DBMS Approach:** Focus on Data – Data Independence - Data Independence and Client/Server Systems. Brief history of DBMS: Hierarchical – Network - Relational and Object-Oriented Databases. The Feasibility Study: Costs – Benefits.

UNIT IV: **(18 Hrs)**

Database Design and Data Normalization:

Database Design: Introduction **–** Identifying user requirements – Business objects – Tables and Relationships – Definitions – Primary key. **Class Diagrams:** Classes and Entities – Associations and Relationships – Class Diagram Details. **Datatypes (Domains/Objects):** Text – Numbers – Dates and Times – Binary Objects – Computed Values – User-Defined Types – Events. **Data Normalization:** Introduction – Tables, Classed, and Keys – Relational Database – Primary Key – Composite Keys - Surrogate Keys – Sample Database for a Video Store – First Normal Form: Repeating groups – Nested Repeating groups. Second Normal Form: Problems with 1NF – 2NF Definition – Dependence. Third Normal Form: Problems with 2NF – Definition – Checking work with Non – Redundancy. Beyond 3NF: Boyce-Codd Normal Form – Fourth Normal Form – Domain-Key Normal Form. Data Rules and Integrity – Converting a class diagrams to Normalized tables: one-to-many, Many-to-many, N-ary Associations, Generalization, Composition, Reflexive associations. Data Dictionary: DBMS Table Definition – Data Volume and Usage.

UNIT V: **(18 Hrs)**

Queries and Sub Queries:

Data Queries: Introduction – Three Tasks of a Query Language – Four Questions to Retrieve data – Query Basics: Single Tables – Introduction to SQL – Sorting Output – Distinct – Criteria – Boolean Algebra – DeMorgan's Law – WHERE Clauses. Computations: Basic Arithmetic Operators – Aggregation – Functions. Subtotals and GROUPBY: HAVING (Conditions on totals) – WHERE versus HAVING. Multiple Tables: Joining Tables – Identifying Columns in Different tables – Joining many tables – Table Alias – Create View.

Advanced Queries and Sub queries: Introduction – Sub Queries: Calculations – Sub queries and sets of data – Subquery with ANY and ALL – Subtraction: NOT IN – OUTER JOINS – SQL SELECT, UNION, INTESECT, EXCEPT – Multiple JOIN columns – Reflexive Join CASE Function – Inequality Joins – Questions with "Every" need the EXISTS – Clause – SQL Data Definition Commands – SQL Data Manipulation Commands: INSERT, DELETE, UPDATE – Quality: Testing Queries.

PRESCRIBED BOOKS

1. Visual Basic.Net Black Book by Steven HolznerDreamtech Press The Complete Reference. 1st Edition.
2. G. V. Post – Database Management Systems Designing and Building Business Application – McGraw Hill International edition – 3rd Edition.

REFERENCE BOOKS

1. Visual Basic .NET Jeffery R. Shapiro Tata McGraw HillsReference Books:Murach's
2. Beginning Visual basic .Net By Anne Bohem
3. R. Ramakrishanan, J. Gehrke, Database Management Systems 3rd Edition, McGraw-Hill, 2002.
4. A. Silberschatz, H.F. Korth, S. Sudarshan, Database System Concepts 6th Edition, McGraw Hill, 2010.
5. R. Elmasri, S.B. Navathe Database Systems Models, Languages, Design and application Programming, 6th Edition, Pearson Education, 2013.
6. Raghu Ramakrishnan – Database Management Systems – WCB/McGraw Hill – 1998.

Question Paper Pattern:

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A	Answer any 10 out of 12	1-12	3	30
B	Answer any 5 out of 7	13-19	6	30
C	Answer any 4 out of 6	20-25	10	40
	Total			**100**

Distribution of Questions:

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		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE VIII

PAPER TITLE: RDBMS withVB.NET PRACTICAL

SUBJECT CODE :	**PRACTICAL**	**100 MARKS**
SEMESTER: IV	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 4**

COURSE OBJECTIVES: This course train the students to solve the problems in RDBMS using VB.NET

(15Hours)

1. Create a button-click option to display a label
2. Create mouse move over to change button color
3. Create list box to display the selected item cost in web form. Create another label to display the total cost
4. Create a VB.NET program to calculate Boiling point of water using CompareValidator

(15 Hourss)

5. Create a VB.NET program for User input name validation using Required FieldValidator
6. Create a VB.NET program Checking the appropriate values using Validation button
7. Create a VB.NET program for Feedback form
8. Create a VB.NET for displaying the images with clear option
9. Creating a file holding variables, hyperlinks with lock & unlock methods

(30 Hours)

Oracle /MS-Access

For the following programs, create a database and perform the required operations given below:

i. Display a message when connection established with Database
ii. Create a table in Master Database
iii. Updating the fields of a table in Database
iv. Selecting the rows from a table in Database
v. Retrieving the Result in Dataset & Checkbox List by selecting a field
vi. Bind the dataset to a Radio button list with different forms
vii. Create a Table header fields in the form of drop down list
viii. Use a Menu Driven Program:
   a. Insertion
   b. Deletion
   c. Modification
   d. Generate simple reports using queries.

10. Telephone directory maintenance.
11. Payroll.
12. Invoice System.
13. Mark sheet Processing.
14. Inventory System.
15. Library information system

COURSE COMPONENT: STATISTICAL METHODS AND THEIR APPLICATIONS
(For B.Sc. Computer Science)

SUBJECT CODE :	**THEORY& PROBLEMS**	**MARKS : 100**
SEMESTER: IV	**CREDITS: 3**	**NO. OF HOURS PER WEEK : 8**

COURSE OBJECTIVES: To introduce basic concepts of Statistics and computing statistical aspects

UNIT - I: **(18 hrs)**
Measures of location – Arithmetic Mean, Median, Mode, Geometric Mean, Harmonic Mean, - Measures of Dispersion -- Range, Mean Deviation, Quartile Deviation, Standard deviation.
Chapter 7 & 8 (Volume I)

UNIT - II: **(18 hrs)**
Correlation -Types of Correlation-Scatter diagram –Karl Pearsons Coefficient of Correlation-Rank Correlation Coefficient- Regression Lines
Chapter 10 & 11 (Volume I)

UNIT - III: **(18 hrs)**
Probability of an Event – Addition and Multiplication theorems – Baye's theorem.
Chapter 1 (Volume II)

UNIT - IV: **(18 hrs)**
Test of Significance based on t, Chi-Square and F-distributions with respect to Mean and Variance.
Chapter 3, 4 & 5 (Volume II)

UNIT - V: **(18 hrs)**
Analysis of Variance – One way and Two Way Classification – Analysis of CRD, RBD – Latin Square Designs
Chapter 5 & 6 (Volume II)

Content and treatment as in
Statistical Methods by S P.Gupta(Sultan Chand & Sons) Revised edition 2009

REFERENCE BOOKS :

1. Fundamental of Mathematical Statistics - S.C. Gupta & V.K. Kapoor - Sultan Chand
2. Wilks, S.S.: Elementary Statistical Analysis - Oxford and IBH
3. Snedecor, G.W., & Cochran, W.G.(1967): Statistical Methods, Oxford and IBH
4. Prentice Hall 4. Statistical Methods - Dr. S.P. Gupta - Sultan Chand & Sons

WEBSITES:

www.e-booksdirectory.com

www.bookboon.com/en/statistics-and mathematics-ebooks

www.freebookcentre.net

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any **10** out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any **5** out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any **4** out of 6 questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1		3
	Unit – 2	1	1
	Unit – 3	1	2
	Unit – 4	1	1
	Unit – 5	1	1
Section B	Unit – 1		1
	Unit – 2		1
	Unit – 3		2
	Unit – 4		2
	Unit – 5		1
Section C	Unit – 1		2
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit - 5		1

COURSE COMPONENT: STATISTICAL METHODS AND THEIR APPLICATIONS PRACTICAL

SUBJECT CODE :	PRACTICALS	MAX. MARKS 100

SEMESTER: IV

CREDITS: 2

NO. OF HOURS PER WEEK: 2

COURSE OBJECTIVES:

1. Construction of univariate and bivariate frequency distribution with samples of size not proceeding 200.

2. Diagrammatic and graphical representation of various statistical data and frequency distributions.

3. Cumulative frequency curve and Lorenz curves.

4. Computation of various measures of location, dispersion, moments, skewness and kurtosis.

5. Curve fitting by the method of least squares.

(i) $y = ax + b$; *(ii)* $y = ax^2 + bx + C$; *(iii)* $y = ae^{bx}$ *(iv)* $y = ax^b$

6. Computation of correlation coefficients - regression lines (raw data and grouped data) - correlation coefficients,

7. Exact test based on t, Chi-square, and F distributions with regard to mean, variance and correlation coefficients.

8. Analysis of variance – one way and two way classification, CRD,RBD

Content and treatment as in

Statistical Methods by S P.Gupta(Sultan Chand & Sons) Revised edition 2009

Books for Study and References:

Statistical and Numerical Methods by P.R.Vittal and V. Malini

Mode, E.B.: Elements of Statistics - Prentice Hall

Wilks, S.S.: Elementary Statistical Analysis -Oxford and IBH

Snedecor, G.W., & Cochran, W.G.: Statistical Methods, Oxford and IBH

Simpson and Kafka: Basic Statistics

Burr, I.W.: Applied Statistical Methods, Academic Press.

Croxton, FE. and Cowden, D.J.: Applied General Statistics, Prentice Hall

Ostleo, B.: Statistics in Research, Oxford & IBH.

Sydney Siegel- Non-parametric Methods for Behavioural Sciences.

Daniel, W W- Biostatistics.

SKILL BASED SUBJECT
PAPER TITLE: QUANTITATIVE APTITUDE

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 3**	**NO. OF HOURS PER WEEK: 2**

COURSE OBJECTIVES:

- To improve aptitude skill.

UNIT-I: (6 Hours)

Divisibility – HCF and LCM – Decimal Fractions – Square roots and Cube Roots – Logarithms – Antilogrithms.

UNIT-II: (6 Hours)

Averages – Percentage – Profit and Loss - Ratio and Proposition – Partnership – Alligation and mixture.

UNIT-III: (6 Hours)

Time and work – Pipes and Cistern – Time and Distance – Boats and Streams.

UNIT-IV: (6 Hours)

Simple Interest – Compound Interest – Stocks and Shares – True Discount – Banker's discount.

UNIT-V: (6 Hours)

Area – Volume and surface Areas – Heights and Distances – Data Interpretation : Tabulation – Bar Graphs – Pie Charts – Line Graphs.

REFERENCE:

1. R.S. Aggarwal, Objective Arithmetic , S. Chand & Company, New Delhi, 2005
2. Govind Prasad Singh and Rakesh Kumar, Text Book of Quickest Mathematics (for all Competitive Examinations), Kiran Prakashan, 2012
3. R.S. Aggarwal, Quantitative Aptitude, S. Chand & Company, New Delhi, 2012

CORE IX
PAPER TITLE: OPERATING SYSTEMS

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: V	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES: This course introduces the functions of operating systems.

UNIT I: (15 Hours)
Introduction: Views –Goals – OS Structure –Components – Services - System Design and Implementation. Process Management: Process - Process Scheduling – Cooperating Process – Threads - Interprocess Communication.

UNIT II: (24 Hours)
CPU Scheduling: CPU Schedulers – Scheduling criteria – Scheduling Algorithms - Process Synchronization: Critical-Section problem - Synchronization Hardware – Semaphores – Classic Problems of Synchronization – Critical Region.

UNIT III: (18 Hours)
Deadlock: Characterization – Methods for handling Deadlocks – Prevention, Avoidance, and Detection of Deadlock - Recovery from deadlock. Secondary Storage Structures: Protection – Goals- Domain Access matrix.

UNIT IV: (18 Hours)
Memory Management: Address Binding – Dynamic Loading and Linking – Overlays – Logical and Physical Address Space - Contiguous Allocation – Internal & External Fragmentation. Non Contiguous Allocation: Paging and Segmentation schemes – Implementation – Sharing - Fragmentation.

UNIT V: (15 Hours)
Virtual Memory**:** Demand Paging – Page Replacement - Page Replacement Algorithms – Thrashing. – File System: Concepts – Access methods – Directory Structure –Protection Consistency Semantics – File System Structures – Allocation methods – Free Space Management.

PRESCRIBED BOOKS:

1. Silberschatz A., Galvin P.B., Gange,.2012, Operating System Principles, Tenth Edition, John Wiley & Sons.

REFERENCE BOOKS:

1. H.M. Deitel ,1990, An Introduction to Operating System,- Second Edition,Addison Wesley

WEBSITES:

1. http://www.ics.uci.edu/~ics143/lectures.html
2. http://williamstallings.com/Extras/OS-Notes/notes.html

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12	1-12	3	30
B	Answer any 5 out of 7	13-19	6	30
C	Answer any 4 out of 6	20-25	10	40
	Total Marks			**100**

Distribution of Questions:

Sections	Units	NO. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	3	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

CORE X
PAPER TITLE: DIGITAL LOGIC AND COMPUTER ARCHITECTURE

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: V	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES: This course introduces digital logic fundamentals and Computer System Architecture.

UNIT I: (18 Hours)
Binary Systems & Code conversion, Boolean Algebra & Logic Gates – Truth Tables – Universal Gates – Simplification of Boolean functions: K-map, – Combinational Logic: Adders & Subtractors.

UNIT II: (18 Hours)
Multiplexer – Demultiplexer - Sequential Logic: RS, Clocked RS, D, JK, Master Slave JK, T Flip-Flops – Shift Registers – Types of Shift Registers.

UNIT III: (18 Hours)
Basic Computer Organization and Design: Computer registers, bus system, instruction set, timing and control, instruction cycle, memory reference, input-output and interrupt.

UNIT IV: (18 Hours)
Central Processing Unit: Register organization arithmetic and logical micro-operations, stack organization, micro programmed control codes, machine language, assembly language, input output programming.

UNIT V: (18 Hours)
Input-output Organization: Peripheral devices, I/O interface, Modes of data transfer, direct memory access.

PRESCRIBED BOOKS:

1. M. Morris Mano, 2014, 4th Edition, Digital Logic and Computer Design, Prentice-Hall of India Pvt. Ltd.
2. M. Mano, Computer System Architecture, Pearson Education 2007, 3rd Edition.

REFERENCE BOOKS:

1. W. Stallings, Computer Organization and Architecture Designing for Performance, 8th Edition, Prentice Hall of India, 2009
2. A. J. Dos Reis, Assembly Language and Computer Architecture using C++ and JAVA, Course Technology, 2004
3. V. Vijayendran, 2004, Digital Fundamentals, S. Viswanathan (Printers & Publishers) Pvt. Ltd.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12	1-12	3	30
B	Answer any 5 out of 7	13-19	6	30
C	Answer any 4 out of 6	20-25	10	40
	Total			**100**

Distribution of Questions:

Sections	Units	NO. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE XI
PAPER TITLE: WEB PROGRAMMING WITH PHP AND MYSQL

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: V	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES: To earns skill set to develop online information system using the open sources PHP and MySQL.

Unit -I Introduction: (18 Hrs)
Introduction- open source - PHP — history- features -variables- statements- operators - conditional statements - if – switch - nesting conditions - merging forms with conditional statements - loops - while -do – for loop iteration with break and continue.

Unit - II Arrays and Functions: (18 Hrs)
Arrays: Creating an array- modifying array - processing array – grouping form with arrays - using array functions - creating user defined functions - using files

Unit —III (18 Hrs)
Sessions – cookies – executing external programs – creating sample applications using PHP.

My SQL:
Effectiveness of MYSQL – MYSQL Tools – Pre-requisites for MYSQL connection – Databases and tables – MYSQL data types

Unit – IV (18 Hrs)
Creating and manipulating tables – Insertion, Updation and Deletion of rows in tables – Retrieving data - Sorting and Filtering retrieved data – Advanced data filtering - Data Manipulation functions – Aggregate functions – Grouping data – Sub Queries – Joining Tables – Set Operators – Full text searching.

Unit V PHP with MYSQL: (18 Hrs)
Working MYSQL with PHP – Database Connectivity – usage of MYSQL with PHP commands, processing result sets of queries – handling errors – debugging and diagnostic functions – Validating user input through Database layer and Application layer – formatting query output with Character, Numeric, Date and Time – sample Database Applications.

PRESCRIBED BOOKS:

1. VIKRAM VASWANI, "PHP and MySQL", Tata McGraw-Hill, 2007
2. BEN FORTA , "MySQL Crash course" SAMS, 2006, 2nd Edition
3. C.J.DATE, “An Introduction to Database Systems”, Addison Wesley, Sixth Edition.
4. Ramesh Elmasri and Shamkant B.Navathe, “fundamentals of Database Systems”, Pearson Education, Thrid Edition.

REFERENCE BOOKS:

1. Tim Converse, Joyce Park and Clark Morgan, "PHP 5 and MySQL", Wiley India, 2008.
2. Robert Sheldon, Geoff Moes, "Beginning MySQL", Wrox, 2005.
3. Alexis Leon and Mathews Leon, "Database Management Systems", Vikas, 2008.

Question Paper Pattern:

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C	Answer any 4 out of 6	20-25	10	40
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Distribution of Questions:

Sections	Units	NO. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE XII
PAPER TITLE: WEB PROGRAMMING WITH PHP AND MYSQL PRACTICAL

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: V	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES: This course train the students to develop applications with PHP and MySQL

(20 Hrs)

1. Creating simple webpage using PHP
2. Use of conditional statements in PHP
3. Use of looping statements in PHP

(20 Hrs)

4. Creating different types of arrays
5. File manipulation using PHP
6. Creation of sessions

(20 Hrs)

7. Creation of cookies
8. Creating simple applications using PHP with input validations
9. Creating simple table with constraints
10. Insertion, Updating and Deletion of rows in MYSQL

(**15 Hrs)**

11. Searching of data by different criteria
12. Sorting of data
13. Demonstration of joining tables

(15 Hrs)

14. Usage of aggregate functions
15. Database connectivity in PHP with MYSQL

ELECTIVE-I (INTER DISCIPLINARY)
(Offered to other departments)
PAPER TITLE: INTERNET AND ITS APPLICATIONS PRACTICAL

SUBJECT CODE :	**PRACTICAL**	**100 MARKS**
SEMESTER: V	**CREDITS:** 5	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES: This course introduces the basic concepts of internet and its applications.

UNIT I: (5 Hours)
Introduction to Computers: Programming Language types History of Internet Personal Computers History of World Wide Web

UNIT II: (10 Hours)
Web Browsers -Internet Explorer - connecting to Internet Features of Internet explorer-Searching the Internet -online help and tutorials-File Transmission Protocol (FTP) Browser settings.

UNIT III: (10 Hours)
Attaching a file, Electronic mail creating an E-mail id sending and Receiving mails attaching a file-Instance messaging - other web browsers.

UNIT IV: (10 Hours)
Introduction to HTML Tags for Document structure (HTML, Head, and Body Tag). Headings paragraph(<p> tag) – Font style elements: (bold, italic, strike, font) - line breaks-headers -Linking-Images- lists – table – Frames – Forms : Input

UNIT V: (10 Hours)
E-marketing consumer tracking Electronic advertising search engine-CRM-credit card payments Digital cash and e-wallets micro payments-smart card

PRESCRIBED BOOKS:
1. Internet and World Wide Web Third edition H.M.Deitel, P.J. Deitel and A.B.Goldberg-PHI

REFERENCE BOOKS:
1. The Internet -Complete Reference Harley Hahn, Tata McGraw Hill

PRACTICAL

(10 Hrs)

1. To illustrate body and pre tags
2. Create an HTML document with the following formatting options:
    a. Bold
    b. Italics
    c. Underline
    d. Headings (Using H1 to H6 heading styles)
    e. Font (Type, Size and Color)
3. Create a webpage to demonstrate font variation.
4. To illustrate Ordered list tag

(15 Hrs)

5. To illustrate unordered list tag
6. To illustrate image tag
7. Write a program to set background image using body tag.
8. Create an HTML document which implements Internal linking as well as external linking.
9. To illustrate Table tag
10. To illustrate frame tag

(15 Hrs)

11. Create a form using HTML which has the following types of controls:
    I. Text Box
    II. Option/radio buttons
    III. Check boxes
    IV. Reset and Submit buttons
12. Creating e-mail id, sending and receiving mail with attachment,CC,BC
13. Design marksheet using HTML tags.

(5 Hrs)

14. Create Guru Nanak College Website using HTML tags
15. Design a website to submit your resume.

SEMESTER - VI

CORE XIII
PAPER TITLE: SOFTWARE ENGINEERING

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: VI	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES: This course introduces the details about the concepts of life cycle of software

UNIT I: (18 Hours) Introduction to Software Engineering Some definition – Some size factors – Quality and productivity factors – Managerial issue. Planning a Software Project: Defining the problem – Developing a solution strategy – planning the development process – planning an organization structure – other planning activities.

UNIT II: (18 Hours) Software Cost Estimation: Software – Cost factors – Software cost estimation techniques – specification techniques – level estimation – estimating software maintenance costs. The software requirements specification – formal specification techniques - languages and processors for requirements specification.

UNIT III: (20 Hours) Software Design: Fundamental Design concepts – Modules and modularizing Criteria – Design Notations – Design Techniques – Detailed Design Consideration – Real time and distributed system design – Test plan – Mile stones walk through and inspection.

UNIT IV: (16 Hours) Implementation issues: Structured Coding techniques – coding style – standards and guidelines – documentation guidelines – type checking – scooping rules – concurrency mechanisms.

UNIT V: (18 Hours) Quality assurance – walk through and inspection - Static analysis – symbolic exception – Unit testing and Debugging – System testing – Formal verification: Enhancing maintainability during development – Managerial aspects of software maintenance – Configuration management – source code metrics – other maintenance tools and techniques.

PRESCRIBED BOOKS:

1. Richard E.Fairly - Software Engineering Concepts, 5th Edition - Tata McGraw-Hill book Company.

REFERENCE BOOKS:

1. Richard E.Fairley,Software Engineering Concepts,McGraw-Hill,1985
2. Ian Sommerville,Software Engineering-9th Edition,Darling Kindersley,2011
3. Roger S.Pressman,Software Engineering A Practitioner's Approach-6th Edition, McGraw-Hill,2005
4. R.S.Pressman, 1997, Software Engineering – 1997 - Fourth Ed., McGraw Hill.
5. RajibMall ,2004,Fundamentals of Software Engineering,2nd Edition, PHI.

WEBSITES:

1. http://people.cs.missouri.edu/~duanye/cs4320/lectures.htm
2. http://iiscs.wssu.edu/drupal/node/4566

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12	1-12	3	30
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C	Answer any 4 out of 6	20-25	10	40
	Total Marks			**100**

Distribution of Questions:

Sections	Units	NO. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE XIV
PAPER TITLE: PYTHON PROGRAMMING

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: VI	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

UNIT I:

Introduction to Python-Getting Started: Introduction to Python- an interpreted high level language, interactive mode and script mode.

Variables, Expressions and Statements: Variables and Types - mutable and Immutable variable and Keywords. - Operators and Operands in Python: Arithmetic, relational and logical operators- Operator precedence, Expressions and Statements (Assignment statement); Taking input (using raw_input () and input ()) and displaying output - print statement - Comments in Python.

Conditional and Looping Construct:

if - else statement and nested if – else while, for, use of range function in for, Nested loops - break, continue, and pass statement - Use of compound expression in conditional constructs

UNIT II:

Functions: Built-In Function, invoking built in functions - Module (Importing entire module or selected objects using from statement) - Functions from math, random, time & date module. - Composition - User Define Function: Defining, invoking functions, passing parameters (default parameter values, keyword arguments) - Scope of variables, void functions and functions returning values

UNIT III:

Strings: Creating, initializing and accessing the elements; String operators: +, *, in, not in, range, slice [n:m] - String built in functions & methods: len, capitalize, find, isalnum, isalpha, isdigit, lower, islower, isupper, upper, lstrip, rstrip, isspace, istitle, partition, replace, join, split, count, decode, encode, swapcase - Strings constants defined in string module - Regular Expression and Pattern Matching.

Lists: Concept of mutable lists, creating, initializing and accessing the elements of list - List operations (Concatenation, Repetation,Membership, list slices), List comprehensions - List functions & methods: len, insert, append, extend, sort, remove, reverse, pop

Tuples:Immutable concept, creating, initializing and accessing the elements in a tuple;- Tuple functions: cmp(), len(), max(), min(), tuple().

UNIT IV:

Sets Concept of Sets, creating, initializing and accessing the elements of Sets operation (Membership, union, intersection, difference, and symmetric difference

Dictionaries: Concept of key-value pair, creating, initializing and accessing the elements in a dictionary, Traversing, appending, updating and deleting elements - Dictionary functions & Methods: cmp, len, clear(), get(), has_key(), items(), keys(), update(), values()

I/O and File Handling: Output Formatting - Reading and Writing Files (text and binary mode)

UNIT V:

Errors and Exceptions: Syntax Errors, Exceptions, Handling Exceptions, Raising Exceptions - User-defined Exceptions, Defining Clean-up - Actions (try - finally), Predefined Clean-up Actions

Introduction to Object Oriented concepts in Python - Object Oriented concepts - Objects, Python Scopes and Namespaces - Classes, Class Objects, Instance Objects, Method Objects, Class and Instance Variables - Inheritance

PRESCRIBED BOOKS

1. Learning Python by Mark Lutz, O'Reilly Publication, 5th Edition.

REFERENCE BOOKS

1. Programming with python, A users Book, Michael Dawson, Cengage Learning
2. Python Essential Reference, David Beazley, Third Edition
3. Python Bible

Website

1. https://docs.python.org

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12	1-12	3	30
B	Answer any 5 out of 7	13-19	6	30
C	Answer any 4 out of 6	20-25	10	40
	Total Marks			**100**

Distribution of Questions:

Sections	Units	NO. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

CORE XV
PAPER TITLE: PYTHON PROGRAMMING PRACTICAL

SUBJECT CODE :	**PRACTICAL**	**100 MARKS**
SEMESTER: VI	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

(15 Hours)

1. Write a python program to convert the given temperature from Fahrenheit to Celsius and vice versa depending upon user's choice.
2. Write a Python program to calculate total marks, percentage and grade of a student. Marks obtained in each of the three subjects are to be input by the user. Assign grades according to the following criteria:
   Grade A: Percentage >=80
   Grade B: Percentage>=70 and <80
   Grade C: Percentage>=60 and <70
   Grade D: Percentage>=40 and <60
   Grade E: Percentage<40
3. Write a program to sum all the elements from n1 to n2 where n1 and n2 are positive integers.

(15 Hours)

4. Input an array of n numbers and find separately the sum of positive numbers and negative numbers.
5. Write a program to print sum and multiply two matrices.
6. Write a program to find the roots of a quadratic equation

(20 Hours)

7. Write a Python Program to check whether the given string is palindrome or not using built in string manipulation methods.
8. Write a Python Program to read a word and prints the number of letters, vowels and percentage of vowels in the word using dictionary
9. Write a Python Program to check a given sentence is a pangram or not using function/ Module.

(20 Hours)

10. Write a python program, using user-defined functions to find the area of rectangle, square, circle and triangle by accepting suitable input parameters from user.
11. Write a python program to display the first n terms of Fibonacci series.
12. Write a python program to find sum of the following series for n terms:
    1 – 2/2! + 3/3! - -- - - n/n!
13. Write an Object oriented Python program to create two Time objects: currentTime, which contains the current time; and breadTime, which contains the amount of time it takes for a bread maker to make bread. Then we'll use addTime to figure out when the bread will be done. Write the printTime function to display the time when the bread will be done by the bread maker.

(20 Hours)

14. Write a python program to illustrate list
15. Write a python program to illustrate exception handling

ELECTIVE- II

PAPER TITLE: DATA COMMUNICATION AND NETWORKING

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: VI	**CREDITS:** 5	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES: This course introduces the details about the basic concepts of data communication and networking.

UNIT I: **(20 HOURS**)
Introduction to Data Communication, Network, Protocols and Standards - Line Configuration - Topology - Transmission mode - Classification of Network - OSI Model - Layers of OSI Model.

UNIT II :(18 HOURS)
Parallel and Serial Transmission - DTE/DCE/such as EIA-449, EIA-530, EIA-202 and x.21 interface - Interface standards - Modems - Guided Media - Unguided Media - Performance - Types of Error - Error Detection - Error Corrections.

UNIT III: (20 HOURS)
Multiplexing - Types of Multiplexing - Multiplexing Application - Telephone system - Project 802 - Ethernet - Token Bus - Token Ring - FDDI - IEEE 802.6 - SMDS - Circuit Switching - Packet Switching - Message switching - Connection Oriented and Connectionless services.

UNIT IV: (16 HOURS)
Repeaters - Bridges - Routers - Gateway - Routing algorithms: Distance Vector, link State, path vector Routing, Multicast Routing - TCP/IP Network, Transport Layer of TCP/IP: TCP, TCP Services, TCP Features - Application Layers of TCP/IP:Namespace, DNS, Distribution of Namespace, Dns in the Internet, Resolution , DNS messages, Types of Records, Registers, Dynamics DNS, Encapsulation- World Wide Web: Architecture, Client, Server,URL, Cookies. Web document: Static Document, Dynamic Document, active Document.

UNIT V :(16 HOURS)
Computer Security Concepts-Security Attacks: Active Attacks, Passive Attacks -Message authentication Codes: message Authentication Requirements, Message Authentication Functions Requirements for message Authentication codes-Electronic mail Security: s/MIME, Domain Keys Identified Mail- IP Security: IP Security Overview, IP Security Policy, Encapsulating Security payload, Combining Security Associations, Internet key Exchange, Cryptographic suits- Firewalls: The Need for Firewalls, Firewall Characteristics, Types of Firewalls, Firewalls Basing, Firewall Location and Configuration.

PRESCRIBED BOOKS

1. Behrouz and Forouzan, 2017, Introduction to Data Communication and Networking, 5th Edition, TMH.
2. William Stallings, Cryptography and Network Security -6th Edition, PHI.
3. Cryptography and Network Security (UPTU), V.S.Bagad, I.A.Dhotre, Technical Publications.

REFERENCE BOOKS

1. Jean Walrand 1998, Communication Networks (A first Course), Second Edition, WCB/TMH.
2. Behrouz and Forouzan, 2006, Data Communication and Networking, 3rd Edition, TMH.
3. Bruce, Schneider, Applied Cryptography,2 nd Edition , Toha Wiley & Sons,1996.
4. Dougals R.Stinson, Cryptography- Theory and Practice ,CRC Press,1995

Question Paper Pattern:

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Distribution of Questions:

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		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
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	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

ELECTIVE II

PAPER TITLE: DATA MINING

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: VI	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES: This course introduces the concepts of Data Mining

Unit I: Introduction: Data mining – Functionalities – Classification – Introduction to Data Warehousing – Data Preprocessing: Preprocessing the Data – Data cleaning – Data Integration and Transformation – Data Reduction

Unit II: Data Mining, Primitives, Languages and System Architecture:
Data Mining – Primitives – Data Mining Query Language,. Architectures of Data mining Systems. Concept Description, Characterization and Comparison: Concept Description, Data Generalization and Summarization, Analytical Characterization, Mining Class Comparison – Statistical Measures.

Unit III: Mining Association Rules: Basics Concepts – Single Dimensional Boolean Association Rules from Transaction Databases, Multilevel Association Rules from transaction databases – Multi dimension Association Rules from Relational Database and Data Warehouses.

Unit IV: Classification and Prediction: Introduction – Issues – Decision Tree Induction – Bayesian Classification – Classification of Back Propagation. Classification based on Concepts from Association Rule Mining – Other Methods. Prediction – Introduction – Classifier Accuracy.

Unit V: Cluster Analysis: Introduction – Types of Data in Cluster Analysis, Petitioning Methods – Hierarchical Methods Density Based Methods – GRID Based Method – Model based Clustering Method.

PRESCRIBED BOOKS

1. J.Han and M. Kamber, 2012, 3rd Edition, Data Mining Concepts and Techniques,Harcourt India Pvt. Ltd - New Delhi.

REFERENCE BOOKS

1. K.P. Soman, Shyam Diwakar, V.Ajay, 2006, Insight into Data Mining Theory and Practice, Prentice Hall of India Pvt. Ltd - New Delhi.

Website, E-learning resources

http:// www.academicpress.com
http://www.mkp.com

Question Paper Pattern:

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	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

ELECTIVE II

PAPER TITLE: SOFTWARE TESTING

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: VI	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES: This course introduces the concepts of Software Testing.

UNIT I: (18 Hours) Principles of Testing – Software Development Life Cycle Models.

UNIT II: (18 Hours) White Box Testing – Black Box testing – Integration Testing.

UNIT III: (18 Hours) System and Acceptance Testing – Performance Testing – Regression Testing.

UNIT IV: (18 Hours) Testing Object-Oriented Systems – Usability and Accessibility Testing Organization structures for Testing Teams.

UNIT V: (18 Hours) Test Planning, Management, Execution, and Reporting – Software Test Automation – Test Metrics and Measurements.

PRESCRIBED BOOKS:

Software Testing Principles and Practices, Srinivasan Desikan& Ramesh Gopalswamy, Pearson Education. 2009 Edition.

REFERENCE BOOKS:

Software Testing Technique-Beizer Boris, Dreamtech.

WEBSITES:

http://www.inf.ed.ac.uk/teaching/courses/st/2011-12/Resource-folder/

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		Theory	Problems
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	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

ELECTIVE II
PAPER TITLE: DATA SCIENCE

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: VI	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES: This course introduces the concepts of Data Science

UNIT I: **(18 Hrs)**

Data Scientist's Tool Box: Turning data into actionable knowledge, introduction to the tools that will be used in building data analysis software: version control, markdown, git, GitHub, R, and RStudio.

UNIT II: **(18 Hrs)**

R Programming Basics: Overview of R, R data types and objects, reading and writing data, Control structures, functions, scoping rules, dates and times, Loop functions, debugging tools, Simulation, code profiling.

UNIT III: **(18 Hrs)**

Getting and Cleaning Data: Obtaining data from the web, from APIs, from databases and from colleagues in various formats. Basics of data cleaning and making data ―tidy‖.

UNIT IV :(18 Hours)

Exploratory Data Analysis: Essential exploratory techniques for summarizing data, applied before formal modeling commences, eliminating or sharpening potential hypotheses about the world that can be addressed by the data, common multivariate statistical techniques used to 45 visualize high-dimensional data.

UNIT V: **(18 Hrs)**

Reproducible Research: Concepts and tools behind reporting modern data analyses in a reproducible manner, to write a document using R markdown, integrate live R code into a literate statistical program, compile R markdown documents using knitr and related tools, and organize a data analysis so that it is reproducible and accessible to others.

PRESCRIBED BOOKS

1. RACHEL SCHUTT, Cathy O'Neil, "Doing Data Science: Straight Talk from the Frontiline" by Schroff/O'Reilly, 2013. 1st Edition Kindle edition.
2. Foster Provost, Tom Fawcett, "Data Science for Business" What You Need to Know About Data Mining and Data-Analytic Thinking" by O'Reilly, 2013.1st edition, kindle edition

REFERENCE BOOKS

1. John W. Foreman, "Data Smart: Using data Science to Transform Information into Insight" by John Wiley & Sons, 2013.
2. Ian Ayres, "Super Crunchers: Why Thinking-by-Numbers Is the New Way to Be Smart" Ist Edition by Bantam, 2007.
3. Eric Seigel, "Predictive Analytics: The Power to Predict who Will Click, Buy, Lie, or Die", 1st Edition, by Wiley, 2013.
4. Matthew A. Russel, "Mining the Social Web: Data mining Facebook, Twitter, Linkedln, Goole+, GitHub, and More", Second Edition, by O'Reilly Media, 2013.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12	1-12	3	30
B	Answer any 5 out of 7	13-19	6	30
C	Answer any 4 out of 6	20-25	10	40
	Total			**100**

Distribution of Questions:

Sections	Units	NO. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

ELECTIVE II
PAPER TITLE: CLOUD COMPUTING

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: VI	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES: On completion of the course, the students will

1. Know the fundamentals of Cloud Computing and its Architectures.
2. Understand the services and applications of Cloud Computing.

UNIT- I: (18 HOURS)
Beyond the Desktop: Introduction to the Cloud Computing - Are you ready for computing the Cloud? -Developing Cloud Services.

UNIT-II: (18 HOURS)
Cloud Computing for Everyone- Cloud Computing for the Family- Cloud Computing for the Community- Cloud Computing for the Corporation.

UNIT- III: (20 HOURS)
Using cloud Services: Collaborating on Calendars, Schedules, and Task Management - Collaborating on Event Management -Collaborating on Contact Management -Collaborating on Project Management.

UNIT -IV: (20 HOURS)
Using cloud Services: Collaborating on Word -Collaborating on Spreadsheets-Collaborating on Presentations: Preparing Presentations Online-Evaluating Web-Based Presentation Applications.

UNIT- V: (18 HOURS)
Using cloud Services: Collaborating on Databases- Storing and Sharing files and other online content: Understanding Cloud storage- Evaluating Online File Storage and Sharing Services.

PRESCRIBED BOOK

1. Michael Miller, "Cloud Computing", Pearson Education Inc, 1st Edition, 2008
2. Ricardo Puttini, Thomas Erl, and Zaigham Mahmood," Cloud Computing: Concepts, Technology & Architecture", Prentice Hall, 2013, 1st Edition.

REFERENCE BOOK

1. Rajkumar Buyya & Co., "Cloud Computing Principles and Paradigms", John Wiley & Sons Publications, 2011.
2. Ray Rafaels,Cloud Computing: From Beginning to End.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	Answer any 10 out of 12	1-12	3	30
B	Answer any 5 out of 7	13-19	6	30
C	Answer any 4 out of 6	20-25	10	40
	Total			**100**

Distribution of Questions:

Sections	Units	NO. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
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	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

ELECTIVE III

PAPER TITLE: FUNDAMENTALS OF MULTIMEDIA

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: VI	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES: On completion of the course, the students will gain knowledge about Fundamentals of Multimedia.

UNIT - I: **(20 Hours**)

Multimedia Definition: CDROM and the Multimedia High Way, Where to use Multimedia – Introduction to Making Multimedia: The stages of a Project – Where you need – Hardware – Software – Creativity - Organization - Multimedia Skills: The Team – Project Manager - Multimedia Designer - Interface Designer – Writer - Video Specialist - Audio Specialist - Multimedia Programmer - Producer of Multimedia for the Web.

UNIT – II :(**18 Hours)**

Multimedia Hardware and Software: Macintosh and Windows production Platform, Basic Software Tools: Text Editing and Word Processing Tool – OGR Software – Painting and Drawing Tools – 3-D Modeling and Animation Tools – Image-Editing tools – Sound Editing Tools – Animation, Video and Digital Movie Tools - Multimedia Authoring Tools: Making Instant Multimedia

UNIT - III :(14 Hours)

Multimedia Building Blocks: Text – About Fonts and Faces, Using Text in Multimedia – Sound: The Power of Sound – Digital Audio – Making Digital Audio Files – MIDI Audio – MIDI Vs Digital Audio – Multimedia System Sounds – Audio File Formats

UNIT – IV: **(18 Hours)**

Images: Making Still Images – Color – Animation: The Power of Motion – Principles of Animation – Animation by Computer – Video: Using video – How video Works and Is Displayed – Digital Video Containers – Shooting and Editing Video.

UNIT –V :(20 Hours)

Multimedia and Internet: Internet History – Internetworking – Multimedia on the Web - Designing for the World Wide Web: Developing for the web – Text for the Web – Images for the Web – Sound for the Web – Animation for the Web – Video for the Web.

PRESCRIBED BOOKS

1. Tay Vaughan, Multimedia making it with, 9th Edition, Tata McGraw Hill, 2017.
2. Fundamentals of Multimedia, Ze-Nian Li, Mark S. Drew, Jiangchuan Liu. 2nd Edition

Website

https://www.elsevier.com/books/introduction-to-multimedia-systems/mitra/978-0-08-092478-

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
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	Total Marks			**100**

Distribution of Questions:

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		Theory	Problems
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	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

ELECTIVE III

PAPER TITLE: ANDROID APPLICATION DEVELOPMENT PRACTICAL

SUBJECT CODE :	**PRACTICAL**	**100 MARKS**
SEMESTER: VI	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES:

To provide the students with the basics of Android Software Development tools.

To provide skills to develop applications on mobile platform and deploying software to mobile devices.

UNIT I: **(18 Hrs)**

Getting Started with Android Programming - Using Eclipse for Android Development - Using Android Emulator.

Exercises:

1. Exploring the Eclipse, Exploring Emulator
2. Styles, Themes And Progress Dialog
3. Linking Activities With Intent

UNIT II: **(18 Hrs)**

Activities, Fragments and Intents - Getting to know the Android User Interface.

Exercises:

4. Fragments: Adding Fragments Dynamically, Communication Between Fragments
5. Intent Filters
6. Adding Categories, Displaying Notifications On Status Bar
7. View Groups: Linear Layout, Absolute Layout, Table Layout, Relative Layout, FrameLayout, Scroll View, Action Bar
8. Creating User Interface Programmatically 6.Registering Events for Views

UNIT III: **(18 Hrs)**

Designing your User Interface with Views - Displaying pictures and menus with Views.

Exercises:

9. Basic Views: Handling View Events, Text View, Buttons, Progress Bar View, Auto CompleteTextView
10. Views: Picker View, List View, Spinner View, Image View, Grid View, Web View
11. Specialized Fragments: List Fragment, Dialog Fragment, Preference Fragment
12. Menus with Views

UNIT IV : **(18 Hrs)**

Data Persistence - Working with Audio and Video - Content Providers.

Exercises:

13. Saving and loading user preferences
14. Persisting Data to files
15. Creating and using databases
16. Audio and Video
17. Sharing Data using Content providers

UNIT V: (18 Hours)

Messaging - Developing Android Services - Publishing Android Applications.

Exercises:

18. SMS Messaging
19. Getting feedback after sending a message
20. Sending Email
21. Creating a Simple Service
22. Running repeated tasks using the timer class
23. Establishing communication between a service and activity
24.

PRESCRIBED BOOKS:

1. Lee Wei-Meng, 2012,"Beginning Android 4 Application Development", Wiley India

REFERENCE BOOKS:

1. Cinar Onur , "Android Apps with Eclipse", 2012,Apress, Springer(India) Private Limited.
2. Meier Reto, "Professional Android 2 Application Development", 2010, Wiley India.

WEB REFERENCES:

1. http://deveIoper.android.com/training/basics/firstapp/index.html
2. www.vogella.com/articles/Android/article.html
3. www.coreservelets.com/antIroid-tutorial/
4. www.edumobile.org/android/category/android-beginner-tutorial/
5. www.edureka.in/blog/catcgory/androicI/android-development-tutorial/

ELECTIVE III
PAPER TITLE: ARTIFICIAL INTELLIGENCE

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: VI	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 6**

UNIT I: **(18 Hrs)**

Introduction: Introduction to Artificial Intelligence, Background and Applications, Turing Test and Rational Agent approaches to AI, Introduction to Intelligent Agents, their structure, behavior and environment.

UNIT II: **(18 Hrs)**

Problem Solving and Searching Techniques: Problem Characteristics, Production Systems, Control Strategies, Breadth First Search, Depth First Search, Hill climbing and its Variations, Heuristics Search Techniques: Best First Search, A* algorithm, Constraint Satisfaction Problem, Means-End Analysis, Introduction to Game Playing, Min-Max and Alpha-Beta pruning algorithms.

UNIT III: **(18 Hrs)**

Knowledge Representation: Introduction to First Order Predicate Logic, Resolution Principle, Unification, Semantic Nets, Conceptual Dependencies, Frames, and Scripts, Production Rules, Conceptual Graphs. Programming in Logic (PROLOG)

UNIT IV: **(18 Hrs)**

Dealing with Uncertainty and Inconsistencies: Truth Maintenance System, Default Reasoning, Probabilistic Reasoning, Bayesian Probabilistic Inference, Possible World Representations.

UNIT V: **(18 Hrs)**

Understanding Natural Languages: Parsing Techniques, Context-Free and Transformational Grammars, Recursive and Augmented Transition Nets.

PRESCRIBED BOOKS:

1. DAN.W. Patterson, Introduction to A.I and Expert Systems – PHI, 2015, 3rd Edition
2. Russell &Norvig, Artificial Intelligence-A Modern Approach, LPE, Pearson Prentice Hall, 2010, 3rd Edition.

REFERENCE BOOKS

1. Rich & Knight, Artificial Intelligence – Tata McGraw Hill, 2nd edition, 1991.
2. W.F. Clocksin and Mellish, Programming in PROLOG, Narosa Publishing House, 3rd edition, 2001.
3. Ivan Bratko, Prolog Programming for Artificial Intelligence, Addison-Wesley, Pearson Education, 3rd edition, 2000.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
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Section B	Unit – 1	2	
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	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042

Re-Accredited at 'A- Grade' by NAAC

(Affiliated to the University of Madras)

BACHELOR OF SCIENCE

(MATHEMATICS)

Regulations and Syllabus

(For the Candidates admitted in 2019 -2020 and thereafter)

COURSE STRUCTURE

Semester	Part	Subject	Title	No.of Hrs/Week	Exam Hrs	Credits
I	I	Language (Tamil/Hindi)	Paper-I	6	3	3
	II	English	Paper-I	4	3	3
	III	Core Paper 1	Algebra	4	3	4
		Core Paper 2	Differential Calculus	4	3	4
		Allied 1	Chemistry-I	5	3	3
			Chemistry Practical	3	-	-
	IV	Non Major Elective-I	Functional Mathematics-I	2	3	2
		Soft Skill 1	Essentials of Language and Communication skills	2	3	3
II	I	Language (Tamil/Hindi)	Paper-II	6	3	3
	II	English	Paper-II	4	3	3
	III	Core Paper 3	Trigonometry and Number Theory	4	3	4
		Core Paper 4	Analytical Geometry	4	3	4
		Allied 2	Chemistry-II	5	3	3
			Chemistry Practical	3	3	4
	IV	Non Major Elective-I	Functional Mathematics-II	2	3	2
		Soft Skill 2	Essentials of Spoken and presentation skills	2	3	3
III	I	Language (Tamil/Hindi)	Paper-III	6	3	3
	II	English	Paper-III	4	3	3
	III	Core Paper 5	Differential Equations and Laplace Transforms	5	3	4
		Core Paper 6	Integral Calculus and Vector Analysis	5	3	4
		Allied 1	Physics – I	5	3	3
			Physics Practical	3	-	-
	IV	Non Major Elective	Environmental Studies	2	_	_
		Soft Skill 3	Personality Enrichment	2	3	3

IV	I	Language (Tamil/Hindi)	Paper-IV	6	3	3
	II	English	Paper-IV	4	3	3
	III	Core Paper 7	Statics	4	3	4
		Core Paper 8	Mathematical Statistics	4	3	4
		Allied 2	Physics – II	5	3	3
			Physics Practical	3	3	4
	IV	Non Major Elective	Environmental Studies	2	3	2
		Soft Skill 4	Computing skills	2	3	3
V	III	Core Paper 9	Algebraic Structures	6	3	4
		Core Paper 10	Real Analysis-I	6	3	4
		Core Paper 11	Dynamics	6	3	4
		Core Paper 12	Programming Language C with Practical	6	3	4
		Inter Disciplinary Elective	Numerical Analysis	6	3	5
	IV	Soft Skill 5	Value Education	_	3	2
VI	III	Core Paper 13	Linear Algebra	6	3	4
		Core Paper 14	Real Analysis-II	6	3	4
		Core Paper 15	Complex Analysis	6	3	4
		Elective Subject II	Operations Research	6	3	5
		Elective Subject III	Graph Theory	6	3	5
	IV	Soft Skill 6	Extension activities	_	_	1

Total 140

SEMESTER – I

CORE PAPER 1

ALGEBRA

UNIT I (12 hrs)

Matrices: Symmetric; Skew Symmetric; Hermitian; Skew Hermitian; Orthogonal and Unitary Matrices; Rank of a matrix; Consistency and solutions of Linear Equations.

Chapter 2 : Sections 6.1, 6.2, 6.3, 9.1, 11, 16.

UNIT II (12 hrs)

Matrices: Cayley-Hamilton theorem; Eigen values; Eigen Vectors; Similar matrices; Diagonalization of a matrix.

Chapter 2 : Sections 16, 16.1, 16.2, 16.3.

UNIT III (12 hrs)

Theory of Equations: Polynomial equations; Imaginary and irrational roots; Symmetric functions of roots in terms of coefficients; Reciprocal equations, Transformations of equations, Increasing and Decreasing of a roots of the equations.

Chapter 6 : Sections 9 to 12, 15, 15.1, 15.2, 15.3, 16, 16.1, 16.2.

UNIT IV (12 hrs)

Theory of Equations : Descartes' rule of signs: Approximate solutions of roots of polynomials by Newton-Raphson method- Hornet's method; Cardan's method of solution of a cubic polynomial.

Chapter 6 : Sections 24, 24.1, 24.2, 24.3, 29.4, 30, 34.1 (i)

UNIT V (12 hrs)

Summation of series: Binomial, Exponential and Logarithmic series (theorems without proof); Summation of finite series using method of differences

(12 hrs)

Chapter 3 : Section 10; Chapter 4: Sections 3, 5, 6, 7.

Content and treatment as in Algebra- Volume I (2018) and II (2015) by T.K.Manikavachagom Pillai and others (S.Viswanathan publishers)

Reference Books:

1. Algebra: S.Arumugam (New Gama Publishing house, Palayamkottai)
2. Higher Algebra: H.S Hall and S.R.Knight (HM Publications-1994)
3. Algebra, Analytical Geometry (2D) and Trigonometry: Dr.S.Sudha (Emerald Publishers)
4. Algebra and Tigonometry (I&II): P.R.Vittal (Margham Publishers)

CORE PAPER - 2

DIFFERENTIAL CALCULUS

UNIT I (12 hrs)

Differential Calculus: n^{th} Derivative; Leibnitz's theorem (without proof) and its applications; Partial differentiations, Total differentials; Jacobians.

Chapter 3: Sections 1.1 to 1.6, 2.1, 2.2.

UNIT II (12 hrs)

Differential Calculus: Maxima and Minima of functions of two independent variables, Necessary and sufficient conditions (without proof); Lagrange's method (without proof)

Chapter 8: Sections 4, 5.

UNIT III (12 hrs)

Curvature: Curvature; radius of curvature in Cartesian and polar coordinates; p-r equations;
Chapter 10: Sections 2.1, 2.3, 2.6, 2.7.

UNIT IV (12 hrs)

Centre of curvature, circle of curvature, envelopes, evolutes
Chapter 10: Sections 1.1 to 1.4, 2.2, 2.4 .

UNIT V (12 hrs)

Asymptotes: Methods (without proof) of finding asymptotes of rational algebraic curves with special cases, Intersections of a curve with its asymptotes.

Chapter 11: Sections 1 to 4, 5.1 to 5.3, 6, 7.

Content and Treatment as in Calculus by S.Narayanan, T.K.Manickavachagom Pillai Volume I (2018) (Viswanathan Publishers).

Reference Books:

1. Calculus: Dr. S.Sudha (Emerald Publishers)

2. Calculus(I&II): P.R.Vittal (Margham Publishers)

SEMESTER – II

CORE PAPER - 3

TRIGONOMETRY AND NUMBER THEORY

UNIT – I (12 hrs)

Trigonometry: Expansions of $sinx, cosx, tanx$in terms of x; Expansion of $sinnx$, $cosnx$, $tannx, sin^n x, cos^n x, sin^m x cos^n x$, hyperbolic and inverse hyperbolic functions

Chapter3: Sections1,2,3,4,4.1, 5, 5.1.; Chapter 4: 1,2, 2.1, 2.2, 2.3.

UNIT II (12 hrs)

Summation of series: Sums of sines and cosines of n angles which are in A.P.; Summation of trigonometric series using telescopic method, C+iS method.

Chapter 6 : Sections 1,2,3.

UNIT III (12 hrs)

Logarithms of Complex numbers.

Chapter 5 : Sections 5,5.1,5.2.

UNIT IV (12 hrs)

Number Theory: Prime number; Composite Number; decomposition of a composite number as a product of primes uniquely(without proof); divisors of a positive integer n; congruence modulon.
Chapter 5: Sections 1 to 11.

UNIT V (12 hrs)

Number Theory: Euler function(without proof); highest power of a prime number p contained in $n!$; Fermat's and Wilson's theorems.

Chapter 5: Sections 12 to 17.

Content and treatment as in

1. Trigonometry by T.K.Manikavachagom Pillai and others (S.Viswanathan publishers) (2018) for units I, II, III.

2. Algebra- Volume I (2018) and II (2015) by T.K.Manikavachagom Pillai and others (S.Viswanathan publishers) for units IV, V.

Reference Books:

1. Trigonometry: P.Duraipandian (Emerald Publishers)

2. Plane Trigonometry Part 2: S.L.Loney

3. Algebra and Trigonometry(I&II): P.R.Vittal (Margham Publishers)

CORE PAPER - 4

ANALYTICAL GEOMETRY

UNIT I (12 hrs)

Parabola: pole, polar, conormal points, concyclic points.
Ellipse : pole, polar, conormal points, conjugate lines, conjugate diameters.

Chapter 6 : Sections 4, 5, 6, 6.1, 8, 8.1, 8.2, 10, 11, 12; Chapter 7 : Sections 5, 6, 7, 7.1, 7.2, 10, 10.1, 12, 12.1, 16, 16.3 (1) to (5).

UNIT II (12 hrs)

Hyperbola: asymptotes, conjugate diameters.
Rectangular Hyperbola: conormal points, concyclic points.

Chapter 6 : Sections 8, 9, 10, 12, 13.

UNIT III (12 hrs)

Planes: Planes; General equation of a plane; normal form; intercept form; intersection of planes; angle between planes.
Chapter 2 : Sections 1 to 7, 9.

UNIT IV (12 hrs)

Straight Lines: Straight Lines; symmetric form; coplanar lines; shortest distance; image of a point and a line on a plane.

Chapter 3 : Sections 1 to 4, 7, 8.

UNIT V (12 hrs)

Sphere: Equation of a sphere; general equation; section of a sphere by a plane; tangent plane; orthogonal spheres.
Chapter 4 : Sections 1 to 8.

Content and treatment as in Analytical Geometry – Part I & II (2017): T.K.Manikavachagom Pillay, T.Natarajan (Viswanathan Publishers) – Part 1 for units I, II; Part 2 for units III, IV, V.

Reference Books:

1.Analytical Geometry of 2 dimensions: P.Duraipandian

2. Coordinate Geometry: Dr.P.Balasubramanian and Others(McGraw Hill publishers)

3. Calculus and coordinate geometry of two dimensions: P.R.Vittal (Margham Publishers)

4. Coordinate Geometry of 3 Dimensions and probability: P.R.Vittal (Margham Publishers)

SEMESTER - III

CORE PAPER -5

DIFFERENTIAL EQUATIONS AND LAPLACE TRANSFORMS

UNIT I (12 hrs)

Ordinary Differential Equations: First order but of higher degree equations- solvable for p, solvable for x, solvable for y, Clairaut's form.

Chapter 4: Sections 1 to 4.

UNIT II (12 hrs)

Ordinary Differential Equations: Second order differential equations with constant coefficients with particular integrals for e^{ax} x^m, e^{ax}sinmx, e^{ax}cosmx.Second order differential equations with variable coefficients $ax^2\frac{d^2y}{dx^2} + bx\frac{dy}{dx} + cy = q(x)$,Method of variation of parameters.
Chapter 5: Sections 1 to 6.

Chapter 8: Section 4

UNIT III (12 hrs)

Partial Differential Equations: Formation of PDE by eliminating arbitrary constants and arbitrary functions; Lagrange's equations Pp+Qq=R.
Chapter 12 : Sections 1 to 4.

UNIT IV (12 hrs)

Partial Differential Equations: complete integral; singular integral; general integral; Charpit's method and standard types f(p,q)=0, f(x,p,q)=0, f(y,p,q)=0, f(z,p,q)=0, f(x,p)=f(y,q);Clairaut's form
Chapter 12 : Sections 5 and 6.

UNIT V (12 hrs)

Laplace transform: Laplace transform; inverse Laplace transform(usual types); applications of Laplace transform to solution of first and second order linear differential equations(constant coefficients) and simultaneous linear differential equations.
Chapter 9.

Content and treatment as inDifferential Equations and Laplace transforms by S.Natarajan T.K.Manikavachagom Pillay (2017), (Viswanathan Publishers).

Reference Books:

1. Integral Calculus and differential equations: Dipak Chatterjee (TataMcGraw Hill Publishing Comp Ltd)
2. Advanced Engineering Mathematics:Erwin Kreyszig (John Wiley and sons New York 1999)
3. Calculus: Narayanan and others (S.Viswanathan Publishers)
4. Differential Equations and Integral Transforms: Dr.S.Sudha(Emerald Publishers)

CORE PAPER -6

INTEGRAL CALCULUSAND VECTOR ANALYSIS

UNIT I (12 hrs)

Integral calculus: Reduction Formula for $\int_0^{\frac{\pi}{2}} sin^m x\, cos^n x\, dx$, $\int_0^{\frac{\pi}{2}} cos^m x\, cos\, nx\, dx$, $\int_0^{\frac{\pi}{2}} cos^m x\, sin\, nx\, dx$,Beta and Gamma functions, properties.
Chapter 1: Sections 1.3, 13.1 to 13.5, 13.10.

UNIT II (12 hrs)

Multiple Integrals: Double integrals, Change of order of integration, triple integrals, area and volume using Cartesian coordinates.
Chapter 5: Sections 2.1, 2.2, 6.3.

UNIT III (12 hrs)

Fourier Series: Introduction, Expansions of periodic function of period 2π; expansion of even and odd functions; half range cosine and sine series.

Chapter 2 : Sections 1,2,3,3.1,3.2,4,5.1,5.2.

UNIT IV (12 hrs)

Vector Differentiation: Gradient, divergence, curl, directional derivative, unit normal vector to a surface.
Chapter 8 : Sections 17, 18, 19, 21.

UNIT V (12 hrs)

Vector Integration: Line, Surface and volume integrals; theorems of Gauss, Stoke's and Green (without proof) -problems.

Chapter 8: Sections 2, 5, 6, 8.2, 9, 10.
Contents and treatment as in

1. Calculus Volume II(2018), by S.Narayanan, T.K.Manickavachagom Pillai (S.Viswanathan Publishers) for units I, II.
2. Vector Calculus by P. Kandasamy, Thilagavathi for units III, IV, V.

Reference Books:

1. Vector Analysis: Murray Spiegel (Schaum Publishing Company, New York)
2. Integral calculus and differential equations by Dipak Chattrjee (TATA McGraw Hill publishing company Ltd.)
3. Integral Calculus by Shanti Narayanan
4. Vector Algebra and Analysis by S.Narayanan, T.K.Manickavachagom Pillai (S. Viswanathan Publishers.

SEMESTER - IV

CORE PAPER - 7

MATHEMATICAL STATISTICS

UNIT I : (12 hrs)

Statistics: Introduction, measures of central tendency- measures of dispersion- skewness-kurtosis.
Ch.2- 2.1 to 2.11(omit 2.11.1) Ch.3- 3.1 to 3.12 (omit 3.9.2, 3.9.3, 3.9.4)

UNIT II : (12 hrs)

Correlation: scatter diagram, Karl-Pearson coefficient of correlation - Probable error of correlation coefficient, Rank correlation.

Regression: - Lines of regression, Regression coefficients and its properties, angle between two lines of regression.

Ch.10- 10.1 to 10.6.1 (omit 10.4), 10.7 : 10.7.1, 10.7.3 to 10.7.5

UNIT III : (12 hrs)

Cumulants ,Characteristic function – Uniqueness and inversion theorems (Statements and applications only) , Chebychev's inequality.

Curve fitting and principle of Least square: Fitting of straight line, parabola, power curve, exponential curves.

Ch.6- 6.10 to 6.12. Ch.9- 9.1,9.3.

UNIT IV : (12 hrs)

Random Variables (Discrete and continuous), Distribution function- Expected values , variance Moment generating function- probability generating function.

Ch.5- 5.1 to 5.4.1, 5.4.3 Ch 6: 6.1, 6.9 sec. 6.9.1.

UNIT V : (12 hrs)

Standard distributions – Binomial, Poisson, Normal and Uniform distributions-Geometric, Exponential , Inter- relationship among distributions.

Ch.7- 7.2.1 to 7.2.3, 7.2.5 to 7.2.8, 7.3.1 to 7.3.7. Ch.8- 8.1 to 8.1.4, 8.2 to 8.2.9, 8.3, 8.6.

Content and treatment as in " Elements of Mathematical Statistics" by S.C Gupta and V.K.Kapoor(Third Edition), S.Chand Publishers

Reference Books:

1. Hogg R.V. & Craig A.T. 1988): Introduction to Mathematical Statistics, Mcmillan.
2. Mood A.M & Graybill F.A & Boes D.G (1974) : Introduction to theory of Statistics, Mcgraw Hill.
3. Dr.P.R.Vittal, Mathematical Statistics, Margham publications.

CORE PAPER- 8

STATICS

UNIT – I (12 hrs)

Newton's laws of motion - resultant of two forces on a particle- Equilibrium of a particle- Limiting Equilibrium of a particle on an inclined plane.

Chapter 2 - Section 2 .1 , 2.2 , Chapter 3 - Section 3.1 and 3.2

UNIT – II (12 hrs)

Forces on a rigid body – moment of a force – general motion of a rigid body- equivalent systems of forces – parallel forces – forces along the sides of a triangle – couples.

Chapter 4 - Section 4 .1 to 4.6

UNIT – III (12 hrs)

Resultant of several coplanar forces- equation of the line of action of the resultant- Equilibrium of a rigid body under three coplanar forces – Reduction of coplanar forces into a force and a couple.- problems involving frictional forces.

Chapter 4 - Section 4.7 to 4.9 , Chapter 5 - Section 5.1, 5.2

UNIT – IV (12 hrs)

Centre of mass – finding mass centre – a hanging body in equilibrium – stability of equilibrium – stability using differentiation.

Chapter 6 - Section 6.1 to 6.3 , Chapter 7 - Section 7.1, 7.2

UNIT – V (12 hrs)

Virtual work – hanging strings- equilibrium of a uniform homogeneous string – suspension bridge

Chapter 8 - Section 8.1, Chapter 9 - Section 9.1, 9.2

Contents and treatment as in "Mechanics – P. Duraipandian , Laxmi Duraipandian , Muthamizh Jayapragasham, S. Chand and Co limited (2008) .

Reference Books:

1. Dynamics – K. Viswanatha Naik and M. S. Kasi, Emerald Publishers.
2. Dynamics – A. V. Dharmapadam, S. Viswanathan Publishers.
3. Mechanics – Walter Grenier

SEMESTER-V

CORE PAPER- 9

ALGEBRAIC STRUCTURES

UNIT - I (18 hrs)

Introduction to groups, Subgroups, cyclic groups and properties of cyclic groups; Lagrange's Theorem; A counting principle

Chapter 2 Section 2.4 and 2.5

UNIT – II (18 hrs)

Normal subgroups and Quotient group; Homomorphism; Automorphism.

Chapter 2 Section 2.6 to 2.8

UNIT – III (18 hrs)

Cayley's Theorem; Permutation groups.

Chapter 2 Section 2.9 and 2.10

UNIT – IV (18 hrs)

Definition and examples of ring- Some special classes of rings; homomorphism of rings; Ideals and quotient rings; More ideals and quotient rings.

Chapter 3 Section 3.1 to 3..5

UNIT – V (18 hrs)

The field of quotients of an integral domain; Euclidean Rings; The particular Euclidean ring.

Chapter 3 Section 3.6 to 3.8

Contents and treatment as in **"**Topics in Algebra" – I. N. Herstein, Wiley Eastern Ltd.

Reference Books

1. Modern Algebra by M.L.Santiago
2. Modern Algebra by S. Arumugam and others, New Gamma publishing House, Palayamkottai.
3. Modern Algebra by Visvanathan Nayak.

CORE PAPER- 10

REAL ANALYSIS -I

UNIT – I (18 hrs)

Sets and elements; Operations on sets; functions; real valued functions; equivalence; countability ; real numbers; least upper bounds.

Chapter 1 Section 1. 1 to 1.7

UNIT – II (18 hrs)

Definition of a sequence and subsequence; limit of a sequence; convergent sequences; divergent sequences; bounded sequences; monotone sequences;

Chapter 2 Section 2.1 to 2.6

UNIT – III (18 hrs)

Operations on convergent sequences; operations on divergent sequences; limit superior and limit inferior; Cauchy sequences.

Chapter 2 Section 2.7 to 2.10

UNIT- IV (18 hrs)

Convergence and divergence; series with non-negative numbers; alternating series; conditional convergence and absolute convergence; tests for absolute convergence; series whose terms form a non-increasing sequence; the class l^2

Chapter 3 Section 3.1 to 3.4, 3.6, 3.7 and 3.10

UNIT – V (18 hrs)

Limit of a function on a real line;. Metric spaces; Limits in metric spaces.Function continuous at a point on the real line, reformulation, Function continuous on a metric space.

Chapter 4 Section 4.1 to 4.3 Chapter 5 Section 5.1-5.3

Content and Treatment as in **"**Methods of Real Analysis" by Richard R. Goldberg (Oxford and IBH Publishing Co.)

Reference Books

1. Principles of Mathematical Analysis by Walter Rudin

2. Mathematical Analysis by Tom M Apostol.

CORE PAPER- 11

DYNAMICS

UNIT – I (18 hrs)

Basic units – velocity – acceleration- coplanar motion – rectilinear motion under constant forces – acceleration and retardation – thrust on a plane – motion along a vertical line under gravity – motion along an inclined plane - motion of connected particles.

Chapter 1 - Section 1.1 to 1.4, Chapter 10 - Section 10.1 to10.3, 10.5, 10.6.

UNIT – II (18 hrs)

Work, Energy and power – work – conservative field of force – power – Rectilinear motion under varying Force simple harmonic motion– S.H.M. along a horizontal line- S.H.M. along a vertical line – motion under gravity in a resisting medium.

Chapter 11 - Section 11.1to 11.3 , Chapter 12 - Section 12.1 to 12.4

UNIT – III (18 hrs)

Forces on a projectile- projectile projected on an inclined plane, Impact: impact of sphere - impact of two smooth spheres – impact of a smooth sphere on a plane – oblique impact of two smooth spheres

Chapter 13 - Section 13.1 to 13.3, Chapter 14 - Section 14.2 to 14.5

UNIT – IV (18 hrs)

Circular motion – simple pendulum, central orbits -general orbits - central orbits- conic as central orbit.

Chapter 15 - Section 15.1, 15.6, Chapter 16 - Section 16.1 to 16.3

UNIT – V (18 hrs)

Moment of inertia. Two dimensional motion of a rigid body –equations of motion for two dimensional motion – theory of dimensions- definition of dimensions.

Chapter 17 -Section 17.1 : cases 1 to 12, Bookworks 17.1, 17.2; Chapter 18 - Sections 18.1.1, 18.1.2, 18.2, Chapter 19 - Section 19.1

Contents and treatment as in **"**Mechanics**"**– P. Duraipandian , Laxmi Duraipandian , Muthamizh Jayapragasham, S. Chand and Co limited (2008) .

Reference Books:

1. Dynamics – K. Viswanatha Naik and M. S. Kasi, Emerald Publishers.
2. Dynamics – A. V. Dharmapadam, S. Viswanathan Publishers.
3. Mechanics – Walter Grenier

CORE PAPER - 12

PROGRAMMING LANGUAGE 'C' WITH PRACTICAL

THEORY

UNIT – I (12 hrs)

Introduction. Constants-Variables-Data-types (Fundamental and user defined) Operators-Precedence of operators – Library functions.

Chapter 2 Sections 2.1 - 2.8 , Chapter 3 Sections 3.1 – 3.12.

UNIT – II (12 hrs)

Input ,Output statements-Escape sequences.Formatted outputs – Storage classes -Compiler directives.
Decision making and branching: Simple if, if else, nested if, else if ladder and switch statement – conditional operator – go to statement.

Chapter 4 Sections 4.2 – 4.5, Chapter 5 Sections 5.1 – 5.9 .

UNIT – III (12 hrs)

Decision making and looping : while, do while and for statement – nested for loops – continue and break statements.
Arrays: One dimensional and 2 dimensional arrays – declarations – initialization of arrays
Chapter 6 Sections 6.1 – 6.5, Chapter 7 Sections 7.1 – 7.5.

UNIT – IV (12 hrs)

Operation on strings-String handling functions.
Functions : Function definition and declaration.
Chapter 8 Sections 8.1 – 8.8, Chapter 9 Sections 9.1 – 9.8

UNIT – V (12 hrs)
Function : – Categories of functions, Nesting of function, Recursion.
Pointers : Introduction, Understanding pointers, declaration and initialisation of pointers.

Chapter 9 Section 9.9 to 9.16,Chapter 11 Sections 11.1-11.5.

Content and Treatment as in
Programming in ANSI C 6th edition by E.Balagurusamy, Tata-Mcgraw Hill Publishing Company.

Reference Books:

1. Venugopal, programming in C
2. Gottfied, B.S : programming with C , Schuam's outline series, TMH 2001
3. Yashvant Kanitkar, Let us "C" BPB Publications.

PRACTICAL **(30 hrs)**

Writing "C" programs for the following:

1. To convert centigrade to Fahrenheit
2. To find the area, circumference of a circle
3. To convert days into months and days
4. To solve a quadratic equation
5. To find sum of n numbers
6. To find the largest and smallest numbers
7. To generate Pascal's triangle, Floyd's triangle
8. To find the trace of a matrix
9. To add and subtract two matrices
10. To multiply two matrices
11. To generate Fibonacci series using functions
12. To compute factorial of a given number, using functions
13. To add complex numbers using functions
14. To concatenate two strings using string handling functions

INTER DISCIPLINARY ELECTIVE

NUMERICAL ANALYSIS

UNIT I (18 hrs)

Solutions of algebraic and transcendental equations, Bisection method, Iteration method, Regula falsi method, Newton - Raphson method.

Chapter 1: Sections 1.1- 1.4

UNIT II (18 hrs)

Solutions of simultaneous linear equations : Gauss - elimination method, Gauss – Jordan method, Gauss – Siedel method, Crout's method.
2: Sections 2.1 – 2.3

UNIT III (18 hrs)

E - operators and relation between them, Differences of a polynomial, Factorial polynomials differences of zero, summation series.

Chapter 3: Sections 3.1- 3.7

UNIT IV (18 hrs)

Newton's forward and backward interpolation formulae, Central differences formulae – Gauss forward and backward formulae, Sterling's formula and Bessel's formula.

Chapter 4: Sections 4.1- 4.3, Chapter 5: Sections 5.1 – 5.6

UNIT V (18 hrs)

Interpolation with unequal intervals: Divided differences and Newton's divided differences formula for interpolation and Lagrange's formula for interpolation; Inverse interpolation – Lagrange's method, Reversion of series method.

Chapter 6: Sections 6.1 – 6.8

Content and treatment as inCalculus of finite differences and Numerical analysis - P. Kandasamy, Thilagavathy.K ;S. Chand Publications.

Reference books:

1. Numerical methods – S. Arumugam, A. Thangapandi Isaac, A. somasundaram, SciTech publications.
2. Numerical methods – E. Balagurusamy, McGraw Hill Education.
3. Numerical methods – S Kalavathy, Joice Punitha
4. Numerical methods – G. Balaji.

SEMESTER-VI

CORE PAPER- 13

LINEAR ALGEBRA

UNIT – I

Vector spaces. Elementary basic concepts; linear independence and bases
Chapter 4 Section 4.1 and 4.2 (18 hrs)

UNIT – II

Dual spaces
Chapter 4 Section 4.3 (18 hrs)

UNIT – III

Inner product spaces.
Chapter 4 Section 4.4 (18 hrs)

UNIT – IV

Algebra of linear transformations; characteristic roots.
Chapter 6 Section 6.1 and 6.2 (18 hrs)

UNIT – V

Matrices; canonical forms; triangular forms.
Chapter 6 Section 6.3 and 6.4 (18 hrs)

Treatment and content as in **"**Topics in Algebra" – I. N. Herstein-Wiley Eastern Ltd.

Reference Books:

1. University Algebra – N. S. Gopalakrishnan – New Age International Publications, Wiley Eastern Ltd.

2. First course in Algebra – John B. Fraleigh, Addison Wesley.

3. Text Book of Algebra – R. Balakrishna and N. Ramabadran, Vikas publishing Co.

4. Algebra – S. Arumugam, New Gamma publishing house, Palayamkottai.

CORE PAPER – 14

REAL ANALYSIS -II

UNIT – I (18 hrs)

Open sets; closed sets; Discontinuous function on R^1. More about open sets;Connected sets.

Chapter 5 Section 5.4 to 5.6 Chapter 6 Section 6.1 and 6.2

UNIT – II (18 hrs)

Bounded sets and totally bounded sets: Complete metric spaces; compact metric spaces, continuous functions on a compact metric space, continuity of inverse functions, uniform continuity.

Chapter 6 Section 6.3 to 6.8

UNIT – III (18 hrs)

Sets of measure zero, definition of the Riemann integral, existence of the Riemann integral; properties of Riemann integral.

Chapter 7 Section 7.1 to 7.4

UNIT – IV (18 hrs)

Derivatives; Rolle"s theorem, Law of mean, Fundamental theorems of calculus.

Chapter 7 Section 7.5 to 7.8

UNIT – V (18 hrs)

Taylor's theorem; Pointwise convergence of sequences of functions, uniform convergence of sequences of functions.

Chapter 8 Section 8.5 Chapter 9 Section 9.1 and 9.2

Content and Treatment as in **"**Methods of Real Analysis**"**- Richard R. Goldberg (Oxford and IBH Publishing Co)

Reference Books:

1. Principles of Mathematical Analysis by Walter Rudin

2. Mathematical Analysis Tom M Apostol

3. Real Analysis – S. K. Mapa.

CORE PAPER – 15

COMPLEX ANALYSIS

UNIT – I (18 hrs)

Functions of a complex variable - mappings, limits - theorems on limits, continuity,derivatives, differentiation formulae - Cauchy-Riemann equations - sufficient conditions for differentiability- Cauchy-Riemann equations in polar form - Analytic functions - Harmonic functions.

Chapter 2 Section 11, 12, 14 to 21 and 2 to 25.

UNIT – II (18 Hrs)

Linear transformations - The transformation w = 1/z - linear fractional transformations - an implicit form - exponential and logarithmic transformations – transformation w = sin z - Preservation of angles.

Chapter 8 Section 8 to 87, 89, Chapter 2 : Section 13, Chapter 9 : 94.

UNIT – III (18 hrs)

Contours - contour integrals - Anti derivatives - Cauchy-Goursat theorem. Cauchy integral formula - derivatives of analytic function – Liouvillie's theorem and fundamental theorem of algebra -maximum moduli of functions.

Chapter 4 Sections 38 to 45, 47 to 50.

UNIT – IV (18 hrs)

Convergence of sequences and series – Taylor's series –Laurent's series - zeros of analytic functions.

Chapter 5 Section 51 to 56.

UNIT – V (18 hrs)

Residues - Residue theorems- Three types of isolated singular points- Residues at poles- Zeros and poles of order "m" - Evaluation of improper integrals – Improper integrals involving sines and cosines - Definite integrals involving sines and cosines – Argument principle and Rouche's theorem.

Chapter 7 Sections 71 to 74, 79, 80.

Content and treatment as in

Complex variables and Applications (Seventh Edition) by James Ward Brown and Ruel V.Churchill, Mc.Grawhill Inc.

Reference Books:

1. Theory and problems of Complex Variables – Murray R.Spiegel, Schaum outline series
2. Complex Analysis – P.Duraipandian
3. Introduction to Complex Analysis S. Ponnuswamy , Narosa Publishers 1993

ELECTIVE - 1

OPERATIONS RESEARCH

UNIT – I (18 hrs)

Linear programming: Formulation – graphical solution – simplex method, Big-M method.
Chapter 2: Sections 2.1-2.7, Chapter 3: Sections 3.1 – 3.5.

UNIT – II (18 hrs)

Transportation problem, Assignment problem.

Chapter 6: Sections 6.1-6.9, Chapter 7: Sections 7.1- 7.5.

UNIT – III (18 hrs)

Sequencing problem: n jobs through 2 machines – n jobs through 3 machines – two jobs through m machines – n jobs through m machines;
Game theory: Two person Zero-sum game with saddle point – without saddle point – dominance – solving 2 x n or m x 2 game by graphical method.

Chapter 10: Sections 10.1 – 10.5, Chapter 9: Sections 9.1 – 9.7.

UNIT – IV (18 hrs)

Queueing theory : Basic concepts - Steady state analysis of M/M/1 and M/M/S models with infinite and finite capacities.
Chapter 17: Sections 7.1 - 7.10

UNIT – V (18 hrs)

PERT and CPM: Project network diagram – Critical path (crashing excluded) – PERT computations.
Chapter 21: Sections 21.1 – 21.8.
Content and treatment as in Operations Research by Kanti Swaroop, Gupta P.K. and Manmohan, Sultan Chand & sons.(Eighth edition).

Books for reference:

1. Gauss S.I. – Linear programming, Mc Graw – Hill Book company.
2. Gupta P.K. and Hira D.S. – Problems in Operations Research, S.Chand & Co.
3. Kanti Swaroop, Gupta P.K. and Manmohan – Problems in Operations Research, Sultan Chand & sons.
4. Ravindran A., Philips D.T. and Solberg J.J. – Operations Research, John Wiley & Sons.
5. Taha H.A. – Operations Research, Macmillan publishing Company, New York.
6. Dr. Paria – Linear programming, transportation, assignment game, Books and Allied (p) Ltd., 1999.

ELECTIVE- 2

GRAPH THEORY

UNIT – I

Graphs, sub graphs, degree of a vertex, isomorphism of graphs, independent sets and coverings, intersection graphs and line graphs, adjacency and incidence matrices, operations on graphs,

Chapter 2 Sections 2.0 – 2.9 (18 hrs)

UNIT – II

Degree sequences and graphic sequences – simple problems. Connectedness, walks, trails, paths, components, bridge, block, connectivity .

Chapter 3 Sections 3.0 – 3.2 , Chapter 4 Sections 4.0 – 4.4 (18 hrs)

UNIT – III

Eulerian and Hamiltonian graphs

Chapter 5 Sections 5.0 – 5.2 (18 hrs)

UNIT – IV

Trees , problems.

Planarity : Definition and properties, characterization of planar graphs.

Chapter 6 Sections 6.0 – 6.2 ,Chapter 8 Sections 8.0 – 8.2 (18 hrs)

UNIT – V

Digraphs and matrices, tournaments, some application connector problem

Chapter 10 Sections 10.0 – 10.4 , Chapter 11 Sections 11.0 – 11.1 (18 hrs)

Content and treatment as in "Invitation to Graph Theory**"** by S.Arumugam and S.Ramachandran, New Gamma Publishing House, Palayamkottai

Reference Books:

1. A first book at graph theory by John Clark and Derek Allan Holton, Allied publishers
2. Graph Theory by S.Kumaravelu and Susheela Kumaravelu,Publishers authors C/o 182 Chidambara Nagar, Nagarkoil

ALLIED PAPER - 1

MATHEMATICS-I

(For Physics and Chemistry)

UNIT-I (15 hrs)

ALGEBRA: Partial Fractions, binomial, exponential and logarithmic series(without proof) summation and approximations.

Chapter 1 : Sections 1.1 to 1.4.

UNIT-II (30 hrs)

THEORY OF EQUATIONS: Polynomial equations with real coefficients, irrational roots, complex roots, transformation of equation by increasing or decreasing roots by a constant, reciprocal equations. Newton's method to find a root approximately.

Chapter 2: Sections 2.1 to 2.4, 2.7.

UNIT-III (15 hrs)

MATRICES: Symmetric, Skew-Symmetric, Hermitian, Skew-Hermitian matrices, Orthogonal and Unitary Matrices. Characteristic roots and characteristic vectors-Cayley- Hamilton theorem(statement only) verification, to find the inverse using the above theorem.

Chapter 3: Sections 3.1, 3.4,.

UNIT-IV (30 hrs)

FINITE DIFFERENCES: Operator E, difference tables, Newton's forward and backward interpolation formulae, Lagrange's interpolation formulae.
Chapter 4: Sections 4, 4.1, 4.3.

TRIGONOMETRY: Expansions of $\sin n\theta$, $\cos n\theta$, $\tan n\theta$. Expansions of $\sin^n\theta$,$\cos^n\theta$,$\tan^n\theta$. Hyperbolic and inverse hyperbolic function.

Chapter 5: Sections 5.1, 5.2, 5.4,

UNIT-V (30 hrs)

DIFFERENTIAL CALCULUS: n^{th} derivatives, Leibnitz theorem (without proof) and applications, Jacobians. Curvature and radius of curvature in Cartesian coordinates, maxima and minima of functions of two variables, Lagrange's Multipliers.

Chapter 6 : Sections 6.1, 6.2, 6.4, 6.5.

Contents and treatment as in **"**Ancillary Mathematics: S.Narayanan and T.K.Manickavasagam pillai (Viswanathan Printers)"- Volume I (2015).

Reference books:

1. Allied Mathematics Volume I&II: P.Kandasamy and K.Thilagavathi (S.Chand and Co.)
2. Ancillary Mathematics Volume I&II: P.Balasubramanian & K.G.Subramanian.
3. Allied Mathematics: P.R.Vittal (Margham Publications)

ALLIED PAPER - 2
MATHEMATICS-II
(For Physics and Chemistry)

UNIT-I (30 hrs)

Integral Calculus: Integration by parts, Reduction formulae - $\int_0^{\frac{\pi}{2}} sin^n x\, dx$, $\int_0^{\frac{\pi}{2}} cos^n x\, dx$, $\int_0^{\frac{\pi}{2}} sin^m x\, cos^n x\, dx$,multiple integrals,Fourier series for functions in(0,2π).

Chapter 1: Sections 13.3, 13.4, 13.5; Chapter 2:Sections 1,2; Chapter 3: Sections 1 to 3.

UNIT-II (15 hrs)

Ordinary Differential Equations: Second order linear differential equations with constant coefficients. ay''+ by'+ cy = ϕ(x), where ϕ(x)=x^m, e^{ax} x^m, e^{ax} sinmx, e^{ax} cosmx.

Chapter6: Sections 1 - 4

UNIT-III (30 hrs)

Partial Differential Equations: Formation, complete integrals and general integrals, four standard types of Lagrange's equations.

Chapter 12: Sections 1 - 5.4

UNIT-IV (15 hrs)

Laplace Transforms: Laplace transformations of standard functions and simple properties, inverse Laplace transforms, Solving Differential equations of second order with constant coefficients using Laplace transform.

Chapter 7 (omit simultaneous equation)

UNIT-V (30 hrs)

Vector Analysis: Scalar point functions, Vector point functions, gradient, divergence, curl, directional derivatives, unit normal to a surface. Line and surface integrals, Gauss, Stoke's and Green's theorems (without proof)- verification only.

Chapter 8: Sections 8.1 to 8.10
Contents and treatment as in

1. **"**Ancillary Mathematics**"**: S.Narayanan and T.K.Manickavachagom pillai (Viswanathan Printers)"- Volume II . (2015)for units I, IV, V
2. "Differential Equations & its Applications" by S.Narayanan and T.K.Manickavachagom pillai (Viswanathan Printers)" for units II, III. (2017).

Reference books:

1. Allied Mathematics Volume I&II: P.Kandasamy and K.Thilagavathi (S.Chand and Co.)
2. Ancillary Mathematics Volume I&II: P.Balasubramanian & K.G.Subramanian.
3. Allied Mathematics: P.R.Vittal (Margham Publications)

SEMESTER – I

NON MAJOR ELECTIVE - I

FUNCTIONAL MATHEMATICS – I

Credit – 2

UNIT – I

Ratio and Proportion

Chapter 12 (6 hrs.)

UNIT – II

Percentages

Chapter 10 (6 hrs.)

UNIT- III

Profit and Loss, Discounts.

Chapter 11 (6 hrs.)

UNIT- IV

Simple Interest and Compound Interest

Chapters 21,22. (6 hrs.)

UNIT – V

Solutions of Simultaneous equations and problems on ages and two digit numbers.

Chapters 7,8. (6 hrs.)

Book for Reference: Quantitative Aptitude R. S. Agarwal.

SEMESTER - II

NON MAJOR ELECTIVE - II

FUNCTIONAL MATHEMATICS – II

Credit – 2

UNIT – I

Time and work – pipes and cisterns – Problem.

Chapters 15,16. (6 hrs.)

UNIT – II

Time and distance – Relative speeds – Problems on Races.

Chapter 17, 26. (6 hrs.)

UNIT- III

Boats and Streams, Problems on Trains

Chapter 18,19. (6 hrs.)

UNIT- IV

Mensuration

Chapters 24,25. (6 hrs.)

UNIT – V

Stocks & Shares

Chapter 29 (6 hrs.)

Book for Reference: Quantitative Aptitude R. S. Agarwal.

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A - Grade' by NAAC
(Affiliated to the University of Madras)

BACHELOR OF SCIENCE
B.Sc (Physics)

(SEMESTER PATTERN WITH CHOICE BASED CREDIT SYSTEM)

Syllabus

(For the Candidates admitted in 2019 - 2020 and thereafter)

VISION

To inculcate the conceptual knowledge in Physics and making them skillful using "State of Art" teaching methodology.

MISSION

The physics department is committed to impart quality education in theoretical as well as experimental physics with special emphasis on 'learning by doing' to promote Science and technology

PROGRAMME OUTCOME

PO 1**: Interpret** the motion and behavior of matter through space and time, using related concepts.

PO 2: **Establishes** the "validity of Physical theories in a Scientific Method".

PO 3: **Develop** a methodical approach to compare the implications of a theory with the conclusions drawn from its related experiments.

PO 4: **Analyse** the Observations to test the validity of a theory in a logical, unbiased, and repeatable way.

PO 5: **Update** the students to the need of the hour through Integrated electronics and Microprocessors and Microcontrollers

PROGRAMME SPECIFIC OUTCOME

The students at the time of graduation will be able to

PSO1: Prepare the students for higher studies and Research through Numerical analysis and mathematical methods involved in physics

PSO2 : Subject wisdom gained for multitasking that is required for facing challenges in the competitive world

B.Sc., DEGREE COURSE IN PHYSICS
Course structure for 2019– 2022 batch

Semester	Part	Course Component	Subject Code	Subject Name	Credits	Hours	Max. Marks		
							CIA	ESE	Total
Semester I	I	LANGUAGE - I	19UTAM141	TAMIL - I	3	6	50	50	100
			19UHIN141	HINDI - I					
	II	ENGLISH	19UENG241	ENGLISH I	3	4	50	50	100
	III	CORE – 1	19UPHY301	MECHANICS AND PROPERTIES OF MATTER	4	5	50	50	100
		CORE PRACTICAL - I	19UPHY302P	PRACTICAL GENERAL I	*	3	*	*	*
		ALLIED - I	19UCHE331	ALLIED CHEMISTRY -I	4	5	50	50	100
		ALLIED PRACTICAL- I	19UCHE332P	ALLIED CHEMISTRY PRACTICAL-I	*	3	*	*	*
	IV	NME	19UBAT401	BASIC TAMIL - I	2	2	-	100	100
			19UBAH401	BASIC HINDI - I					
			19UNME401D	ASTRO PHYSICS					
		SOFT SKILL	19UGSL401	INTRODUCTION TO STUDY SKILLS	3	2	-	100	100
	CREDIT TOTAL = 19; TOTAL HOURS =30								
Semester II	I	LANGUAGE -II	19UTAM142	TAMIL – II	3	6	50	50	100
			19UHIN142	HINDI - II					
	II	ENGLISH	19UENG242	ENGLISH - II	3	4	50	50	100
	III	CORE THEORY - 2	19UPHY303	THERMAL PHYSICS & ACOUSTICS	4	5	50	50	100
		CORE PRACTICAL - I	19UPHY302P	PRACTICAL GENERAL I	4	3	50	50	100
		ALLIED - II	19UCHE335	ALLIED CHEMISTRY – II	4	5	50	50	100
		ALLIED PRACTICAL-I	19UCHE332P	ALLIED CHEMISTRY PRACTICAL -II	2	3	50	50	100
	IV	NME	19UBAT402	BASIC TAMIL - II	2	2	-	100	100
			19UBAH402	BASIC HINDI - II					
			19UNME402D	NON-CONVENTIONAL ENERGY SOURCES					
		SOFT SKILL	19UGSL402	LIFE SKILLS	3	2	50	50	100
	CREDIT TOTAL = 25; TOTAL HOURS =30								
Semester III	I	LANGUAGE - III	19UTAM143	TAMIL - III	3	6	50	50	100
			19UHIN143	HINDI - III					
	II	ENGLISH	19UENG243	ENGLISH - III	3	4	50	50	100
	III	CORE THEORY - 3	19UPHY304	OPTICS AND SPECTROSCOPY	4	5	50	50	100
		CORE PRACTICAL - 2	19UPHY305P	PRACTICAL GENERAL - II	*	3	*	*	*
		ALLIED –II	19UMAT331	MATHEMATICS - I	5	8	50	50	100
	IV	SOFT SKILL	19UGSL403	JOB ORIENTED SKILLS	3	2	50	50	100
		NME	19UEVS401	ENVIRONMENTAL STUDIES	*	2	*	*	*
	CREDIT TOTAL = 18; TOTAL HOURS = 30								

Semester	Part	Course Component	Subject Code	Subject Name	Credits	Hours	Max. Marks		
							CIA	ESE	Total
Semester IV	I	LANGUAGE -IV	19UTAM144	TAMIL - IV	3	6	50	50	100
			19UHIN144	HINDI - IV					
	II	ENGLISH	19UENG244	ENGLISH - IV	3	4	50	50	100
	III	CORE THEORY - 4	19UPHY306	ELECTRICITY AND ELECTROMAGNETISM	4	5	50	50	100
		CORE PRACTICAL- 2	19UPHY305P	PRACTICAL GENERAL - II	4	3	50	50	100
		ALLIED - II	19UMAT332	MATHEMATICS - II	5	8	50	50	100
	IV	NME	19UEVS401	ENVIRONMENTAL STUDIES	2	2	-	100	100
		SOFT SKILL	19UGSL404	COMPUTING SKILL	3	2	50	50	100
		CREDIT TOTAL = 24; TOTAL HOURS = 30							
Semester V	III	CORE THEORY - 5	19UPHY307	ATOMIC PHYSICS	4	5	50	50	100
		CORE THEORY - 6	19UPHY308	NUCLEAR PHYSICS AND PARTICLE PHYSICS	4	5	50	50	100
		CORE THEORY - 7	19UPHY309	SOLID STATE PHYSICS AND ELECTRONICS	4	5	50	50	100
		CORE THEORY - 8	19UIDE304	INTRODUCTION TO INTEGRATED ELECTRONICS	5	5	50	50	100
		CORE PRACTICAL- 3	19UPHY311P	PRACTICAL GENERAL - III	*	2	*	*	*
		CORE PRACTICAL - 4	19UPHY312P	PRACTICAL ELECTRONICS - I	*	2	*	*	*
		CORE PRACTICAL - 5	19UPHY313P	MICRO PROCESSOR AND INTEGRATED ELECTRONICS - PRACTICAL	*	2	*	*	*
		ELECTIVE - 1	19UPHY310	NUMERICAL METHODS ***	4	4	50	50	100
	IV		19UVED401	VALUE EDUCATION	2		50	50	100
				INTERNSHIP	2				
		CREDIT TOTAL = 25; TOTAL HOURS = 30							
Semester VI	III	CORE THEORY - 9	19UPHY314	RELATIVITY AND QUANTUM MECHANICS	5	6	50	50	100
		CORE THEORY- 10	19UPHY315	MATHEMATICAL METHODS IN PHYSICS	5	6	50	50	100
		ELECTIVE – 2	19UPHY316	INTEGRATED ELECTRONICS ***	5	6	50	50	100
		ELECTIVE - 3	19UPHY317	MICROPROCESSOR FUNDAMENTALS***	5	6	50	50	100
		CORE PRACTICAL - 3	19UPHY311P	PRACTICAL GENERAL - III	4	2	50	50	100
		CORE PRACTICAL - 4	19UPHY312P	PRACTICAL ELECTRONICS - I	4	2	50	50	100
		CORE PRACTICAL- 5	19UPHY313P	MICRO PROCESSOR AND INTEGRATED ELECTRONICS – PRACTICAL	2	2	50	50	100
	IV		19UEXT501	EXTENSION ACTIVITIES	1				
		CREDIT TOTAL = 31; TOTAL HOURS = 30							
		OVERALL CREDIT TOTAL = 142 / OVERALL HOURS TOTAL = 180							

* The Practical Examinations will be conducted at the end of even semester.

** The Students must choose one NME paper in semester – I and one NME paper in semester – II.

*** The student must choose one Elective paper in Semester – V and Two Elective papers in Semester - VI from the list of offered electives.

SEMESTER - I

CORE THEORY –1: MECHANICS AND PROPERTIES OF MATTER

SUBJECTCODE: 19UPHY301	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 75**

Objectives:

Course Objective: To make the students understand dynamics behind collisions and oscillations

Unit 1 : Impulse and Impact (15 Hours)

Impulse – impact – Laws of impact – direct impact and oblique impact between two smooth spheres – loss of kinetic energy – motion of two interacting bodies – reduced mass.

Rigid body dynamics

Compound pendulum – theory – equivalent simple pendulum – reversibility of centres of oscillation and suspension – determination of g and k – centre of mass – velocity and acceleration of centre of mass – determination of motion of individual particle – system of variable mass.

Unit 2 : Centre of gravity and centre of pressure (15 Hours)

Centre of gravity of solid tetrahedron, solid and hollow hemisphere – Centre of pressure – vertical rectangular lamina – vertical triangular lamina.

Hydrodynamics

Equation of continuity of flow – Venturimeter – Euler's equation of unidirectional flow – Torricelli's theorem – Bernoulli's theorem and its applications.

Unit 3: Elasticity (15 Hours)

Hooke's Law – Stress – Strain - Elastic constants – Expressions for Poisson's ratio in terms of elastic constants – work done in stretching and twisting a wire – twisting couple on a cylinder – rigidity modulus by static torsion – torsional pendulum – rigidity modulus and moment of inertia.

Unit 4: Bending of beams **(15 Hours)**

Cantilever – expression for bending moment – expression for depression – cantilever oscillations – Expression for time period – Experiment to find Young's modulus – Non uniform bending – Experiment to determine Young's modulus by Koenig's method – uniform bending – expression for elevation – experiment to determine Young's modulus using microscope.

Unit 5: Fluid dynamics **(15 Hours)**

Surface tension: Definition – Excess of pressure over curved surface – Application to spherical and cylindrical drops and bubbles – variation of surface tension with temperature – Jaeger's method

Viscosity: Definition – Coefficient of viscosity – Rate of flow of liquid in a capillary tube – Poiseuille's formula – variation of viscosity of a liquid with temperature – Application.

Books for Study

1. Mechanics – Part I and II by Narayanamoorthy, National Publishing Company.
2. Mechanics by D.S.Mathur, S.Chand & Co., 2nd Edition (2001).
3. Mechanics by P. Duraipandian, Laxmi Duraipandian, Muthamizh Jayapragasam, S.Chand & Co., New Delhi (1988).
4. Properties of Matter by Brij Lal and N.Subramaniam, S. Chand & Co., New Delhi (1994).
5. Properties of Matter by R.Murugeshan, S. Chand & Co., New Delhi (2001).

Books for Reference

1. General Properties of Matter by C.J. Smith, Orient Longman Publishers (1960).
2. Fundamentals of Physics by D. Halliday, R.Rensick and J. Walker, 6th edition, Wiley, NY (2001).
3. Mechanics and General Properties of Matter by P.K. Chakrabarthy, Books and Allied (P) Ltd. (2001).
4. Fundamentals of General Properties of Matter by H.R.Gulati, S. Chand & Co., New Delhi (1982).

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

SEMESTER - II

CORE THEORY –1: THERMAL PHYSICS AND ACOUSTICS

SUBJECTCODE: 19UPHY303	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 75**

Course Objective: To enlighten the students on thermodynamics and transmission of heat

Unit 1: Thermometry and Calorimetry (15 Hours)

Platinum resistance thermometer – Calendar and Griffith's bridge – Thermistor – Specific heat capacity – Specific heat capacity of solids – Dulong and Petit's law – Specific heat capacity of liquid – method of mixtures – Barton's correction – Specific heat capacity of gases – C_p and C_v by Regnault's and Callendar & Barne's methods.

Low temperature physics:

Joule-Kelvin effect – porous plug experiment – liquefaction of gases – Linde's method of liquefying air

Unit 2: Thermodynamics (15 Hours)

Thermodynamic equilibrium – zeroth law of thermodynamics – first law of thermodynamics – Reversible and irreversible processes – second law of thermodynamics-Heat engine – Carnot's engine – Carnot's theorem – Internal combustion engines – petrol and diesel engines – thermodynamics scale of temperature- Entropy – entropy and available energy – temperature – entropy diagram for Carnot's cycle - III Law of thermodynamics – Nernst's heat theorem.

Unit 3: Conduction and Radiation (15 Hours)

Thermal conductivity – rectilinear flow of heat – thermal conductivity of a good conductor – Forbe's method – thermal conductivity of a bad conductor – Lee's disc method – radiation – blackbody radiation – Wien's law – Stefan's law – Newton's law of cooling from Stefan's law – Solar constant – Pyrometer – Pyroheliometer.

Unit 4: Waves and oscillations (15 Hours)

Simple harmonic motion - combination of two SHMs in a straight line – at right angles – Lissajous's figures – free, damped, forced oscillations and resonance – intensity and loudness of sound – intensity level – decibel – noise pollution.

Unit 5: Ultrasonics

Ultrasonics – production – piezo electric crystal method – magnetostriction method – applications.

Acoustics of buildings – reverberation – Absorption coefficient – Sabine's formula – Acoustics aspects of halls and auditoriums.

Books for study

1. Heat and Thermodynamics by D.S.Mathur, 3rd edition Sulthan Chand & Sons, New Delhi (1978).
2. Heat and Thermodynamics by Brijlal and N. Subramanyam, S.Chand & Co, New Delhi (2000).
3. Heat by Narayanamoorthy and KrishnaRao, Triveni Publishers, Madras (1969).
4. Text book of Sound by V.R.Khanna and R.S.Bedi, 1st edition, Kedharnaath Publish & Co, Meerut (1998).
5. Waves and Oscillations by Brijlal and N. Subramanyam, Vikas Publishing house, New Delhi (2001).
6. Text book of Sound by Ghosh, S.Chand & Co, New Delhi (1996).

Books for Reference

1. Heat and Thermodynamics by Zemansky, McGraw – Hill Book Co. Inc., New York.
2. Fundamentals of Physics by Resnick Halliday and Walker, 6th edition, , John Willey and Sons, Asia Pvt.Ltd., Singapore.
3. Fundamentals of Thermodynamics by Carroll M.Leonard, Prentice-Hall of India (P) Ltd., New Delhi (1965).
4. Heat and Thermodynamics by J.B.Rajam and C.L.Arora, 8th edition, S.Chand & Co. Ltd., New Delhi (1976).
5. Principles of Thermodynamics by Jin Sheng Hsieh, 1st edition, McGraw – Hill Kogakusha Ltd., Tokyo (1975).
6. Thermodynamics by Warren Giedt, 1st edition, Van Nostrand Reinhold Company, NewYork (1971)

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE Practical – I: PRACTICAL GENERAL - I PHYSICS

SUBJECTCODE: 19UPHY302P	**PRACTICAL**	**MARKS: 100**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 75**

Course objective: To make the students skillful in experimentally analysing the physical concepts through practical

1. Young's modulus – Non-uniform bending – Pin & microscope
2. Young's modulus – Uniform bending – Optic lever
3. Rigidity modulus – Torsional pendulum (without identical masses)
4. Rigidity modulus and moment of inertia – Torsional pendulum (With identical masses)
5. Surface tension and interfacial surface tension – drop weight method
6. Coefficient of viscosity of liquid – Graduated burette (radius of capillary tube by Mercury pellet method)
7. Sonometer – Verification of laws and frequency of tuning fork
8. Sonometer – Relative Density of a solid and liquid
9. Specific heat capacity of a liquid – Newton's law of cooling
10. Specific heat capacity of liquid – Method of mixtures (Half-time correction)
11. Focal length, Power, R and refractive index of a long focus convex lens
12. Focal length, Power, R and refractive index of a concave lens
13. Spectrometer – refractive index of a liquid
14. P.O. Box – Temperature coefficient of resistance
15. Potentiometer – Internal resistance

B.Sc. Physics (NON-MAJOR ELECTIVE PAPERS**)**

Out of the following four elective papers two electives are to be chosen, one each for I & II semester.

1. Astrophysics
2. Everyday Physics
3. Basic Physics
4. Non-conventional Energy Sources

NME **: 1. ASTROPHYSICS**

SUBJECT CODE: 19UNME401D	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 2**	**NO.OF HOURS PER WEEK: 2**

Unit 1: Astronomical instruments

Optical telescopes-refracting telescope-reflecting telescope- types of reflecting telescopes – detectors and image processing.

Unit 2: Solar system

The Sun- physical and orbital data-photosphere-chromosphere-corona-solar prominences – sunspot - solar flare- mass of the sun- solar constant- temperature of the sun- sources of solar energy-solar wind.

Unit 3: Members of the solar system

Mercury – Venus- Earth – Mars – Jupiter- Saturn- Uranus- Neptune- Pluto- Moon – Bode's law – asteroids- comets – meteors.

Unit 4: Stellar evolution

Birth and death of a star –brightness of a star – stellar distance- Chandrasekar limit- white dwarfs- Neutron stars – black holes- Supernovae.

Unit 5: Theories of the Universe and Galaxies

Origin of the Universe - the big bang theory- the steady state theory- the oscillating universe theory – Huble's law. Galaxies – types of galaxies- Milky way

Books for study :

1. Astrophysics - a modern perspective by K.S.Krishnaswamy, New Age International (P) Ltd, New Delhi (2002).
2. An introduction to Astro physics by Baidyanath Basu, second printing, Prentice – Hall of India (P) Ltd, New Delhi (2001).

Books for reference:

1. Modern Physics by R.Murugeshan, 11th edition, S.Chand & Company Ltd, New Delhi (2003).
2. Astronomy by S.Kumaravelu, Janki Calendar Corporation, Sivakasi (1993).
3. Astronomy by Baker and Fredrick, 9th edition, Van Nostrand reinhold Co, New York (1964).
4. Illustrated World of Science Encyclopedia –Vol I to VIII, Creative World Publications, Chicago
5. Modern Physics by Kenneth S.Krane, John Wiley & Sons Inc., NY (1983).

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 5 out of 08 questions	1 – 08	20	**100**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	2	

NME : 2. EVERYDAY PHYSICS

SUBJECT CODE:	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 2**	**NO. OF HOURS PER WEEK: 2**

Course Objective: To make the students understand physics in day to day appliances

Unit 1

Physics behind Home appliances – Light bulb – Fan – Hair drier – Television – Air Conditioners – microwave ovens – Vacuum cleaners – Dishwasher – Washing machines

Unit 2

Basic principles – Tape recorder – Taps – Lifts – Submarines – Jet planes – Helicopters – Rockets – fax machines – Pagers – Cellular phones

Unit 3

Demonstration – making a switch board with multiple points – wiring – one lamp controlled by one switch/Two switches – fixing a fuse – soldering – P.C.B Preparation

Unit 4

Study of resistors, chokes, Capacitors and Transformers – multimeter – Basic principles – measurement of resistance, Voltage AC & DC

Unit 5

Servicing of domestic appliances – iron box – mixie – grinder – motor – emergency lamp

Books for Study

1. The Learner's series – Everyday science – Published by INFINITY BOOKS, New Delhi
2. The Hindu speaks on Science, Vol I & II, Kasturi Ranga Publishers, Chennai

Books for Reference

1. Fundamentals of Physics by D. Halliday, R.Rensick and J. Walker, 6th edition, Wiley, NY (2001).
2. . Physics, Vols I, II, III by D.Halliday, R.Resnick and K.S.Krane, 4th Edition, Wiley,New York (1994).
3. The Feymann Lectures on Physics Vols I, II, III by R.P. Feynmann, R.B. Leighton & M. Sands, Narosa, New Delhi (1998).

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 5 out of 08 questions	1 – 08	20	**100**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	2	

NME : 3. BASIC PHYSICS

SUBJECT CODE:	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 2**	**NO. OF HOURS PER WEEK: 2**

Course Objective: To consolidate the basic concepts of physics in an elementary way.

Unit 1 : Mechanics

Force – Weight – Work – Energy – Power – Horsepower – Centrifuge – Washing machine

Unit 2 : Heat

Variation of boiling point with pressure – Pressure cooker – Refrigerator – Air conditioner – Principle and their capacities – Bernoulli principle – Aero plane

Unit 3 : Sound and Optics

Sound waves – Doppler effect – Power of lens – Long sight and short sight – Microscope – Telescope – Binocular – Camera

Unit 4 : GeoPhysics and Medical Physics

Earthquake – Richter scale – thunder and lightning – Lightning arrestors – Cosmic showers – X-rays – Ultrasound scan – CT scan – MRI scan

Unit 5 : Space science and Communication

Newton's law of gravitaion – Weather forecasting and communication satellites – Indian satellites – Electromagnetic spectrum – Radio waves – AM and FM transmission and reception

Books for Study

1. The Learner's series – Everyday science – Published by INFINITY BOOKS, New Delhi
2. The Hindu speaks on Science, Vol I & II, Kasturi & Sons, Chennai.

Books for Reference

1. Fundamentals of Physics by D. Halliday, R.Rensick and J. Walker, 6th edition, Wiley, NY (2001).
2. Physics, Vols I, II, III by D.Halliday, R.Resnick and K.S.Krane, 4th Edition, Wiley, New York (2001).
3. The Feymann Lectures on Physics Vols I, II, III by R.P. Feynmann, R.B. Leighton & M. Sands,Narosa, New Delhi(1998).

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 5 out of 08 questions	1 – 08	20	**100**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	2	

NME: 4. NON-CONVENTIONAL ENERGY SOURCES

SUBJECT CODE: 19UNME402D	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 2**	**NO. OF HOURS PER WEEK: 2**

Course Objective: To emphasize the need for alternate energy sources and their applications

Unit 1 : Solar energy

Conventional Energy sources – Renewable Energy sources- solar energy – solar radiation and its measurements- solar energy collectors- parabolic collector- storage of solar energy

Unit 2 : Applications of solar energy

Solar water heater- solar driers- solar cells- solar electric power generation- solar distillation- solar pumping – solar cooking

Unit 3: Wind energy

Basic principles of wind energy conversion- power in the wind – forces in the Blades- wind energy conversion- Advantages and disadvantages of wind energy conversion systems (WECS) Energy storage- Applications of wind energy

Unit 4: Oceanic energy

Energy from the oceans- Energy utilization- Energy from tides- Basic principle of tidal power – Utilization of tidal energy

Unit 5 : Energy from other sources

Chemical energy – Nuclear energy - Energy storage and distribution

Books for study

1. Non-conventional sources of energy by G.D. Rai, 4th edition, Khanna Publishers, New Delhi (1996).

2. Solar Energy, Principles of thermal collection and storage by S.P.Sukhatme 2nd edition, Tata McGraw-Hill Publishing Co. Ltd., New Delhi (1997).

Book for reference

1. Energy Technology by S.Rao and Dr. Parulekar

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 5 out of 08 questions	1 – 08	20	**100**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	2	

SEMESTER - III

CORE THEORY –3: OPTICS AND SPECTROSCOPY

SUBJECT CODE: 19UPHY304	**THEORY**	**MARKS: 100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 75**

Course objectives: To make the students understand the particle and wave aspects of light and the defects of lenses

Unit I: GEOMETRICAL OPTICS (15 Hours)

Spherical aberration in lenses - Methods of minimising Spherical aberration– Condition for minimum Spherical aberration in the case of two lenses separated by a distance - Chromatic aberration in lenses – Condition for Achromatism of two thin lenses (in and out of contact) - Dispersion produced by a thin prism -Achromatic prism- Combination of prisms to produce - Dispersion without deviation - Deviation without dispersion.

Unit II: INTERFERENCE (15 Hours)

Analytical treatment of interference – expression for intensity – condition for maxima and minima in terms of phase and path difference - Air wedge- principle and construction – determination of diameter of thin wire – test for optical flatness - Michelson's Interferometer Theory and its applications – determination of wavelength; thickness of thin transparent material and resolution of interferometer.

Unit III: DIFFRACTION (15 Hours)

Fresnel's diffraction –Fraunhoffer diffraction - single slit, double slit (simple theory). Plane diffraction grating - Determination of wavelengths using grating - normal incidence - Dispersive power of a grating. Rayleigh's criterion for resolution – limit of resolution of the eye – resolving power of microscope - resolving power of a grating – difference between resolving power and dispersive power.

Unit IV: POLARISATION (15 Hours)

Double Refraction - Nicol prism – polarizer and analyser – Polaroids and their uses - Quarter wave plate- Half wave plate – plane, circularly and elliptically polarized light - Half wave plate production and detection of plane, circularly and elliptically polarized light. Optical activity - Specific rotatory power – determination using Laurent's half shade polarimeter.

Unit V: SPECTROSCOPY (15 Hours)

Electromagnetic spectrum – Characterization of electromagnetic radiation – Classification of Molecules: Microwave spectroscopy - rotational energy levels of rigid diatomic molecule - selection rules - Infrared spectroscopy - vibrational spectra of diatomic molecule- vibrational spectra of simple polyatomic molecules - selection rules for IR spectra – Raman Effect: stokes and antistokes lines with necessary theory - Experimental study of Raman Effect - Application of Raman effect in molecular structure. Laser: Ruby laser – He-Ne.

Books for Study:

1. Textbook of OpticsbyBrijlal and Subramanian - R.Murugesan, S. Chand & Co., New Delhi - Modern Physics
2. Optics & Spectroscopy by R. Murugeshan-, S. Chand & Co., New Delhi
3. Optics by Khanna D.R & Gulati H.R., S. Chand & Co., New Delhi (1979).
4. Molecular structure, and spectroscopy by Aruldhas, Prentice Hall of India Pvt. Ltd., New Delhi (2005).
5. Fundamentals of Spectroscopy by C.N. Banwell and M.C. Cash - T M H Publishers.

Books for Reference:

1. Fundamentals of Physics by D. Halliday, R.Resnick and J. Walker –6th Edition, New York (2001)
2. CRC Handbook of Physics & Chemistry, 80th Ed., CRS Press, NY, 1999.
3. Optics by Ajay Ghatak, Tata McGraw- Hill publishing Co. Ltd., New Delhi (1998).

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

SEMESTER - IV

CORE THEORY –4: ELECTRICITY AND ELECTROMAGNETISM

SUBJECT CODE: 19UPHY306	**THEORY**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 75**

Course Objectives:

To make them understand the nature of Direct and Alternating current through different active and passive elements

Unit 1: DC Circuits (15 Hours)

Growth and decay of current in a circuit containing resistance and inductance - growth and decay of charge in a circuit containing resistance and capacitor - growth and decay of charge in an LCR circuit - condition for the discharge to be oscillatory - frequency of oscillation.

Unit II: AC Circuits (15 Hours)

AC Voltage and current - Power factor and current values in and AC circuit containing LCR circuit - series and Parallel resonant circuits - AC motors - single phase, three phase - star and delta connections - electric fuses - circuit breakers - Induction Motors.

Unit III: Magnetic effect of electric Current: (15 Hours)

Magnetic field around a current carrying conductor. Biot and Savart's law - Magnetic field intensity at a point on the axis of a circular coil carrying current - magnetic field intensity due to a solenoid carrying current - effect of iron core in a solenoid - moving coil ballistic galvanometer - theory - damping correction. Determination of the absolute capacity of a condenser using B.G.

Unit IV Electromagnetic Induction: (15 Hours)

Faraday's experiments on electromagnetism - Faraday's laws of Electromagnetic Induction - Lenz's law - Deduction of Faraday's law from Lorentz force - vector potential. Eddy currents - inductors and inductance - determination of self-inductance of a coil using Anderson method - mutual inductance - experimental determination of absolute mutual inductance - coefficient of coupling.

Unit V Applications of Electromagnetic induction: (15 Hours)

Earth inductor - uses of earth inductor - measurement of horizontal component of the earth's magnetic field - measurement of vertical component of earth's magnetic field- calibration of B.G. - measurement of intense magnetic field using search coil and BG - induction coil and its uses.

Books for Study :

1. Electricity & Magnetism by M.Narayanamurthy & N.Nagarathnam, NPC pub., Revised edition.
2. Electricity and Magnetism by Brijlal and Subrahmanyam; S.Chand & Co., New Delhi, (2000).
3. Electricity & Magnetism by D.Chattopadhyay and P.C. Rakshit, Books and Allied (P) Ltd.(2001).
4. Fundamentals of electricity and magnetism by B.D. Dugal and C.L. Chhabra, Shobanlal Nagin, S. Chand & Co., 5th edition, New Delhi(2005).
5. Electricity and Magnetism by R. Murugeshan, S.Chand & Co., New Delhi, (2008).

Books for Reference:

1. Electricity & Magnetism by K.K.Tewari, S.Chand & Co., New Delhi (2002).
2. Introduction to Electrodynamics by D.J.Griffiths, Printice Hall of India Pvt. Ltd., 3rd Edition, New Delhi(2003).
3. Fundamentals of Physics, D.Halliday, R.Resnick and J.walker, Wiley, 6th Edition, New York (2001).

Web Site:

http://www2.warwick.ac.uk/fac/sci/physics/teach/ module-home/px207.

www.core.org.cn/ocw web/physics/8-311 spring 2004/lecture notes.

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE Practical 2: **PRACTICAL GENERAL – II**

SUBJECT CODE: 19UPHY305P	**PRACTICAL**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 75**

Course objective: To make the students skillful in experimentally analysing the physical concepts through practical

1. Young's modulus - cantilever - depression - (Static method)-(Scale and telescope)
2. Young's modulus - cantilever oscillations - (Dynamic method)
3. Rigidity modulus - Static torsion
4. Compound pendulum - g and k
5. Sonometer - A.C. Frequency – Steel wire with Electromagnet and Brass wire with permanent magnet.
6. Melde's string - frequency, Relative Density of a solid and liquid
7. Thermal conductivity of a bad conductor - Lee's disc method
8. Spectrometer - μ of a glass prism - i-d Curve
9. Spectrometer - Grating N and λ - normal incidence method
10. Spectrometer - Grating N and λ - minimum deviation method
11. Air wedge - Thickness of a wire
12. m and B_H - deflection mangetometer Tan C position and vibration magnetometer
13. Carey Foster bridge - Temperature coefficient of resistance of a coil
14. Potentiometer - Calibration of low range voltmeter
15. Potentiometer - Ammeter calibration.
16. Figure of merit of galvanometer (Miror Galvanometer Or Table Galvanometer)
17. * C.R.O. Study of wave forms - Lissajou's figures - frequency determination
18. * Study of resistors, Choke, capacitors and transformer
19. * Construction of battery eliminator - various voltages - with filter circuit and IC voltage regulator.
20. * Two transistor Radio receiver

* Not for Examination

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ENVIRONMENTAL STUDIES

SUBJECT CODE: 19UEVS401	**THEORY**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 2**	**NO. OF HOURS PER WEEK: 2**

Course Objective: To make the students understand the ecosystem and its surveillance

Unit – I

Environment Concept: Introduction, concept of biosphere – lithosphere, hydrosphere, atmosphere, Natural resources – their need and types: Principle and scope of Ecology, concepts of ecosystem, population, community, biotic interactions, biomes, ecological succession.

Atmosphere: Parts of atmosphere, components of air, pollution, pollutatns, their sources, permissible limits, risks and possible control measures.

Hydrosphere: Types of aquatic system. Major sources (including ground water) and uses of water, problems of the hydrosphere, fresh water shortage: Pollution and pollutants of water, permissible limits, risks and possible control measures.

Lithosphere: Earth crust, Soil – a life support system, its texture, types, components, pollution and pollutants, reasons of soil erosion and possible control measures.

Unit – II

Forests: Concepts of forests and plantations, types of vegetation and forests, factors governing vegetation, Role of trees and forests in environment, various forestry programmes of the Govt. of India, Urban forests, Chipko Andolan.

Conservation and Environment: The concepts of conservation and sustainable development, Why to conserve, aims and objectives of conservation; conservation of life support systems – soil, water, air, wildlife and forests.

Unit – III

Management of Solid Waste: Merits and demerits of different ways of solid waste management – open, dumping, landfill, incineration, resource reduction, recycling and reuse, vermicomposting and vermiculture, organic farming.

Indoor Environment: Pollutants and contaminants of the in-house environment; problems of the environment linked to urban and rural lifestyles; possible adulterants of the food; uses and harms of plastics and polythene; hazardous chemicals, solvents and cosmetics.

Unit – IV

Global Environmental Issues: Global concern, creation of UNEP; Conventions on climate change, convention on biodiversity; Stratospheric ozone depletion, dangers associated and possible solutions.

Indian Laws on Environment: Indian laws pertaining to Environmental Protection: Environmetn (Protection) Act, 1986; General information about laws regarding relating to control of air, water and noise pollution. What to do seek redressal.

Unit – V

Biodiversity: What is biodiversity, levels and types of biodiversity, importance of biodiversity, causes of its loss, how to check its loss; Hotspot zones of the world and India, Biodiversity Act 2002.

Noise and Microbial Pollution: Pollution due to noise and microbes and their effects.

Human Population and Environment: Population growth and family welfare programme, Human Health, HIV/AIDS, Human rights.

Social Issues: Environmental Ethics: Issues and possible solutions, problems related to lifestyle, sustainable development, Consumerisms and waste generation.

Local Environmental Issues: Environmental problems in rural and urban areas, Problems of Congress grass and other weeds, problems arising from the use of pesticides and weedicides, smoking, etc.

Practical

Visit to vermicomposting units or any other such non-polluting eco-friendly site or planting/caring of vegetation/ trees could be taken.

Reference books:

a) Environmental Studies - S.N. Chary
b) A text book on Ecology and Environmental Science – M. Prasanthrajan

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

SEMESTER - V

CORE THEORY –5: ATOMIC PHYSICS

SUBJECT CODE: 19UPHY307	**THEORY**	**MARKS: 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 75**

Course Objectives: To detail the particle photon interaction and thereby inculcating the knowledge of atoms and molecules

UNIT-I: DISCHARGE PHENOMENON THROUGH GASES (15 Hours)

Specific charge of an electron – Dunnington's method – Magnetron method – Positive rays – Aston's, Dempster's mass spectrographs.

UNIT-II: PHOTO ELECTRIC EFFECT (15 Hours)

Richardson and Compton experiment – Laws of photo electric emission – Einstein photo electric equation – Millikan's experiment – Verification of photoelectric equation – photo electric cells –photo emissive cells – photo voltaic cells – photo conducting cell – photomultiplier.

UNIT-III: ATOMIC STRUCTURE (15 Hours)

Vector atom model – Pauli's exclusion principle – explanation of periodic table – various quantum numbers – angular momentum and magnetic moment – coupling schemes – LS and JJ coupling – special quantization – Bohr magnetron – Stern and Gerlach experiments.

UNIT-IV: IONISATION POTENTIAL AND SPLITTING OF ENERGY LEVELS (15 Hours)

Excitation and ionization potential – Frank and Hertz's experiment – selection rules – intensity rule and interval rule – Zeeman effect – Larmor's theorem – Debye's explanation of normal Zeeman effect – Anamalous Zeeman effect – theoretical explanation, Lande's 'g' factor and explanation of splitting of D1 and D2 lines of sodium - Paschen Back effect – Stark effect (qualitative study only).

UNIT-V: X-RAYS (15 Hours)

Bragg's Law – X ray spectroscopy – characteristic X ray spectra – Satellite and Auger effect – continuous X ray spectra – Moseley's Law – uses of X rays – Compton effect – experimental verification of Compton effect.

Books for Study:

1. Modern Physics by D.L.Sehgal, K.L.Chopra and N.K.Sehgal. Sultan Chand & Sons Publication, 7th Edition, New Delhi (1991)
2. Modern Physics by R. Murugeshan, KiruthigaSivaprasanth, S. Chand & Co., New Delhi(2008).
3. Atomic and Nuclear Physics by N. Subramanyam and BrijLal, S. Chand & Co. 5th Edition, New Delhi (2000)

Books for Reference:

1. Concepts of Modern Physics by A.Beiser, Tata McGraw-Hill, New Delhi (1997)
2. Modern Physics by J.H. Hamilton and Yang, McGraw-Hill Publication, (1996)
3. Fundamentals of Physics by D. Halliday, R.Resnick and J. Walker, Willey., 6th Edition, New York (2001)

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE THEORY –6**: NUCLEAR PHYSICS AND PARTICLE PHYSICS**

SUBJECT CODE: 19UPHY308	**THEORY**	**MARKS: 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 75**

Course Objective: Facilitating the students to understand nuclear reactions based on nuclear models

UNIT-I: GENERAL PROPERTIES OF NUCLEI (15 Hours)

Nuclear size, charge, mass, mass defect and binding energy – packing fraction – Nuclear Spin – Magnetic dipole moment – electric quadrupole moment- nuclear models – liquid drop model – Weizacker semi empirical mass formula – Shell model and magic numbers.

UNIT-II: RADIO ACTIVITY (15 Hours)

Natural radioactivity – Law of disintegration – half time and mean life period – units of radio activity - transient and secular equilibrium –radio carbon dating – age of earth – Geiger nuttal law – α ray spectra – Gamow's theory of α decay (qualitative study only) - Radio Activity- Neutrino theory of Beta decay.

UNIT-III: RADIATION DETECTORS AND PARTICLE ACCELERATORS (15 Hours)

Ionisation chamber – G.M. counter – quenching and resolving time – Scintillation counter - Linear accelerator – Cyclotron – Synchrocyclotron – Betatron.

UNIT-IV: NUCLEAR REACTIONS (15 Hours)

Conservation laws – nuclear reaction – kinematics – Q value – threshold energy – artificial radio activity – radio isotopes and its uses – nuclear fission – chain reaction – nuclear reactor – nuclear fusion – thermonuclear reactions – sources of stellar energy.

UNIT-V: ELEMENTARY PARTICLES (15 Hours)

Classification of elementary particles – elementary particle quantum numbers – isospin and strangeness – conservation laws.

BOOKS FOR STUDY:

1. Modern Physics by R. Murugeshan, S. Chand & Co., New Delhi, Revised Edition.
2. Atomic and Nuclear Physics by N. Subramanyam and Brijlal, S. Chand & Co, New Delhi (1996)
3. Nuclear Physics by Tayal D.C., Himalaya Publishing House, Mumbai (2006).
4. Nuclear Physics by R.C. Sharma, K.Nath& Co. Meerut (2000).

BOOKS FOR REFERENCE:

1. Nuclear physics by R.R.Roy and B.P. Nigam, New Age International (p) Ltd., New Delhi (1997)
2. Fundamentals of Elementary Particles Physics by Longo, Mc Graw- hill
3. Elements of Nuclear Physics by ML.Pandya and RPS Yadav, KedarnathRamnath, Meerut.

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE THEORY –7: SOLID STATE PHYSICS AND ELECTRONICS

SUBJECTCODE: 19UPHY309	**THEORY**	**MARKS: 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 75**

Course objective: To make the students understand the crystal structure and defects omit.

To provide the students with theoretical knowledge on semiconductors to handle electronic components with ease.

Unit I : Crystal Structure (15 Hours)

Crystal lattice – primitive and unit cell – seven classes of crystal – Bravais Lattice – Miller Indices – Structure of crystals – simple cubic, hexagonal close packed structure, face centred cubic structure, body centred cubic structure – Sodium chloride structure, Zinc Blende structure, Diamond structure

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Unit II : Defects in Solids (15 Hours)

X ray diffraction – Bragg's law in one dimension – Experimental methods – Laue Method, powder crystal method and rotating crystal method.

Defects in solids - Point defects - Frenkel and Schottky defects - Equilibrium concentrations - Line defects - Edge dislocation and screw dislocation - Surface defects - Grain boundary - Effects of Crystal imperfections.

Unit III: Dielectric Properties (15 Hours)

Dielectric materials - Polarization, susceptibility and dielectric constant - Local field or internal field - Clausius - Mossoti relation - Sources of polarizability - Electronic polarizability - lonic polarizability - Orientational polarizability - Frequency and temperature effects on polarization - Dielectric breakdown – Dielectric Properties, Dielectric loss.

UNIT-IV: SEMICONDUCTORS (15 Hours)

Bonds in semiconductor – Energy levels – Energy bands – Valence and conduction bands – Band

gap – Forbidden energy gap – classification of solids in terms of forbidden energy gap - Fermi level – Pure semiconductor – - PN junction barrier voltage across the junction – Biasing of PN junction - Law of mass action, Impurity in semiconductors

UNIT-V: SPECIAL SEMICONDUCTOR DEVICES AND APPLICATIONS (15 Hours)

Field Effect Transistor (FET) – characteristics – Uni-junction transistor (UJT) – characteristics – relaxation oscillator – Frequency of oscillation – SCR characteristics – SCR as a switch – SCR rectifier.

Books for Study

1. Materials Science by M.Arumugam, Anuradha Agencies Publishers.(2002)
2. Solid State Physics by R L Singhal, Kedarnath Ram Nath & Co., Meerut (2003)
3. Introduction to Solid State Physics by Kittel, Willey Eastern Ltd(2003).
4. Materials Science and Engineering by V. Raghavan, Prentice Hall of India Private Limited, New Delhi(2004).
5. Electronics by M. Arul Thalapathi, Comptek Publication (2005)
6. Hand Book of Electronics by Gupta and Kumar – PragathiPrakashan – Meerut (2002)
7. Applied Electronics by A. Subramanyam – National Publishing Co. (1997)
8. Principles of Electronics by V.K. Mehta, Rohit Mehta S. Chand & Co. (2006).

Books for Reference:

1. Basic Electranics by B.L Theraja, S. Chand & Co., (2008)
2. Electronic Devices by Mittal.G.K. Pubishers Pvt. Ltd., (1993)
3. Solid state Electronics by Ambrose and Vincent Devaraj, Meera Publication.
4. Modern Physics by R. Murugeshan and KiruthigaSivaprasath, S. Chand & Co,. (2008)
5. Applied Electronics byR.S.Sedha, S. Chand & Co,. (1990)
6. Solid State Physics by S.O.Pillai, New Age International (P) Ltd.,(2002).
7. Solid State Physics by A. J.Dekker, Macmillan India(1985).
8. Solid State Physics by HC Gupta, Vikas Publishing House Pvt. Ltd., New Delhi (2001).

Web Site http://folk.uio.no//dragos//solid/fys230-Exerciser.html.

http://www.physics.brocku.ca/courses/4p7d.

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

IDE –: INTRODUCTION TO INTEGRATED ELECTRONICS

SUBJECTCODE: 19UIDE304	**THEORY**	**MARKS: 100**
SEMESTER: V	**CREDITS: 5**	**TOTAL HOURS: 75**

Course Objective: To Make non - Physics Student to understand intricacies of integrated electronics

Unit 1 : Fundamental Digital Electronics (15 Hours)

Number systems – binary – hexadecimal – Binary addition – subtraction (1's and 2's compliment method) – multiplication - division - BCD – Conversion – simplification of logic circuits - using (i) Boolean algebra, (ii) Karnaugh map – Demorgan's theorems - NAND and NOR as universal building blocks.

Unit 2 : Combinational Logic Circuits (15 Hours)

Half adder, full adder, half subtractor and full subtractor – 4 bit adder/subtractor - decoder, encoder - multiplexer - demultiplexer.

Unit 3 : Sequential Logic Circuits (15 Hours)

R.S flip flop, D flip flop and JK flip flops - synchronous and ripple counters - Up/Down counters - shift registers - serial and parallel registers - ring and twisted ring counter.

Unit 4 : OP-AMP Basic Applications (15 Hours)

Characteristics parameters – differential gain – CMRR – Slew rate – bandwidth - applications – inverter, non-inverter, summing, difference and averaging amplifier - solving simultaneous equations - comparator - square wave generator.

Unit 5 : Timer, DAC/ADC (15 Hours)

Timer 555 - Internal block diagram and working - astable multivibrator - schmitt trigger. D/A converter - binary weighted method - A/D converter - successive approximation method.

Books for Study

1. Digital Principles and Application by Malvino Leach, Tata McGraw Hill, 4th Edition(1992).
2. Digital Fundamentals by Thomas L. Floyd, Universal Book Stall, New Delhi(1998).
3. Introduction to Integrated Electronics by V.Vijayendran, S. Viswanathan (Printers and Publishers) Pvt. Ltd., Chennai(2005).
4. OP - AMPs and Linear Integrated Circuits by Ramakant A. Gayakwad, Prentice Hall of India(1994).

Books for Reference

1. Digital Electronics by Practice Using Integrated Circuits - R.P.Jain - Tata McGraw Hill(1996).
2. Linear Integrated Circuits by D. Roy Choudhury and Shail Jain - New Age International (P) Ltd.(2003).
3. Electronics - Analog and Digital by I.J. Nagrath - Prentice - Hall of India, New Delhi(1999).
4. Integrated Electronics by J.Millman and C.Halkias, Tata McGraw Hill, New Delhi (2001)

Web Site

http://www.dear.harward.edu/courses/es154.

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

VALUE EDUCATION

SUBJECT CODE: 19UVED401	THEORY	MARKS: 100
SEMESTER: IV	CREDITS: 2	NO. OF HOURS PER WEEK: 2

Course Objective:

Values are socially accepted norms to evaluate objects, persons, and situations that form part and parcel of sociality. A value system is a set of consistent values and measures. Knowledge of the values are inculcated through education. It contributes in forming true human being, who are able to face life and make it meaningful. There are different kinds of values like ethical or moral values, doctrinal or ideological values, social values and aesthetic values. Values can be defined as brad preferences concerning appropriate course of action or outcomes. As such, values like, "Equal rights for all", "Excellence deserves admiration", "People should be treated with respect and dignity". Values tend to influence attitudes and behavior and help to solve common human problems. Values are related to the norms of a culture.

Unit – I

Value education – its purpose and significance in the present world – Value system. The role of culture and civilization – Holistic living – Balancing the outer and inner Body, Mind, and Intellectual level – Duties and responsibilities.

Unit – II

Salient values for life – Truth, Commitment, Honesty and Integrity, Forgiveness and Love, Empathy and Ability to Sacrifice, Care, Unity, and Inclusiveness, Self esteem and Self confidence, Punctuality – Time, task and resource management – problem solving and decision making skills – Interpersonal and Intrapersonal relationship – Team work – Positive and Creative writing.

Unit – III

Human Rights – University Declaration of Human Rights – Human Rights Violations – national Integration – Peace and Non-Violence – Dr. A.P.J. Kalam's ten points for enlightened citizenship – Social values and Welfare of the Citizen – The role of media in value building.

Unit – IV

Environment and Ecological balance – interdependence of all beings – Living and Non-living . The binding of man and nature. Environment conservation and enrichment.

Unit – V

Social Evils – Corruption, Cyber crime, Terrorism – Alcoholism, Drug addiction – Dowry – Domestic violence – Untouchability Female infanticide – Atrocities against women – How to tackle them.

Books for Reference:

1. M.G. Chitakra. Education and Human Values, A.P.H. Publishing Corporation, New Delhi.
2. Chakravarthy, S.K. Values and Ethics for Organizations. Theory and Practice, Oxford Delhi.
3. Satchindananda, Mk. Ethics, Education, Indian Unity and Culture, Ajantha Publications.
4. Das, MS & Gupta, V.K. Social Values and Young adults. A changing Scenario, MD.
5. Bandiste, D.D.(1998). Humanist Values. A Source Book, B.R. Publishing Corporation, Delhi.
6. Ruhela, S.P. (1986). Human Values and Education, Sterling Publications, New Delhi.
7. Kaul, G.N. Values and Education in Independent Indian, Associated Publishers, Mumbai.
8. NCERT, (1992). Education in Values, New Delhi.
9. Swami Budhananda (1983). How to Build Character. A Primer. Ramakrishna Mission New Delhi.
10. A Cultural Heritage of India (4 Vols.) Bharatiya Vidya Bhavan, Bombay. (Selected Chapters
11. For Life, For the future. Reserves and Remains. UNESCO Publication.

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

SEMESTER - VI

CORE THEORY –8: RELATIVITY AND QUANTUM MECHANICS

SUBJECT CODE: 19UPHY314	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 5**	**TOTAL HOURS: 75**

Course Objective: To make the students understand the transition from classical to quantum mechanics with applications

UNIT-I: RELATIVITY (15 Hours)

Frames of reference – Galilean transformation – Michelson - Morley experiment – Postulates of special theory of relativity – Lorentz transformation – Length contraction – time dilation – addition of velocities – variation of mass with velocity – Mass energy relation.

UNIT-II: WAVE NATURE OF MATTER (15 Hours)

Phase and group velocity – relationship between phase and group velocity – expression of De-Broglie's wavelength – Davisson and Germer's experiment – G.P. Thomson experiment – Wave Nature of Matter- Heisenberg's uncertainity principle and its consequences of non - existence of electrons outside the nucleus existence of protons and neutrons inside the nucleus.

UNIT-III: SCHRODINGER EQUATION (15 Hours)

Postulates of wave mechanics – Schrodinger time independent wave equation – Schrodinger time dependent wave equation – properties of the wave function - significance of the wave functions. – Eigenfunctions and Eigenvalues.

UNIT-IV: OPERATIONS AND ANGULAR MOMENTUM IN QUANTUM MECHANICS (15 Hours)

Linear operators - Self adjust operators – commutativity and compatibility – orbital angular momentum operators and their commutation relations – Spin, Pauli's spin matrices for electron.

UNIT-V: SOLUTIONS OF SCHRODINGER EQUATION (15 Hours)

Free Particle solution – Particle in a box – Potential well of finite depth (one dimension) – Linear harmonic oscillator – rigid rotator.

BOOKS FOR STUDY:

1. Modern physics by R. Murugeshan and Kiruthigasivaprasath, S.Chand& Co (2008)

2. A Text Book of Quantum Mechanics by P.M. Mathews and S.Venkatesan, Tata McGraw – Gill, New Delhi (2005).
3. Quantum Mechanics by V.K. Thankappan, New Age International (P) Ltd Publisher, New Delhi (2003).
4. Quantum Mechanics by K.K. Chopra and G.C. Agarwal, Krishna Prakasam Media (P) Ltd, Meerut, first edition (1998).

BOOKS FOR REFERENCE:

1. Mechanics and Relativity by Brijlal and Subramanyam S. Chand & Co, New Delhi (1990)
2. Quantum Mechanics by A. Ghatak and Loganathan, Macmillan India (P) Ltd.
3. Concepts of Modern Phyics by A.Beiser, Tata McGraw – gill, 5th Edition, New Delhi (1997)

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE THEORY –9: MATHEMATICAL METHODS IN PHYSICS

SUBJECT CODE: 19UPHY315	**THEORY**	**MARKS: 100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS: 75**

Course Objective: To familiarize students with essential mathematical methods for solving advanced problems in theoretical physics.

Unit 1: Matrices and Special Functions (15 Hours)

Characteristic equation of a matrix - Eigenvalues and Eigenvectors - Hermition and Unitary matrices - Properties of their eigenvalues and eigenvectors - Diagonalisation of matrices.

Special functions - Gamma and Beta functions - Series solutions of Legendre, Bessel and Hermite equations

Unit 2: Elementary Complex Analysis (15 Hours)

Functions of a Complex variable - Continuity and differentiability - single and multivalued functions - Analytic function - Cauchy - Riemann conditions (necessity and sufficiency). Cauchy - Riemann Conditions in the Polar (r,θ) coordinates.

Unit 3: Vector Analysis (15 Hours)

Scalar and Vector fields - Gradient, Divergence and Curl - Equations of motion in the vector notation - Spherical, Cylindrical co-ordinates -transformation equation - equations of motion (components) in cartesian coordinates and spherical polar coordinates - equation of motion (components) in the polar coordinates.

Unit 4 : Classical Mechanics (15 Hours)

Generalised coordinates - configuration space - Lagrange's equation - simple applications : to find equations of motion using a lagrangian; central potential and conservation of angular momentum - Hamilton function and Hamilton's equations - harmonic oscillator.

Unit 5: Statistical Physics **(15 Hours)**

Quantum statistics of identical particles - Maxwell - Boltzmann, Bose - Einstein and Fermi - Dirac statistics - Derivation of Planck's radiation formula from Bose - Einstein statistics.

Books for Study

1. Mathematical Physics by Sathya Prakash, Sultan Chand and Sons, New Delhi (1996)
2. Classical Mechanics by J.C. Upadhyaya, Himalaya Publishing House, Mumbai(2003).
3. Introduction to Statistical Mechanics by S.K. Sinha Narosa Publication(2007).
4. Heat Thermodynamics and Statistical Physics by Brijlal N.Subrahmanyam, P.S. Hemne S.Chand & Co., New Delhi.(2007).

Books for Reference

1. Mathematical Physics by B.D. Gupta, Vikas Publishing House Pvt. Ltd., New Delhi(1996).
2. Advanced Engineering Mathematics by E.Kreyszig, Eighth Edition, Wiley Publishers, New York(1989).
3. Classical Mechanics by H.Goldstein, Special Indian student edition, Narosa Publishing House, New Delhi(1985)

Web Site

http://phy.syr.edu/~trodden/courses/math methods.

http://www.mpipks_dresden.mpg.de/~jochen/methoden/outline/html.

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE Practical - 3: PRACTICAL GENERAL – III

SUBJECT CODE: 19UPHY311P	**THEORY**	**MARKS: 100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS: 75**

Course objective: To make the students skillful in experimentally analysing the physical concepts through practical.

(Any Fifteen Experiments)

1. Young's modulus - Non uniform Bending - Koenig's method.
2. Kundt's Tube – Determination of velocity of sound in solid - Young's modulus.
3. Spectrometer - Small angled prism - Normal incidence and emergence refractive index of the material of prism.
4. Spectrometer - (i - i') curve - refractive index.
5. Spectrometer - Cauchy's constant.
6. Newton's rings - R_1, R_2 and μ of convex lens.
7. Newton's rings - Refractive index of liquid.
8. Field along axis of a circular coil - Deflection magnetometer - B_H and M.
9. Field along axis of a circular coil - vibration magnetic needle - B_H.
10. Potentiometer - Calibration of high range voltmeter
11. Potentiometer - Temp coeff. of resistance of a thermistor
12. Potentiometer - Emf of a thermo couple.
13. Thermo emf - Mirror galvanometer (or) spot galvanometer
14. B.G - Figure of merit (quantity of charge)
15. B.G - Comparison of EMFs
16. B.G - Comparison of capacitances
17. B.G - Internal resistance of a cell
18. B.G - High Resistance by leakage
19. B.G - Absolute capacitance
20. B.G - Comparison of mutual inductances
21. B.G - Absolute mutual inductance
22. B.G - Self inductance - Anderson method.

CORE Practical-4: **Practical electronics I**

SUBJECT CODE: 19UPHY312P	**PRACTICAL**	**MARKS: 100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS: 75**

Course objective: To make the students skillful in experimentally analysing the physical concepts through practical

(Any Fifteen Experiments)

1. A.C. Circuit – LCR – Series resonance
2. A.C. Circuit – LCR – Parallel resonance
3. Bridge rectifier - Zener regulated power supply - 9V characteristics.
4. R-C Coupled Single Stage Amplifier - Frequency Response
5. R-C Coupled Amplifier with feedback.
6. Emitter follower
7. Transistor - Phase Shift Oscillator
8. Transistor - Wien's Bridge Oscillator
9. FET characteristics
10. FET amplifier
11. UJT characteristics
12. UJT Relaxation oscillator
13. SCR characteristics
14. Transistor - Astable multivibrator
15. Transistor - Bistable multivibrator
16. NAND / NOR as universal gates.
17. Half Adder – Full adder – Ex-OR(7486)
18. Half Subtractor – Full subtractor – Ex - OR(7486)
19. 4 bit ripple counter using 7473/7476
20. 4 bit shift register using 7473/7476
21. Decode counter using 7490

CORE Practical - 5: Micro processor and integrated electronics

SUBJECT CODE: 19UPHY313P	**PRACTICAL**	**MARKS: 100**
SEMESTER: VI	**CREDITS: 2**	**TOTAL HOURS: 75**

Course objective: To make the students skillful in experimentally analysing the physical concepts through practical

(Any Fifteen Experiments)

1. Op amp 741 - Inverting , Non - Inverting amplifier, unity follower.
2. Op amp 741 - Summing and difference amplifier
3. Op amp 741 – Differentiator, integrator
4. OP amp 741 – Solving simultaneous equations
5. Op amp 741 – Wein's Bridge oscillator
6. Op amp 741 - Phase Shift oscillator
7. 555 - Timer - Schmitt Trigger
8. 555 - Timer - Astable operation
9. 555 - Timer - Monostable
10. D/A Converter – 4 bit, binary weighted resistor method
11. Microprocessor – 8085 – 8 bit Addition
12. Microprocessor – 8085 – 8 bit Subtraction
13. Microprocessor – 8085 – 8 bit Multiplication
14. Microprocessor – 8085 – 8 bit Division
15. Microprocessor – 8085 – Addition of N Number of single byte numbers
16. Microprocessor – 8085 – Sorting of given set of numbers in ascending order
17. Microprocessor – 8085 – Sorting of given set of numbers in descending order
18. Microprocessor – 8085 – Finding the largest no. in a given set of numbers.
19. Microprocessor– 8085–Finding the smallest no. in a given set of numbers.

Books for the Study & Reference:

1. Practical Physics by D. Chattopadhyay, P.C. Rakshit, New Central Book Agency (p) Ltd. Kolkata(2007).
2. Practical Physics and Electronics by C.C.Ouseph, U.J.Rao and Vijayendran, S.Viswanathan (Printers & Publishers) Pvt., Ltd (2007).
3. Practical Physics by C L Arora, S. Chand & Co., New Delhi (2008)

CORE ELECTIVE –1: NUMERICAL METHODS

SUBJECT CODE: 19UPHY310	**THEORY & PROBLEM**	**MARKS: 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 75**

Course Objective: To make the students understand the basic concepts of computational mathematics

Unit 1: Simultaneous Linear Algebraic Equations (15 Hours)

Method of triangularisation - Gauss elimination method - Inverse of a matrix - Gauss - Jordan method

Unit 2: Numerical Solution of Algebraic, Transcendental and Differential Equation (15 Hours)

Bisection method – Regula falsi method - Newton - Raphson method - - Horner's method - Solution of ordinary differential equation - Euler's method.

Unit 3 : Interpolation (15 Hours)

Finite differences – operators □,∇,□,□,D – relation between operators –linear interpolation – interpolation with equal intervals – Newton forward interpolation formula – Newton backward interpolation formula.

Unit 4 : Curve Fitting (15 Hours)

Principles of least squares - fitting a straight line - linear regression - fitting an exponential curve.

Unit 5 : Numerical Integration (15 Hours)

Trapezoidal Rule - Simpson's 1/3 rule and 3/8 rule - Applications - Weddle's rule

Books for Study

1. Numerical methods - M.K.Venkatraman, National Publishing Company, (1990).
2. Numerical methods by V. Rajaraman, Prentice - Hall India Pvt. Ltd., (2003).
3. Numerical methods by P. Kandasamy, K. Thilagavathy and K. Gunavathy, S. Chand & Co. (2002).

Books for References

1. Numerical methods for Scientific and Engineering computation by Jain Iyenger and Jain, New Age International (P) Ltd.,(2004).
2. Numerical methods by S.S.Sastry, Prentice Hall of India Pvt. Ltd., New Delhi(2003).

Web Site

http://www.sst.ph.ic.ac.uk/angur/lectures/compphys/compphys.html.

http://www.library.cornell.edu/nn/(Numerical receipier online book in C & Fortran).

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	1	1
	Unit – 2	2	1
	Unit – 3	1	1
	Unit – 4	2	1
	Unit – 5	2	
Section B	Unit – 1		2
	Unit – 2	1	1
	Unit – 3		1
	Unit – 4		1
	Unit – 5		1
Section C	Unit – 1		2
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit – 5		1

CORE ELECTIVE- 2: INTEGRATED ELECTRONICS

SUBJECTCODE:	**THEORY**	**MARKS: 100**
SEMESTER: VI	**CREDITS: 5**	**TOTAL HOURS: 75**

Course Objective: To make the students understand the working of different segments of computational system like memory, Arithmetic logic unit.,

Unit 1 : Fundamental Digital Electronics (15 Hours)

Number systems – binary – hexadecimal – Binary addition – subtraction (1's and 2's compliment method) – multiplication - division - BCD – Conversion – simplification of logic circuits - using (i) Boolean algebra, (ii) Karnaugh map – Demorgan's theorems - NAND and NOR as universal building blocks.

Unit 2 : Combinational Logic Circuits (15 Hours)

Half adder, full adder, half subtractor and full subtractor – 4 bit adder/subtractor - decoder, encoder - multiplexer - demultiplexer.

Unit 3 : Sequential Logic Circuits (15 Hours)

R.S flip flop, D flip flop and JK flip flops - JK Master Slave flip flop - synchronous and ripple counters - BCD counter – Up/Down counters - shift registers - serial and parallel registers - ring and twisted ring counter.

Unit 4 : OP-AMP Basic Applications (15 Hours)

Characteristics parameters – differential gain – CMRR – Slew rate – bandwidth - applications – inverter, non-inverter, integrator, differentiator, summing, difference and averaging amplifier - solving simultaneous equations - comparator - square wave generator - Wien's bridge oscillator - Schmitt trigger

Unit 5 : Timer, DAC/ADC (15 Hours)

Timer 555 - Internal block diagram and working - astable multivibrator - schmitt trigger. D/A converter - binary weighted method - A/D converter - successive approximation method.

Books for Study

1. Digital Principles and Application by Malvino Leach, Tata McGraw Hill, 4th Edition(1992).
2. Digital Fundamentals by Thomas L. Floyd, Universal Book Stall, New Delhi(1998).
3. Introduction to Integrated Electronics by V.Vijayendran, S. Viswanathan (Printers and Publishers) Pvt. Ltd., Chennai(2005).
4. OP - AMPs and Linear Integrated Circuits by Ramakant A. Gayakwad, Prentice Hall of India(1994).

Books for Reference

1. Digital Electronics by Practice Using Integrated Circuits - R.P.Jain - Tata McGraw Hill(1996).
2. Linear Integrated Circuits by D. Roy Choudhury and Shail Jain - New Age International (P) Ltd.(2003).
3. Electronics - Analog and Digital by I.J. Nagrath - Prentice - Hall of India, New Delhi(1999).
4. Integrated Electronics by J.Millman and C.Halkias, Tata McGraw Hill, New Delhi (2001)

Web Site

http://www.dear.harward.edu/courses/es154.
http://www.phys.ualberta.ca/~gingrich/phys395/notes/phys395.html.

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE ELECTIVE- 3 : MICROPROCESSOR FUNDAMENTALS

SUBJECT CODE: 19UPHY317	**THEORY**	**MARKS: 100**
SEMESTER: VI	**CREDITS: 5**	**TOTAL HOURS: 75**

Course Objective:

To study the architecture of the microprocessor 8085 and micro controller 8051

gain knowledge about the hardware and software of microcomputers and relate the functions of 8085 to the present generation computers and to develop their own software for specific tasks

UNIT-I: ARCHITECTURE (15 Hours)

Architecture of 8085 – registers, flags, ALU, address and data bus, demultiplexing address/databus - Control and status signals – Control bus, programmer's model of 8085 – pin out diagram – Functions of different pins

UNIT-II: PROGRAMMING TECHNIQUES (15 Hours)

Instruction set of 8085 – data transfer arithmetic, logic, branching and machine control group of instructions – addressing modes – register indirect, direct, immediate and implied addressing modes.

Assembly language and machine language – Programming techniques – addition, subtraction, multiplication, division, ascending descending order, largest and smallest (single Byte).

UNIT-III: INTERFACING MEMORY TO 8085 (15 Hours)

Memory interfacing – Interfacing 2k x 8 ROM and RAM – Timing diagram of 8085 (MOV Rd, Rs – MVI Rd, data 8)

UNIT-IV: INTERFACING I/O PORTS TO 8085 (15 Hours)

Interfacing input port and output port to 8085 - Flashing LEDs

UNIT-V: INTERRUPTS (15 Hours)

Interrupts in 8085 - Hardware and Software interrupts – RIM, SIM instructions and priorities - Microcontroller 8051- Introduction, Pin configuration and its salient features.

BOOKS OF STUDY:

1. Fundamental of microprocessor 8085 by V.Vijayendran, S. Viswanathan publishers
2. Microprocessor Architecture Programming and application with 8085 by R.S.Gaonkar
3. Fundamental of microprocessor 8086 by V.Vijayendran, S. Viswanathan publishers

BOOKS FOR REFERENCE:

1. Introduction to microprocessor – Aditya Mathur

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE THEORY –1: ALLIED PHYSICS PAPER – I

SUBJECT CODE: 19UPHY331	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 3**	**TOTAL HOURS: 75**

Course Objective: To make the students familiarise with physical concepts to have detailed learning in their core subjects.

Unit 1 : Waves and Oscillations (15 Hours)

Simple harmonic motion – composition of two simple harmonic motion at right angles (periods in the ratio 1:1) – Lissajou's figures – uses – laws of transverse vibrations of strings – Melde's string – transverse and longitudinal modes – determination of a.c frequency using sonometer (steel and brass wires) – ultrasonics – production – application and uses – reverberation – factors for good acoustics of hall and auditorium.

Unit 2 : Properties of matter (15 Hours)

Elasticity : Elastic constants – bending of beam – Young's modulus by non- uniform bending – energy stored in a stretched wire – torsion in a wire – determination of rigidity modulus by torsional pendulum – static torsion.

Viscosity : Coefficient of viscosity – Poissuelle's formula – comparison of viscosities - burette method – Stoke's law – terminal velocity – viscosity of highly viscous liquid – lubrication.

Surface tension : Molecular theory of surface tension – excess of pressure inside a drop and bubble – variation of surface tension with temperature – Jaeger's method.

Unit 3 : Thermal Physics (15 Hours)

Joule-Kelvin effect – Joule-Thomson porous plug experiment – theory and application – liquefaction of gasses – Linde's process – Helium I and II – adiabatic demagnetization. Thermodynamic equilibrium – laws of thermodynamics – entropy change of entropy in reversible and irreversible processes.

Unit 4 : Electricity and Magnetism (15 Hours)

Capacitor – energy of a charged capacitor - loss of energy due to sharing of charges – magnetic field due to a current carrying conductor – Biot Savart's Law – Field along the axis of the coil carrying current – peak, average and RMS values of ac current and voltage – power factor and current values in an ac circuit – circuit control and protective devices – switch and its types – fuses circuit breaker and relays.

Unit 5 : Geometrical optics (15 Hours)

Refraction – Refractive index by microscopy – air cell – refraction at grazing incidence and grazing emergence in prisms – combination of two small angled prisms to produce dispersion without deviation and deviation without dispersion – direct vision prism – constant deviation prism – defects of images – coma – distortion – spherical and chromatic aberration in lenses.

Books for study

1. Allied Physics by R. Murugesan, S.Chand & Co, New Delhi(2008).
2. Waves and Oscillations by Brijlal and N. Subramanyam, Vikas Publishing house,New Delhi.
3. Properties of Matter by Brij Lal and N.Subramaniam, S. Chand & Co., New Delhi(1994).
4. Heat and Thermodynamics by J.B.Rajam and C.L.Arora, S.Chand & Co., 8th edition, New Delhi(1976).
5. Optics and Spectroscopy by R. Murugesan, S.Chand & Co, New Delhi (2005).

Books for Reference

1. Fundamentals of Physics by Resnick Halliday and Walker, John Willey and Sons, Asia Pvt.Ltd., 6th edition, Singapore.
2. Text book of Sound by V.R.Khanna and R.S.Bedi, Kedharnaath Publish & Co, 1st edition, Meerut (1998).
3. Electricity and Magnetism by N.S. Khare and S.S. Srivastava, Atma Ram & Sons, 10th Edition, New Delhi (1983).
4. Optics by D.R. Khanna and H.R. Gulati, S. Chand & Co., New Delhi (1979).

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE THEORY –1: ALLIED PHYSICS – PAPER II

SUBJECT CODE: 19UPHY333	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 3**	**TOTAL HOURS: 75**

Course Objective: To make the students familiarise with physical concepts to have detailed learning in their core subjects

Unit 1 : Physical Optics (15 Hours)

Velocity of light – Michelson's method. Interference : Colours of thin films –air wedge – determination of diameter of a thin wire by air wedge – test for optical flatness – Diffraction – Fresnel's explanation of rectilinear propagation of light – theory of transmission grating – Normal incidence – polarization – double refraction - optical activity – polarimeter.

Unit 2 : Atomic Physics (15 Hours)

Atom model – vector atom model – electron, spin, quantum numbers – Pauli's exclusion principle – electronic configuration of elements and periodic classification of elements – various quantum numbers – magnetic dipole moment of electron due to orbital and spin motion – Bohr magneton – spatial quantisation – Stern and Gerlach experiment.

Unit 3 : Nuclear Physics (15 Hours)

Nuclear model – liquid drop model – magic numbers - shell model – nuclear energy – mass defect – binding energy. Radiation detectors – ionization chambers – GM Counter – Fission Controlled and Uncontrolled chain reaction – nuclear reactor – thermonuclear reactions – stellar energy.

Unit 4 : Elements of relativity and quantum mechanics (15 Hours)

Postulates of theory of relativity – Lorentz transformation equations – derivation – length contraction – time dilation – mass energy equivalence – uncertainty principle – postulates of wave mechanics – Schrodinger's equation – application to a particle in a box.

Unit 5 : Electronics **(15 Hours)**

Basic Electronics: Zener diode – voltage regulator – LED – Transistor RC coupled amplifier – feedback principle – condition for oscillation – phase shift oscillator – Wein's bridge oscillator.

Digital Electronics : NAND and NOR gates – Universal building blocks – Boolean algebra – Demorgan's theorem – verification – elementary ideas of ICs – SSI , MSI, LSI and VLSI – Half adder, Full adder, Half Subtractor and Full subtractor.

Books for study

1. Allied Physics by R. Murugesan, S.Chand & Co, New Delhi(2008).
2. Allied Physics by K. Thangaraj and D. Jayaraman, Popular Book Depot, Chennai(2004).
3. Text book of Optics by Brijlal and N. Subramanyam, S.Chand & Co, New Delhi(2002).
4. Modern Physics by R. Murugesan, S.Chand & Co, New Delhi (2005).
5. Applied Electronics by A. Subramaniyam, National Publishing Co., 2nd Edition, Chennai(2001).

Books for Reference

1. Fundamentals of Physics by Resnick Halliday and Walker, John Willey and Sons, Asia Pvt.Ltd., 6th Edition, Singapore.
2. Optics by D.R. Khanna and H.R. Gulati, S. Chand & Co., New Delhi (1979).
3. Concepts of Modern Physics by A.Beiser, Tata McGraw Hill Publication, New Delhi(1997).
4. Digital Fundamentals by Thomas L.Floyd, Universal Book Stall – New Delhi (1998).

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 4 out of 6questions	20– 25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

ALLIED PRACTICALS: ALLIED PHYSICS – PRACTICALS

SUBJECT CODE: 19UPHY332P	PRACTICALS	MARKS: 100
SEMESTER: II	CREDITS: 4	TOTAL HOURS: 75

Course objective: To make the students skillful in experimentally analysing the physical concepts through practical

(Practical Examination at the end of even semester)

1. Young's Modulus by Non-uniform bending using Pin and Microscope
2. Young's Modulus by Non-uniform bending using Optic lever – Scale and telescope
3. Rigidity modulus by Static torsion method
4. Rigidity modulus by torsional oscillations without mass
5. Surface tension and interfacial tension – Drop Weight method
6. Comparison of viscosities of two liquids – Burette method
7. Specific heat Capacity of a liquid – Half time correction
8. Sonometer – Determination of a.c frequency
9. Newton's rings - Radius of curvature
10. Air wedge – Thickness of a wire
11. Spectrometer – Grating – Wavelength of Mercury lines – Normal Incidence
12. Potentiometer – Voltmeter Calibration
13. P.O. Box – Specific resistance
14. Table Galvanometer – Figure of merit
15. Construction of AND, OR, NOT gates – using diodes and Transistor
16. Zener Diode – Characteristics
17. NAND gate as a universal gate

Note : Use of Digital Balance Permitted

Books for Study and Reference :

1. Practical Physics by M.N.Srinivasan S. Chand & Co.,
2. Practical Physics by M.Arul Thalapathy Comptek Publishers.

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GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A- Grade' by NAAC
(Affiliated to the University of Madras)

BACHELOR OF SCIENCE

(PLANT BIOLOGY AND PLANT BIOTECHNOLOGY)

Regulations and Syllabus

(For the Candidates admitted in 2019 -2020 and thereafter)

B.Sc., Plant Biology and Plant Biotechnology (Batch 2019 – 2020)

Semester - I

PART	Course component	Subject Name	Credit	Hrs.	CIA	ESE	Total
I	**Language**	Tamil - I / Hindi - I	3	6	50	50	100
II	**English**	English – I	3	4	50	50	100
III	**Core - I**	Algae and Bryophytes	4	6	50	50	100
		Practical I: Algae and Bryophytes, Fungi, Plant Pathology and Lichenology	_	2	50	50	100
	Allied - I	Zoology – I	3	6	50	50	100
		Allied Zoology Practical	-	2	50	50	100
IV	**1. NME**	Nursery and Landscaping / Basic Tamil / Basic Hindi	2	2	50	50	100
	2. Skill Based Subject	Soft Skill – I Essentials of Language and Communication	3	2	50	50	100
Total Credits - 18, Total Hours/ week- 30							

Semester - II

PART	Course component	Subject Name	Credit	Hrs.	CIA	ESE	Total
I	**Language**	Tamil - II / Hindi - II	3	6	50	50	100
II	**English**	English – II	3	4	50	50	100
III	**Core - II**	Fungi, Plant Pathology and Lichenology	4	6	50	50	100
	Core – III	Practical I: Algae and Bryophytes, Fungi, Plant Pathology and Lichenology	4	2	50	50	100
	Allied - II	Zoology - II	3	6	50	50	100
		Allied Zoology Practical	4	2	50	50	100
IV	1.NME	Mushroom cultivation / Basic Tamil / Basic Hindi	2	2	50	50	100
	2. Skill Based Subject	Essentials of Spoken English and Presentation skills	2	2	50	50	100
Total Credits - 25, Total Hours/ week- 30							

Semester - III

Part	Course component	Subject Name	Credit	Hrs.	CIA	ESE	Total
I	Language	Tamil III	3	6	50	50	100
II		English III	3	4	50	50	100
III	Core IV	Anatomy, Microtechnique and Embryology of Angiosperms	4	6	50	50	100
	Core	Practical II: Anatomy, Microtechnique and Embryology of Angiosperms, Pteridophytes, Gymnosperms & Paleobotany	–	2	50	50	100
	Allied III	Allied Chemistry I	3	6	50	50	100
		Allied Chemistry Practical	–	2	50	50	100
IV	NME	Environmental Studies	–	2	50	50	100
	Soft Skill	Personality Enrichment	3	2	50	50	100
Total Credits - 16, Total Hours/ week- 30							

Semester- IV

Part	Course component	Subject Name	Credit	Hrs.	CIA	ESE	Total
I	Language	Tamil IV	3	6	50	50	100
II		English IV	3	4	50	50	100
III	Core V	Pteridophytes, Gymnosperms & Paleobotany	4	6	50	50	100
	Core VI	Practical II: Anatomy, Microtechnique and Embryology of Angiosperms, Pteridophytes, Gymnosperms & Paleobotany	4	2	50	50	100
	Allied IV	Allied Chemistry II	3	6	50	50	100
		Allied Chemistry Practical	4	2	50	50	100
IV	Soft Skill	Computing skills	3	2	50	50	100
	EVS	Environmental studies	2	2	50	50	100
Total Credits - 26, Total Hours/ week- 30							

Semester- V

Part	Course component	Subject Name	Credit	Hrs.	CIA	ESE	Total
III	Core VII	Morphology, Taxonomy of Angiosperm & Economic Botany	4	4	50	50	100
	Core VIII	Cell Biology, Molecular Biology and Evolution	4	4	50	50	100
	Core IX	Microbiology	4	4	50	50	100
	Core X	Plant Ecology, Phytogeography and Remote sensing	4	4	50	50	100
		Practical – III: (Morphology, Taxonomy of Angiosperm & Economic Botany, Cell Biology, Molecular Biology & Evolution, Microbiology, Plant Ecology & Phytogeography)	4	8	50	50	100
	Inter-Disciplinary Elective (IDE)	Horticulture & Mushroom Cultivation	5	5	50	50	100
Total Credits - 25, Total Hours/ week- 30							

Semester- VI

Part	Course Componen	Subject Name	Credit	Hrs.	CIA	ESE	Total
III	Core XI	Genetics, Plant Breeding & Biostatistics	4	4	50	50	100
	Core XII	Plant Physiology & Biochemistry	4	4	50	50	100
	Core XIII	Plant Biotechnology	4	4	50	50	100
	Core XIV	Practical III – (Morphology, Taxonomy of Angiosperm & Economic Botany, Cell biology, Molecular Biology and Evolution Microbiology, Plant Ecology & Phytogeography)	–	–	50	50	100
	Core XV	Practical – IV (Genetics, Plant Breeding & Biostatistics, Plant Physiology & Biochemistry, Plant Biotechnology)	4	8	50	50	100
	Elective I	Herbal Botany	5	5	50	50	100
	Elective II	Preservation of Fruits and Vegetables	5	5	50	50	100
V	Extension Activities		1	–	50	50	100
Total Credits - 27, Total Hours/ week- 30							
Grand Total Credits – 140, Grand Total Hours/ week- 180							

CORE I

PAPER TITLE: ALGAE & BRYOPHYTES

SUBJECT CODE : 19UPBT301	**THEORY**	**MARKS:100**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

- To study the characters, ecology, distribution, biology and classification, life cycle and economic importance of Algae and Bryophytes.
- To acquire knowledge on database and online resources of Algae and Bryophytes.
- To understand the origin of life and modern concepts, evolutionary scales and events.

ALGAE

Unit I **15 Hours**

General characters, ecology and distribution; range of thallus organization; cell structure and components; cell wall, pigment system, reserve food, flagella; methods of reproduction; life cycle patterns, Classification of algae (Fritsch,1945); Contribution of Indian algologist – Prof. M. O. P. Iyengar, Prof. T.V. Desikachary, Prof. V.S. Sundaralingam, Prof. V. Krishnamurthy.

Unit II **20 Hours**

Morphology and life cycle of (i) *Nostoc* (Cyanophyceae) (ii) *Chara* (Chlorophyceae) (iii) Coleochaete (Charophyceae) (iv) *Navicula* (Bacillariophyceae) (v) *Sargassum* (Phaeophyceae) (vi) *Kappaphycus* (Rhodophyceae) (No Developmental stages).

BRYOPHYTES

Unit III **20 Hours**

General characters of Bryophytes; ecology and distribution of Bryophytes; Classification of Bryophytes (Watson, 1981); alternation of generations; inter-relationship with algae; Evolution of sporophyte within Bryophytes.

Unit IV **20 Hours**

Distribution, vegetative characters and reproduction of the following genera: *Riccia* (liverworts), *Anthoceros* (Hornworts), *Polytrichum* (Mosses) (No Developmental stages).

Unit V **15 Hours**

Economic importance of algae – Algal database and online resources. Economic importance of Bryophytes - Bryophyte database and online resources.

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Prescribed Book:

1. Smith, G.M. (1955). Cryptogamic Botany (Vol. I Algae, Fungi, & Lichens). McGraw – Hill Book Co., New York.
2. Vashishta, B.R., Sinha, A.K. and Singh. V.P. (2008). Botany for Degree Students: Algae. S. Chand & company Ltd, New Delhi.
3. Chopra, R. N and Kumar P. K. (1988). Biology of Bryophytes, Wiley Eastern Ltd, New Delhi.
4. Prem, P. (1981). Bryophytes – Morphology Growth and Differentiation. Atma Ram & Sons, Lucknow.
5. Rashid, A. 1998. An Introduction to Bryophyta. Vikas Publishing House (P) Ltd., New Delhi.

Suggested Reading

Algae

1. Fritsch F.E. (1948). The Structure & Reproduction of Algae. Vol 2. Cambridge University Press, Cambridge, U.K.
2. Ian Morris, (1967). An Introduction to the Algae. Hutchinson, London.
3. Kumar, H.D. (1999). Introductory Phycology (2nd edition). Affiliated East West Press Pvt. Ltd. Delhi.
4. Pandey**,** B.P. (2001). College Botany Vol. I: Algae, Fungi, Lichens, Bacteria, Viruses, Plant pathology, Industrial Microbiology and Bryophyta. S. Chand & company Ltd, New Delhi.
5. Sambamurthy, A.V.S.S. (2006). A Textbook of Algae. I.K. International Pvt. Ltd., New Delhi.

Bryophytes

1. Smith, G.M. (1955). Cryptogamic Botany Vol. II Bryophytes and Pteridophytes (2nd edn.). Tata McGraw Hill Publishing Co., New Delhi.
2. Srivastava, N.N. (1996). Bryophyta. Pradeep Prakashan, Meerut.
3. Vashista, B.R. (1983). Botany for Degree Students – Bryophyta. S. Chand and Company Ltd., New Delhi.
4. Watson, E. V. (1974). The structure and life of Bryophytes. B.I. Publications, New Delhi.

CORE II

PAPER TITLE: FUNGI, PLANT PATHOLOGY AND LICHENOLOGY

SUBJECT CODE : 19UPBT303	**THEORY**	**MARKS:100**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

- To acquaint the students about morphology, biology and importance of fungi and lichens.
- To provide knowledge on the structure and reproduction of certain selected fungal and Lichen forms besides giving an overview.
- To imPartknowledge on concepts, symptoms and management of various plant diseases.

FUNGI

Unit I **15 Hours**

General Characteristics of fungi – Habit, diversity in soil, air and water, range of thallus organization, cell wall composition, nutrition, reproduction, homothallism, heterothallism, phylogeny. Classification of fungi (Alexopoulos and Mims, 1979); fungal culture – isolation, identification.

Unit II **20 Hours**

Life cycle of *Pythium* (Oomycetes), *Mucor* (Zygomycetes), *Aspergillus* (Ascomycetes), *Puccinia* (Basidiomycetes), *Cercospora* (Deuteromycetes), coprophilous fungi; Mycorrhizal association with higher plants; Economic importance of Fungi.

PLANT PATHOLOGY

Unit III **15 Hours**

Geographical distribution of plant diseases in India; etiology, symptomology; Host – Pathogen relationships; disease control methods (physical, chemical and biological methods); Defence mechanism – Phytoalexin (Allicin and capsidiol).

Unit IV **20 Hours**

Symptoms, causal organism, etiology and management of the following plant diseases – Mycoplasmal disease (Little leaf of Brinjal), Bacterial disease (Citrus canker), Viral disease (Bunchy top of Banana), Fungal disease (Red rot of Sugarcane). Plant quarantine – role and functions, regulations in India.

LICHENOLOGY

Unit V **20 Hours**

Lichens – occurrence, general characteristics, growth forms and thallus organization, reproduction; Nature of associations of algal and fungal partners; occurrence, structure and reproduction of (*Usnea*). Economic importance of Lichens; Lichens as a pollution indicator.

BOOKS

Prescribed Book:

FUNGI

1. Smith, G.M. (1955). Cryptogamic Botany (Vol. I Algae, Fungi, & Lichens). McGraw – Hill Book Co., New York.
2. Vasishta, B.R. and Sinha A.K. (2010). Botany for degree students – Fungi. S. Chand and Company Ltd. New Delhi.
3. Webster, J. (1999). Introduction to Fungi (2nd edition). Cambridge University Press, New York.

PLANT PATHOLOGY

1. Mehrotra, R.S. and Agarwal, A. (2003). Plant Pathology. Tata McGraw Hill, New Delhi.
2. Pandey, B.P. (2001). Plant Pathology. S. Chand & Company Limited, New Delhi.
3. Rangasami, G. and Mahadevan, A. (1998). Diseases of Crop Plants in India. Prentice Hall of India Ltd. New Delhi.
4. Sharma, P.D. (2006). Plant Pathology. Narosa Publishing House, New Delhi.
5. Strange, R.N. (2003). Introduction of Plant pathology. J. Wiley, Chichester/England.

LICHENS

1. Muthukumar, S. and Tarar, J.L. (2006). Lichen Flora of Central India, Eastern book Corporation, New Delhi.
2. Nash, T.H. (1996). Lichen Biology. Cambridge University Press, London.

Suggested Reading

FUNGI

1. Dube, H.C. (2005). An Introduction to Fungi. Vikas Publishing House, New Delhi.
2. Pandey, B. P. (2001). College Botany, Vol. I: Algae, Fungi, Lichens, Bacteria, Viruses, Plant. S. Chand and Co., New Delhi.
3. Sethi, I.K. and Walia, S.K. (2011).Text book of Fungi &their allies. MacMillan Publishers Pvt. Ltd. New Delhi.
4. Singh, R.S. (2002). Principles of Plant Pathology. Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.

PLANT PATHOLOGY

1. Agrios, G.N. (2005). Plant Pathology. Elsevier, Academic Press, New York.

2. Bap Reddy, D. and Joshi, N.C. (1991). Plant Protection in India. Allied Publishers Ltd., New Delhi.
3. Bilgrami, K.S. and Dubey, R.C. (1985). Text book of Modern Plant Pathology. Vikas Publishing House Private Limited, New Delhi.
4. Manners, J.G. (1993). Principles of Plant Pathology. Cambridge University Press

LICHENS

1. Ahamadjian, V. and Hale, M.E. (1973). The Lichens. Academic press, New Delhi.
2. Dharani, D. A. (2000). A Handbook of Lichens. Vedams eBooks (P) Ltd. New Delhi.
3. Hale, M.E. (1983). The Biology of Lichens. Edward Arnold, London.

CORE-III

PAPER TITLE: Algae and Bryophytes, Fungi, Plant Pathology and Lichenology

SUBJECT CODE : 19UPBT302P	**PRACTICAL**	**MARKS:100**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 60**

COURSE OBJECTIVES:

- Outline the classification of Algae and Bryophytes
- Discuss the biological significance of the given specimen
- Identify the morphology and anatomy of Algae and Bryophytes
- Investigate their significance and relate structure and function, draw and label diagrams of the specimen
- Identify the morphology and anatomy of Fungi through dissection
- Investigate their significance and relate structure and function, draw and label diagrams of the specimen
- Identify the Plant diseases, sign and symptoms of pathogens and disease, integrated methods of disease management, use of biological and chemicals in disease management.

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ALGAE **15 Hours**

Study of vegetative and reproductive structures of

- *Nostoc*,
- *Chara*,
- *Coleochate*,
- *Navicula*,
- *Sargassum*,
- *Kappaphycus*.

BRYOPHYTES **15 Hours**

Study of vegetative and reproductive structures of

- *Riccia* (liverworts),
- *Anthoceros* (Hornworts),
- *Polytrichum* (Mosses)

Note: Temporary Preparations / Permanent Slides – Available Materials only

FUNGI, PLANT PATHOLOGY AND LICHENOLOGY

FUNGI: **10 Hours**

- *Pythium*
- *Mucor*
- *Aspergillus*
- *Puccinia*
- *Cercospora*

PLANT PATHOLOGY: **10 Hours**

- Little leaf of Brinjal
- Citrus canker
- Bunchy top of banana
- Red rot of sugarcane.

LICHENOLOGY **10 Hours**

Different types of thalli and their external morphology

Note: Temporary Preparations / Permanent Slides – Available Materials only

CORE IV

PAPER TITLE: ANATOMY, MICROTECHNIQUE AND EMBRYOLOGY OF ANGIOSPERMS

SUBJECT CODE : 19UPBT303	**THEORY**	**MARKS:100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

To understand the anatomical theories and structures of plants

To provide knowledge on the Microtechniques involved in botanical sciences

To imPartknowledge on embryological changes in plants

ANATOMY

Unit I **15 Hours**

Meristems – definition, characteristic features, classification (position, origin, function, plane of division); various theories of meristems (apical cell, histogen, Tunica – Corpus, Korper Kappe, quiescent centre). Permanent tissues – simple tissue and complex tissues. Cell wall – structure and composition. Pits and plasmodesmata; secretary structures, stomatal types; hydathodes; Tissue system (epidermal, ground and vascular), ergastic substances.

Unit II **20 Hours**

Vascular cambium – cork cambium – cell types – its activity and function – Normal secondary growth in stem and root – annual rings, heart wood, sapwood; periderm formation; anomalous secondary growth in dicot stems (*Nyctanthes*, *Boerhavia*, *Bougainvillea*) and monocot stem (*Dracaena*); Nodal anatomy.

PLANT MICROTECHNIQUE

Unit III **20 Hours**

Methods to study plant cell/tissue structure:

Compound microscope – Staining, staining methods, fixation, fixative, preparation of permanent slides – Sectioning – Free hand, Microtomes – types. Squash and smears – Histochemistry.

EMBRYOLOGY OF ANGIOSPERMS

Unit IV **15 Hours**

Development of anther – Microsporangium – Microsporogenesis, Microspores, male gametophyte. Development of ovule – Megasporogenesis, female gametophyte (Monosporic – *Polygonum*, Bisporic – *Allium*, Tetrasporic– *Peperomia*).

Unit V **20 Hours**

Fertilization – Double fertilization, triple fusion, Endosperm and its types (Cellular, Nuclear and Helobial), development of dicot embryo (*Capsella)*, development of monocot embryo (*Najas*), polyembryony, apomixis – definition and types.

BOOKS

Prescribed Books:

ANATOMY

1. Krishnamurthy, K.V. (1980). Wood. Tetrahedron Publications, Tiruchirappalli.
2. Mauseth, J.D. (1988). Plant Anatomy. The Benjamin/Cummings Publisher, USA.
3. Vasishta, P.C. (1977). A Text Book of Plant Anatomy. S. Nagin and Co., New Delhi.

MICROTECHNIQUES

1. Johnson, D.A. (1940). Plant Microtechnique. Mac – Graw Hill, New Delhi.
2. MC Clung, C.L. (1961). Hand book of Microscopical Technique. New York, U.S.A.
3. Patki, L.R. (1992). An Introduction to Microtechnique. S. Chand & Company, New Delhi.

EMBRYOLOGY OF ANGIOSPERMS

1. Raghavan, V. (1997). Molecular Embryology of Flowering Plants. Cambridge University Press, Cambridge.
2. Rogland, A. (2000). Developmental Botany (Embryology of Angiosperms). Saras Publications, Nagercoil.
3. Swamy, B.G.L. and Krishnamoorthy, K.V. (1980). From Flower to Fruit. Tata McGraw Hill Publishing Co. Ltd., New Delhi.

Suggested Reading

ANATOMY

1. Cutter, E.G. (1978). Plant Anatomy Part– I: Cells and Tissues (2nd Edn.), Plant Anatomy Part– II: Experiments and Interpretations. Edward Arnold, London.
2. Esau, K. (1965). Vascular Differentiation in Plants. Holt, Rinehart and Winston, New York.
3. Esau, K. (1980). Plant Anatomy (2nd Edition). Wiley Eastern Ltd., New Delhi.
4. Fahn, A. (1997). Plant Anatomy. Pergamon Press, Oxford.
5. Foster, A.S. (1960). Practical Plant Anatomy. Van Nostrand and East–West Press, New Delhi.

MICROTECHNIQUES

1. Alan peacock, H. (1966). Elementary Microtechnique Edward Arnold (Pub) Ltd.
2. Gray P. (1908). Hand Book of Basic Microtechnique. Mac – Graw Hill, New Delhi.
3. Duddington, C.L. (1960). Practical Microscopy, Pitinan.
4. Ruzin, S.E. (1999). Plant microtechnique and microscopy. Oxford University Press, New Delhi.

EMBRYOLOGY OF ANGIOSPERMS

1. Bhojwani, S.S. and Bhatnagar, S.P. (2011). Embryology of Angiosperms. Vikas Publishing House Pvt. Ltd., New Delhi.
2. Johri, B.M. (1982). Experimental Embryology of Vascular Plants. Springer – Verlag, Heidelberg.
3. Maheswari, P. (1985). An Introduction to the Embryology of Angiosperms. Tata McGraw Hill Publishing Co. Ltd., New Delhi.
4. Maheswari, P. (1963). Recent Advances in the Embryology of Angiosperms. International Society of Plant Morphologists, University of Delhi.
5. Maheswari, P. (1991). An Introduction to Embryology of Angiosperms, Tata McGraw Hill Publishing Co. Ltd.,

CORE V

PAPER TITLE: PTERIDOPHYTES, GYMNOSPERMS AND PALEOBOTANY

SUBJECT CODE : 19UPBT306	**THEORY**	**MARKS:100**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

- To acquaint the students about the latest trends in classification, vegetative morphology and reproductive biology of Pteridophytes and gymnosperms.
- To provide knowledge on the detailed study of plant fossils.
- Open the window to Paleobotany

PTERIDOPHYTES

Unit – I **15 Hours**

General characteristics and distribution of Pteridophytes and classification by Reimer (1954). Stelar evolution in Pteridophytes – Heterospory and seed habit. Apogamy and Apospory. Indian Pteridologists – S.S. Bir, V.S. Manickam. Economic importance of ferns.

Unit – II **20 Hours**

Detailed study of vegetative and reproductive structures in the following genera (no developmental aspects) a) *Lycopodium* b) *Equisetum* c) *Adiantum* d) *Marsilea*

GYMNOSPERMS

Unit III **15 Hours**

General Characters and distribution of Gymnosperms – Classification of Sporne (1965). Economic importance of Gymnosperms.

Unit IV **20 Hours**

Detailed study of vegetative and reproductive structures of the following genera (no developmental aspects) a) *Cycas* b) *Pinus* c) *Gnetum*

PALEOBOTANY

Unit V **20 Hours**

History and scope of Paleobotany; Fossils – types – methods of fossilization – Carbon Dating – Uses. Study of the fossil forms – *Lepidodendron, Lepidocarpon and Calamites*

Prescribed book:

PTERIDOPHYTES

1. Smith, G. M. (1955). Cryptogamic Botany (Bryophytes and Pteridophytes). Vol. II (2nd ed). Tata McGraw Hill Publishing Co. Ltd., New Delhi.
2. Sporne, K. R. (1970). The Morphology of Pteridophytes (The structure of Ferns and Allied Plants). Hutchinson University Library, London.
3. SundaraRajan, S. (1994). Introduction to Pteridophyta. New Age International Publishers Ltd., New Delhi.
4. Vashista, P. C. (1997). Botany for Degree Students – Pteridophyta. S. Chand & Co.Ltd., New Delhi.

GYMNOSPERMS

1. Sharma, O. P. (1997). Gymnosperms. PragatiPrakashan, Meerut, India.
2. Sporne, K. R. (1971). The Morphology of Gymnosperms (The Structure and Evolution of Primitive Seed Plants). Hutchinson University Library, London.
3. Srivastava, H. N. (1998) Gymnosperms. Pradeep Publications, Jalandhar, India.
4. Vashista, P. C. (1996). Botany for Degree Students – Gymnosperms. (2nd ed) S. Chand & Co. Ltd., New Delhi.

PALEOBOTANY

1. Shukla, A. C. and Misra,S P. (1975). Essentials of Paleobotany. Vikas PublishingHouse (P) Ltd., New Delhi.
2. Stewart, W. N. (1983). Paleobotany and the Evolution of Plants. Cambridge University Press, London.
3. Venkatachala, B. S., Shukla, M. and Sharma, M. (1992). Plant Fossils: A link with the past (A Birbal Sahni Birth Centenary Tribute). Birbal Sahni Institute of Paleobotany, Lucknow, India.

Suggested Reading:

PTERIDOPHYTES

1. Bierhorst, D. W. (1971). Morphology of Vascular Plants. The MacMillan Co., New York, London.
2. Eames, A. J. (1936). Morphology of Vascular Plants (Lower Groups). McGraw Hill, New York.
3. Parihar, N. S. (1999). An Introduction to Embryophyta – Pteridophyta. Vol. II. Central Book Depot, Allahabad.
4. Rashhed, A. (1999). An Introduction to Pteridophyta. Vikas Publishing Co., New Delhi.
5. Sharma, O. P. (1990). Textbook of Pteridophytes. MacMillan India Ltd., Delhi.

GYMNOSPERMS

1. Bhatnagar, S. P. and Alok Moitra (1997) Gymnosperms. New Age International (P) (Ltd.) Publisher, New Delhi.
2. Chopra, G. W. and Verma, Y. (1988). Gymnosperms. Pradeep Publications, Jalandhar.
3. Couulter, J. M. and Chamberlain, C. J. (1964). Morphology of Gymnosperms. Central Book Depot, Allahabad.
4. Datta, S. C. (1984). An introduction to Gymnosperms. Kalyani Publishers, New Delhi.

PALEOBOTANY

1. Arnold, C. A. (1947). An Introduction to Paleobotany. McGraw Hill, New York.
2. Seward, A. C. (1959). Plant Life through the ages. Hafner Publishing Co., New York.
3. Scott, D. H. (1962). Studies in Fossil Botany. (Vol. I and II). Hafner Publishing Co.,New York.17
4. Delavoryas, T. (1962). Morphology and evolution of Fossil Plants. Holt, Rinehart &Winston, New York.

CORE VI

PAPER TITLE: ANATOMY, MICROTECHNIQUE AND EMBRYOLOGY OF ANGIOSPERMS, PTERIDOPHYTES, GYMNOSPERMS & PALEOBOTANY

SUBJECT CODE : 19UPBT305P	**PRACTICAL**	**MARKS:100**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 60**

COURSE OBJECTIVES:

Identify meristems ,tissues , stem, root through permanent slides and photographs.
Identify the Structure and development of dicot and monocot embryos through dissection.
Examine the steps involved in Smear/Squash Method and from Prepared Slides.
Identify the ovule types and developmental stages of embryo sac using permanent slides
Identify the Types of endosperm and seed dispersal mechanisms by specimen

ANATOMY **10 Hours**

1. Study of meristems through permanent slides and photographs.
2. Tissues (parenchyma, collenchyma and sclerenchyma); Macerated xylary elements, Phloem (Permanent slides, photographs)
3. Stem: Monocot: *Zea mays;* Dicot: *Helianthus*; Secondary: *Helianthus* (only Permanent slides).
4. Root: Monocot: *Zea mays*; Dicot: *Helianthus*; Secondary: *Helianthus* (only Permanent slides).
5. Leaf: Dicot and Monocot leaf (only Permanent slides).
6. Anomalous secondary structure of dicot stems (*Nyctanthes*, *Boerhavia*, *and Bougainvillea*) and monocot stem (*Dracaena*)
7. Adaptive anatomy: Xerophyte (*Nerium* leaf); Hydrophyte (*Hydrilla* stem).

EMBRYOLOGY OF ANGIOSPERMS **10 Hours**

8. Structure of anther (young and mature), tapetum (amoeboid and secretory) (Permanent slides / Photographs).
9. Types of ovules slides / photographs.
10. Female gametophyte: *Polygonum* (monosporic) type of Embryo sac Development (Permanent slides /photographs).
11. Ultrastructure of mature egg apparatus cells through electron micrographs.
12. Pollination types and seed dispersal mechanisms (including appendages, aril, caruncle) (Photographs and specimens).
13. Dissection of embryo/endosperm from developing seeds. Structure of pollen grains using whole Mounts (*Catharanthus / Hibiscus / Tridax / Acacia* / Grass).

14. Study of ovule types and developmental stages of embryo sac using permanent slides /Photographs.

15. Structure of endosperm (nuclear and cellular); Developmental stages of dicot and monocot Embryos using permanent slides / Photographs

DEMONSTRATION

MICROTECHNIQUE **10 Hours**

1. Microscopic preparation of semi – permanent and permanent slides.

2. Special techniques: smear, squash & maceration.

PTERIDOPHYTA: **10 Hours**

Lycopodium, Equisetum, Adiantum and *Marsilea*.

GYMNOSPERMS: **10 Hours**

Cycas, Pinus and *Gnetum*

PALEOBOTANY: **10 Hours**

A study of the morphology and anatomy of both vegetative and reproductive parts of the living genera and fossil forms.

Fossils – *Lepidodendron, Lepidocarpon and Calamites* (spotters / photographs only)

CORE VII

PAPER TITLE: MORPHOLOGY, TAXONOMY OF ANGIOSPERMS AND ECONOMIC BOTANY

SUBJECT CODE : 19UPBT306	**THEORY**	**MARKS:100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 60**

COURSE OBJECTIVES:

- To study the morphological features of vegetative, inflorescence, fruits characters.
- To imPartknowledge on botanical nomenclature, classifications, merits and demerits of various systems of classifications.
- To understand the systematics of the selected families of the flowering plants with their economic importance.
- To have knowledge on the economically important plants with their systematic treatment.

Morphology

Unit I **10 Hours**

Morphology: vegetative, floral; Root, stem and leaf modifications. Inflorescence types – racemose, cymose, mixed and special types. Fruit (parts, types).

Taxonomy of Angiosperms

Unit II **10 Hours**

Taxonomy: Definition, scope and Importance; Binomial nomenclature; ICN rules; nomenclatural types. Types of classification with merits & demerits – Artificial (Linnaeus), Natural (Bentham & Hooker), Phylogeny (APG).Taxonomic tools: Herbarium (techniques, importance), Botanical gardens, Flora, Identification Keys (single access and multi – access), online database and resources in Taxonomy.

Unit III **15 Hours**

Systematic study and economic importance of the following families – Annonaceae, Capparidaceae, Caesalpiniaceae, Anacardiaceae, Curcurbitaceae, and Rubiaceae.

Unit IV **15 Hours**

Systematic study and economic importance of the following families – Asteraceae, Asclepiadaceae, Euphorbiaceae, Orchidaceae and Poaceae.

Economic Botany

UNIT V **10 Hours**

Study the following groups of plants with special reference to the botanical name, family and morphology of the useful Partand uses: Food – Cereals (*Oryza sativa*, *Eleusine coracana*); Pulses – Black gram (*Phaseolus mungo*), Spices – Pepper (*Piper nigrum*); Edible – Gingelly oil (*Sesamum indicum*); Root tubers – Tapioca (*Manihot esculenta*); Sugar – Sugarcane (*Saccharum officinarum*). Fibres – Textiles (*Gossypium hirsutum*); Timber – Teak wood (*Tectona grandis*); Latex – Rubber (*Hevea brasiliensis*); Medicine – *Ocimum tenuiflorum, Phyllanthus amarus, Solanum trilobatum*

Prescribed Books

TAXONOMY OF ANGIOSPERMS

1. Gurcharan Singh (1999). Plant Systematics – Theory & Practice. Oxford & IBH Publishing Co. (P) Ltd., New Delhi.
2. Jaques, H.E. (1999). Plant Families – How to know them?.Agro Botanical Publishers (India), Bikaner.
3. Jefferey, C. (1968). An Introduction to Plant Taxonomy. J.A. Churchill, London.
4. Lawrence, G.H.M. (1953). Taxonomy of Vascular Plants. Oxford & IBH Publishers, New Delhi.
5. Lawrence, G.H.M. (1955). An Introduction to Plant Taxonomy. The Central Book Depot, Allahabad.
6. Mathews, K.M. (1987 – 90). Flora of Tamilnadu Carnatic (1 – 4vols.) Rapinat Herbarium, Trichy.

ECONOMIC BOTANY

1. Ashok Bendre and Ashok Kumar (1998 – 99). Economic Botany. Rastogi Publications, Meerut.
2. Govinda Praksh and Sharma, S.K. (1975). Introductory Economic Botany. Jai Prakash Nath, Meerut.
3. Gupta, S.K. and Kaushik, M.P. (1973). An Introduction to Economic Botany. K. Nath & Co., Meerut.
4. Hill, A.W. (1952). Economic Botany. Tata McGraw–Hill Publishing Co., New Delhi.
5. Jain, S. K.1981. Glimpses of Indian Ethnobotany. Oxford and IBH, New Delhi.
6. Jain, S. K.1987. A Manual of Ethnobotany. Scientific Publishers, Jodhpur.

Suggested Reading:

TAXONOMY OF ANGIOSPERMS

1. Mathur, R.C. (1970). Systematic Botany (Angiosperms). Agra Book Stores, Lucknow.
2. Mitra, J.N. (1964). An Introduction to Systematic Botany & Ecology. The World Press (P) Ltd., Calcutta.
3. Naik, V.N. (1996). Taxonomy of Angiosperms (9th Ed.). Tata McGraw – Hill Publishing Co., (P) Ltd., New Delhi.
4. Narayanaswamy, R.V. and Rao, K.N. (1976). Outlines of Botany. S. Viswanathan Printers & Publishers, Chennai.
5. Palaniyappan, S. (2000). AngiospermgalinVagaippadu (Taxonomy of Angiosperms). V.K. Publishing House, Chennai.
6. Pandey, B.P. (1997). Taxonomy of Angiosperms. S. Chand & Company Pvt. Ltd., New Delhi.
7. Porter, C.L. (1967). Taxonomy of flowering Plants. Eurasia Publishing House, New Delhi.
8. Ramaswami, S.N., Lakshminarayana, S. and Venkateswaralu, V. (1976). Taxonomy (Systematic Botany) for Degree Course. Maruthi Book Depot, Guntur, Hyderabad.
9. Sharma. O.P. (2007). Plant Taxonomy. Tata McGraw–Hill Publishing Co., New Delhi.
10. Singh, V. and Singh, D.K. (1983). Taxonomy of Angiosperms. Rastogi Publications, Meerut.
11. Sivarajan V.V. (1993). Introduction to the Principles of Plant Taxonomy (2nd Edn.). N.K.P. Robson (Ed.). Oxford & IBH Publishing Co. (P) Ltd., New Delhi.
12. Subramaniyan, N.S. (1999). Laboratory Manual of Plant Taxonomy (2nd Ed.). Tata McGraw – Hill Publishing Co., New Delhi.
13. Vashista, P.C. (1997). Taxonomy of Angiosperms. S. Chand & Company Pvt. Ltd., New Delhi.

ECONOMIC BOTANY

1. Maheshwari, P. and Umaro Singh, (1965). Dictionary of Economic Plants in India. ICAR, New Delhi.
2. Pandey, B.P. (2000). Economic Botany. S. Chand & Company Ltd., New Delhi.
3. Sambamurthy, A.V.V.S. and Subrahmanyan, N.S. (1989). A Text Book of Economic Botany. Wiley Eastern Ltd., Madras.
4. Sen, S. (1992). Economic Botany. New Central Book Agency, Calcutta.
5. Verma, V. (1974). A Text Book of Economic Botany. Emkay Publications, New Delhi.
6. Sreemali, J. L. (1979). Economic Botany. Kitab Mahal, Allahabad.

CORE XIV

PAPER TITLE: MORPHOLOGY, TAXONOMY OF ANGIOSPERM & ECONOMIC BOTANY, CELL BIOLOGY, MOLECULAR BIOLOGY AND EVOLUTION MICROBIOLOGY, PLANT ECOLOGY & PHYTOGEOGRAPHY

SUBJECT CODE :	**PRACTICAL**	**MARKS:100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 120 Hours**

COURSE OBJECTIVES:

Identify the anatomical feature of root, stem and leaf in addition to variation or anomalies. To provide knowledge on the structure of anther and ovule

Identify observe and sketching the floral parts of the plants belonging to different families.

To Find the Economic uses of plants and plant parts.

Explain the steps involved in Smear/Squash Method and from Prepared Slides.

Identify and familiarize the specimens during field visit

Describe the Theory of Evolution considering Darwinism and Modern Synthetic Theory, evolutionary scientists and Geological time scale

Demonstrate the process in remote Sensing, types of satellite mapping and vegetation mapping**.**

MORPHOLOGY, TAXONOMY OF ANGIOSPERM & ECONOMIC BOTANY
20 Hours

1. Morphology of root, stem, leaves and modifications, types of inflorescence and fruits.
2. Plants of local flora included under theory syllabus and family identification and derivation based on reasoning.
3. Dissection, identification, observation and sketching the floral parts of the plants belonging to the families included in the syllabus.
4. Ten (10) Herbarium sheets and field note book to be submitted.
5. Economic uses of plants and plant parts included under theory syllabus.
6. Botanical tour to places for observation, study and collection of plants prescribed in the syllabus for 2 to 5 days under the guidance of faculties.

CELL BIOLOGY **20 Hours**

Squash and Smear techniques.
Ultrastructure of Plant cell and cell organelles with the help of ultra – microphotograph.
Photograph of evolutionary scientists, and Geological time scale.

Demonstration:

Isolation and identification of Cell Organelles

Molecular Biology – Photographs **10 Hours**

1. DNA Structure
2. t RNA
3. DNA – Replication
4. DNA – Repair
5. Genetic code
6. Vectors – PBR 322, BAC &YAC vectors, Lac and TRP operon

Microbiology Practical **20 Hours**

Demonstration / Photographs:

1. Sterilization techniques (Physical, Chemical and Biological)
2. Dilution plate techniques for isolation of bacteria
3. Dilution of plate techniques for isolation of fungi
4. Staining of bacteria – Simple, Gram, Capsule, Spore staining
5. Isolation of pure culture – streak, spread and pour plate methods.
6. Wet mount method, hanging drop method
7. Catalase test, oxidase test, urease test
8. Identification of morphological types and diseases caused by Viruses and bacteria on the basis of the external symptoms (Photographs)
9. Study the quality of milk by methylene blue reductase test.
10. Fermentation of food by yeast.

ECOLOGY, PHYTOGEORAPHY AND REMOTE SENSING **20 Hours**

1 Study the morphological and anatomical adaptations of the hydrophytes, xerophytes, halophytes, epiphytes and parasites.

2. Find out the density, frequency & abundance of plant species by quadrat and Transect methods (Demonstration only).

3. Plant adaptive modifications. Specimens /slides / Photographs.

A) *Opuntia* B) *Euphorbia* C) *Hydrilla* D) *Eichornia* E) *Typha* and F) *Rhizophora*

4. Demonstration – Remote Sensing – study of satellite maps, vegetation mapping.

CORE VIII

PAPER TITLE: CELL BIOLOGY, MOLECULAR BIOLOGY AND EVOLUTION

SUBJECT CODE :	**THEORY**	**MARKS:100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 60**

COURSE OBJECTIVES:

- To acquaint the student about the anatomical and cytological studies of various plant groups.
- To make the student understand the organization of prokaryotic and eukaryotic cell, structure and function of cell organelles including cell division.
- Apply the knowledge gained from plant molecular biology in agriculture.

Cell Biology

Unit I **10 Hours**

Introduction to Cell Biology; Cell Theory; Cell Dimensions; Types of cell – Prokaryotic and Eukaryotic. Cell Boundaries; Cell Wall – Introduction, Occurrence, Gross structure – Layers (Primary wall, Secondary wall, Tertiary wall, Middle lamella, Plasmodesmata and Pits (Simple and Bordered), Ultra structure; chemistry and function. Plasma membrane – Occurrence, Molecular organization, Models, Chemistry and Functions.

Unit II **15 Hours**

Occurrence, Structure and functions of Endoplasmic Reticulum, Golgi bodies, Sphaerosomes; Glyoxisomes; Ribosomes; Mitochondria and Chloroplast. Autonomy of organelles. Occurrence, Structure and functions of Nucleus; Nucleolus; Organization of Chromosomes – Euchromatin; Heterochromatin Special types of chromosomes – Giant Chromosomes (Polytene, Lamp brush and β Chromosomes). Cell cycle, Interphase (G1, S, G2) Mitotic Phase (M – Phase), Cytokinesis phase(C – phase) and Mitosis.

Molecular Biology

Unit III **15 Hours**

Central dogma in Molecular Biology; Structure and functions of genetic material; DNA as Genetic material, DNA Replication and DNA Repair. RNA as Genetic material, RNA structure types and function. Protein synthesis – Transcription & Translation of Prokaryotes & Eukaryotes.

Unit IV **10 Hours**

Gene regulation in Prokaryotes – LAC and TRP – Operon; Positive and negative regulation. Genetic engineering – Vectors; Restriction enzymes; Recombinant DNA Synthesis, Transformation of host selection & Screening of recombinants.

Evolution

Unit V **10 Hours**

Origin of life, Theories of evolution - Lamarckism, Darwinism, Neo-Darwinism, De Vries; Modern concepts of Evolution; Geological Time Scale (GTS); Evolution of plants in evolutionary time scale; Role of RNA in origin and evolution.

Prescribed Books:

1. De Robertis, E.D.P. and De Robertis, E.M.F. Jr. (1980). Cell and Molecular Biology (7th Ed). Saunders College/Holt, Rinehart and Winson, Philadelphia.
2. Grierson, D. and Convey, S.N. (1989). Plant Molecular Biology. Blackie Publishers, New York.
3. Lea, P.J. and Leegood, R.C. (1999). Plant Biochemistry and Molecular Biology. John Wiley and Sons, London.

Suggested Reading:

1. Old, R.W. and Primrose, S.B. (1994). Principles of Gene Manipulation. Blackwell Science, London.
2. Power, C.B. (1984). Cell Biology. Himalaya Publishing Co., Mumbai.
3. Sharma, N.S. (2005). Molecular Cell Biology. International Book distributors, Dehradun.
4. Verma, P.S. and Agarwal, V.K. (1986). Cell Biology and Molecular Biology (Cytology). S. Chand and Company Ltd., New Delhi.

CORE IX

PAPER TITLE: MICROBIOLOGY

SUBJECT CODE :	**THEORY**	**MARKS:100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 60**

COURSE OBJECTIVES:

- To study the micro – organisms and their activities.
- To exploit their potentialities in agriculture, industry and other environmental aspects.
- To understand the mechanism of bacteria and virus Multiplication &Transmissionsystem.
- To understand the sources and importance of Microorganisms.

UNIT I **10 Hours**

Microbiology – history and scope, branches, theory of biogenesis and abiogenesis, contributions of Leeuwenhoek, Louis Pasteur, Robert Koch, Edward Jenner and Paul Ehrlich in microbiology; Sterilization – principles, types and equipment's.

UNIT II **15 Hours**

Bacteria – discovery, general characteristic features, cell structure, nutritional types; classification of Bacteria (Bergey's,1984 – outline only); reproduction – vegetative, asexual and recombination (conjugation, transformation, transduction) and growth curve; identification (catalase, oxidase and urease tests), isolation of bacteria from bacterial culture and staining methods; economic importance.

UNIT III **15 Hours**

Viruses – discovery, structure, general characteristic features; virus classification (ICTV, Baltimore); symptoms of virus infection in plants; transmission of plant viruses; viral genome organization, replication of plant virus (tobacco mosaic virus); structure and multiplication of bacteriophages; virion, virusoids, prion, viroid.

UNIT IV **10 Hours**

Food Microbiology – principles and methods of food preservation; food spoilage– vegetables and fruits, canned food, eggs, milk and milk products, meat and meat products, fish and seas foods; fermented foods – bread, role of yeast &vinegar in fermentation; fermented vegetables.

UNIT V **10 Hours**

Industrial microbiology – Production of enzymes (Amylase), Alcohol (Ethanol) amino acids (Glutamic acid), vitamins (Riboflavin), antibiotics (Penicillin). Aerobiology – scope and Importance. Soil microbiology – role of microbes in soil fertility, soil reclamation and waste water management. Recycling of bio-degradable municipal, agricultural and Industrial wastes.

Prescribed Books:

1. Adams, M.R. and Moss. M.O. (1995). Food Microbiology. New International (P) Ltd. Publishers.
2. Alexander. (1997). Introduction to soil Microbiology. John Wiley and Sons. N.Y.
3. Banwart, G.J., (1989). Basic Food Microbiology, 2nd Edition CBS Publishers and Distributors, New Delhi.
4. David, B.D., Delbecco, R., Eisen, H.N. and Ginsburg, H.S. (1990). Microbiology. 5th Edition. Harper & Row, New York.
5. Dubey, R.C. and Maheswari, D.K. (2005). A Text book of microbiology. S. Chand & Company Ltd. New Delhi.
6. Frazier, W.C and Westhoff, D.C. (1988). Food microbiology, 4th edition, Tata Mac Graw Hill, New Delhi.
7. Gardner, E.J., Simmons, M. J. and Snustad, D. P. (2005). Principles of genetics, 8th Edition. Wiley India Pvt India, New Delhi.
8. Hobbs, B.C. and Roberts, D. (1993). Food Poisoning and Food Hygiene Edward Arnold, London.
9. Denyer, S.P., Hodges, N.A., Gorman, S.P. and Gilmore, B.F. (2011). Hugo&Russell's Pharmaceutical Microbiology.8th edition. Blackwell scientific publications / Oxford.

Suggested Reading:

1. Prescott., L.M., Harley, J.P. and Klein, D.A. (2005). Microbiology. Mc Graw Hill Inc. New York.
2. Lodish, H., Berk, A., Zipursky, S.L., Matsudaira, P., Baltimore, D. and Darnell, J. (2000). Molecular Cell Biology – 4th edition, W. H. Freeman, New York.
3. Maloy, S.R., Cronan JE Jr., and Freitfelder, D. (2006). Microbial Genetics, Jones Bartlett Publishers, Sudbury, Massachusetts.
4. Pelczar Jr. M.J. Chan. E.C.S and Kreig. N.R (2006). Microbiology – 5th Edition Mc Graw Hill Inc. New York.
5. Robinson R.K (1990). Dairy Microbiology, Elsevier Applied science, London.
6. Sale, A.J. (1992). Fundamentals Principles of Bacteriology. 7th Edition. McGraw Hill Publishing Co. Ltd., New York.
7. Stainer, R.Y., Ingraham, J.L., Wheelis, M.L and Painter, P.R. (1986). General Microbiology. MacMilan Education Ltd. London.
8. Subba Rao, N.S. (1995). Soil Microorganisms and plant growth. Oxford and IBH publishing Co. Pvt. Ltd., New Delhi.

CORE X

PAPER TITLE: ECOLOGY, PHYTOGEOGRAPHY AND REMOTE SENSING

SUBJECT CODE :	**THEORY**	**MARKS:100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 60**

COURSE OBJECTIVES:

- To understand the role and importance of biotic and abiotic environmental factors in the sustenance of plant life.
- To understand causes, consequences, prevention, remediation of pollution and efforts taken in reducing or controlling the pollution causing factor.
- To understand the importance of phytogeography and forestry for man and the legal enforcements imposed by government in preventing the loss to the natural regional flora.

Ecology

Unit I **10 Hours**

Plant Ecology – definition, scope, branches; ecological factors – climatic factor, light, temperature, precipitation and Atmospheric humidity. Edaphic factors – soil profile, types of soil, soil humus, soil water, soil pH, soil organisms and soil temp. Biotic factors – positive and negative interactions.

Unit II **10 Hours**

Ecosystem – structure, biotic, abiotic components; food chain; food web; ecological pyramids; energy flow; biogeochemical cycles. Methods of study of vegetation (Quadrat and transect).

Unit III **15 Hours**

Plant communities – General characters, forms and structure, Raunkier's life forms. Plant succession – hydrosere and xerosere. Ecological Adaptations – hydrophytes, xerophytes, halophytes, epiphytes and parasites. Ecotone and edge effect.

Phytogeography

Unit IV **15 Hours**

Principles of phytogeography, continental drift, phytogeographic regions of India; phytogeographic regions of world; Endemism – types and causes; endemic plants of India.

Remote Sensing

Unit V **10 Hours**

Remote sensing: Definition and data acquisition techniques. Application of remote sensing in vegetation classification, understanding the key environmental issues and ecosystem management, Study of satellite maps, vegetation mapping. Role of remote sensing in Forest Management.

Prescribed Books:

PLANT ECOLOGY

1. Agrawal, K.C. (1987). Environmental Biology. Agro Botanical Publisher, India.
2. Arumugam, N. (1994). Concepts of Ecology (Environmental Biology). Saras Publications, Nagercoil, Tamil Nadu.
3. Kumar, H.D. (1992). Modern Concepts of Ecology (7th Edn.). Vikas Publishing Co., New Delhi.

PHYTOGEOGRAPHY

1. Cain, S.A. (1944). Foundations of Plant Geography. Harper & Brothers, New York.
2. Good, R. (1997). The Geography of flowering Plants (2nd Edn.). Longmans, Green & Co., Inc., London & Allied Science Publishers, New Delhi.

Suggested Reading:

PLANT ECOLOGY

1. Odum, E.P. (1971). Fundamentals of Ecology (2nd Edn.). Saunders & Co., Philadelphia & Natraj Publishers, Dehradun.
2. Sharma, P.D. (2000). Ecology & Environment. Rastogi Publications, Meerut, India.
3. Vashishta, P.C. (1990). Plant Ecology. Vishal Publications, Delhi, Jalandhar.

PHYTOGEOGRAPHY

1. Verma, P.S. and Agarwal, V.K. (1999). Concept of Ecology (Environmental Biology). S. Chand & Co., New Delhi.
2. Mani, M.S. (1974). Ecology & Biogeography of India. Dr. W. Junk Publishers, The Haque.

INTER DISCIPLINARY ELECTIVE

PAPER TITLE: HORTICULTURE & MUSHROOM CULTIVATION

SUBJECT CODE :	**THEORY**	**MARKS:100**
SEMESTER: V	**CREDITS: 5**	**TOTAL HOURS: 75**

COURSE OBJECTIVES:

1. Provide the knowledge to establish home gardens scientifically.
2. Help the students to learn horticulture, mushroom cultivation, bio – composting and bio-fertilizer production.
3. Enable the students to become self – employment / entrepreneur.

HORTICULTURE

UNIT – I **15 Hours**

Brief history of horticulture, horticultural classification, horticultural crops, Economic importance; Essentials of nursery Management; Soil management: Garden soil, Physical and chemical properties of soil, Organic matter, Compost, Cultural practices.

UNIT – II **15 Hours**

Water management: Water quality, Irrigation, Mulching. Nursery structures**:** Protected cultivation (Greenhouses), environment controls. Hydroponic culture **–** types of container. Uses of manures and fertilizers in Horticultural crop production. Organic farming.

UNIT – III **15 Hours**

Horticultural crops protection; Environment factors influencing vegetable and fruit production, Physical control – pruning. Chemical control – pesticides, fungicides. Plant propagation – cutting, layering, grafting. Indoor gardening. Floriculture, ornamental gardening and landscaping.

UNIT – IV **15 Hours**

Post harvesting processes –packaging, transport and storage; Chemical treatment. Food processing – freezing, bottling, canning, drying and chemical preservation. Horticultural crops marketing.

MUSHROOM CULTIVATION

UNIT – V **15 Hours**

Prospects and scope of Mushroom cultivation – paddy straw – oyster mushroom. Life cycle of *Pleurotus* species. Nutritional value and control of pests and pathogens. Post harvesting techniques and storage methods of mushroom. Marketing.

Prescribed Books:

1. Bose, T.K. and Yadav, L.P. 1989. Commercial flowers. Naya Prakash, Calcutta.
2. Bose, T.K., Mitra, S.K. and Sadhu, M.K. 1991. Propagation of tropical and subtropical horticultural crops. Naya Prakash.
3. Chadha, K.L. 1986. Ornamental horticulture in India ICAR. Krishi Bhavan, New Delhi.
4. Hartmann, H.T., Kester, D. E., Davies, F.T., Robert L. and Geneve, R.L. 2011. Hartmann and Kester's Plant propagation: principles and practice. 8th ed. Pearson Education, Inc., Publishing as Prentice Hall, One Lake Street, Upper Saddle River, NJ.
5. Kumar, N. 1986. Introduction to Horticulture. Rajalakshmi Publications, Nagercoil.

Suggested Reading:

1. Larsen, R.A. 1981. Introduction to Floriculture. Academic Press, New York.
2. Manibushan Rao, K. 1990. Text book of Horticulture. Macmillan India Limited, New Delhi.
3. Rangaswami, G. and Mahadevan, A. 1999. Diseases of Crop Plants in India (4th edition). Prentice Hall Pvt. Ltd., New Delhi.
4. Singh, R. and Singh, U.C. 2005. Modern Mushroom Cultivation. International Book Distributors, Dehradun.
5. Singh, S.P. 1989. Mist propagation. Metropolitan Book Co., New Delhi.
6. Suman, B.C. and Sharma, V. P. 2006. Mushroom: Cultivation, Processing and Uses. Agrobios, India.
7. Trivedi, P.P. 1983. Home gardening. ICAR, New Delhi.

CORE XII

PAPER TITLE: **PLANT PHYSIOLOGY AND BIOCHEMISTRY**

SUBJECT CODE :	**THEORY**	**MARKS:100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS: 60**

COURSE OBJECTIVES:

- To learn the underlying principles of the various metabolic activities of plants.
- To understand the role of enzymes in various metabolic activities of plants
- To understand the structure and properties of the biomolecules.
- To study the reactions performed by the biological macromolecules.

Plant Physiology

Unit I **10 Hours**

Plant – Water relationship: structure and properties and significance of water – osmotic and non – osmotic uptake of water. Ascent of sap – cohesion theory: root pressure, transpiration, physiology of stomatal action, Translocation of solutes and assimilates. Mass flow, Membrane permeability mineral uptake: Passive and active. Role of major and Minor elements, mineral deficiency symptoms.

Unit II **10 Hours**

Photosynthesis – history of discovery, absorption spectrum, action spectrum, role of pigments, enhancement effect, photosystems I & II, photophosphorylation; carbon assimilation – Calvin cycle, Hatch & Slack pathway, CAM pathway; photorespiration. Respiration – aerobic and anaerobic; Glycolysis, Kreb'scycle and oxidative phosphorylation, energetics of respiration.

Unit III **15 Hours**

Nitrogen Metabolism: Importance of nitrogen in plant life, Nitrogen fixation – abiological and biological (symbiotic and asymbiotic),nitrogen cycle and nitrogen metabolism. Plant growth regulatory substances – auxin, gibberellin, cytokinin, ethylene and abscisic acid (chemical nature, physiological effects and function).Role of hormones in flowering, senescence and abscission. Photoperiodism, vernalization and seed dormancy.

Biochemistry

Unit IV **10 Hours**

Biochemistry: definition and scope. Biomolecules and Biomacromolecules (Brief account). Carbohydrates – Classification – structure and properties of mono, di, tri saccharides. Starch and cellulose – structure and function. Lipids – Classification – Properties – saturated and unsaturated fatty acids. Pigments: structure of chlorophyll, carotenoids, phycobilins and anthocyanin

Unit V **15 Hours**

Properties of Enzymes – Mechanism of Enzyme action – Factors affecting Enzyme activity, Michaelis constant. Coenzymes: Introduction, salient features of coenzymes, mechanism of coenzyme action and Classification of coenzymes (NAD, FAD, CoA, ATP and TPP).

Prescribed Books:

Plant Physiology

1. Pandey, B. P. (2007). Botany for Degree Students: Plant Physiology, Biochemistry, Biotechnology, Ecology and Utilization of Plants. S. Chand & Company Ltd., New Delhi.
2. Pandey, S.N. (1991). Plant Physiology. Vikas Publishing House (P) Ltd., New Delhi.
3. Periyasamy, K. (1978). Cell IyakkaViyal (Cell Physiology). Tamilnadu text Book Society, Chennai.
4. Salisbury, F.B. and Ross, C.W. (1999). Plant Physiology. CBS Publishers and Printers, New Delhi.
5. Srivastava H.S. (2005). Plant Physiology. Rastogi Publications, Meerut.
6. Taiz, L. and Zeiger,E.(1998). Plant Physiology (2nd Ed.). Sinauer Associates, Inc., Publishers, Massachusetts, USA.

Biochemistry

1. Plummer, D.T. (1988). An Introduction to Practical Biochemistry (3rd Edn.,). Tata McGraw Hill Publishing Co., Ltd., New Delhi.
2. Sadasivam.S and Manickam, A. 1996. Biochemical Methods. New Age International (P) Ltd. New Delhi.
3. Srivastava, H.S. (1990). Elements of Biochemistry. Rastogi Publications, Meerut, India.
4. Stryer, L. (1989). Biochemistry. W.H. Freeman & Co., New York, San Francisco.
5. Wilson, K. and Walker, J. (1994). Principles and Techniques of Practical Biochemistry (4th Edition). Cambridge University Press, U.K.

Suggested Reading

Plant Physiology

1. Datta, S.C.1989. *Plant Physiology*, Central Book Depot, Allahabad.
2. Dayananda, B. (1999). *Experiments in Plant Physiology*, Narosa Publishing House, New Delhi.
3. Devlin, R.M. (1969). Plant Physiology. Holt, Rinehart & Winston & Affiliated East West Press (P) Ltd., New Delhi.
4. Hopkins, W. G. 1995. Introduction to Plant Physiology. John Wiley & Sons Inc., New York, USA.

5. Jain, V.K. (1996). Fundamentals of Plant Physiology. S. Chand & Co., New Delhi.
6. Kochar, P.L. 1964. *A Text Book of Plant Physiology*, Atmaram& Sons, Delhi.
7. Leopald, A.C. and Kriedemann, P.E. (1979). Plant Growth and Development. Tata McGraw Hill, New Delhi.
8. Malik, P.C. 1680. Plant Physiology, Kalyani Publishers, New Delhi.
9. Noggle, R. and Fritz (1989). Introductory Plant Physiology. Prentice Hall of India.

Biochemistry

6. Day, P.M. and Harborne, J.B. (2000). Plant Biochemistry. Harcourt Asia (P) Ltd., India & Academic Press, Singapore.
7. De Robertis, E.D.P. and De Robertis, E.M.F.Jr. 2002. Cell and Molecular Biology, Lipponcott Williams and Wilkins. USA.
8. Jain, J.L. (1998). Fundamentals of Biochemistry. S. Chand & Co., New Delhi.
9. Jain, J.L., Jain, S. and Jain, N. (2008). Fundamentals of Biochemistry. S. Chand & Company Ltd., New Delhi.
10. Jayaraman, J. (1981). Laboratory Manual of Biochemistry. Wiley Eastern Ltd., New Delhi.
11. Lehninger, A.L. (1984). Biochemistry (2nd Edition). Kalyani Publishers, Ludhiana, New Delhi.
12. Lewin, B. (2002). Genes VIII. Oxford University Press., Oxford.
13. Nelson, D.L. and Cox, M.M. 1(993). Principles of Biochemistry. MacMillan Worth Publications.

CORE XI

PAPER TITLE: GENETICS, PLANT BREEDING & BIOSTATISTICS

SUBJECT CODE :	**THEORY**	**MARKS:100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS: 60**

COURSE OBJECTIVES:

- Understand the basic principles of heredity and variations in life
- Understand the inheritance pattern of nuclear and extra nuclear genes
- Understand the objectives of plant breeding and the methods of crop improvement
- To understand the various applications of statistics with reference to biological sciences.

GENETICS

Unit I **10 Hours**

History, branches and application, Mendelian genetics – Mendel's experiment, Mendel's laws, monohybrid, dihybrid, back and test cross. Incomplete dominance and co – dominance;

Unit II **15 Hours**

Gene interactions – complementary, supplementary, epistasis, duplicate factors. Chromosome theory of linkage, methods and significance of crossing over, recombinations and mapping of genes on chromosomes. Inheritance patterns in Human (Sex – linked, Autosomal, Mitochondrial, Unifactorial, Multi – factorial).

Unit III **15 Hours**

Polygenic inheritance, Multiple alleles. Extra nuclear inheritance and its significance. Chromosomal aberrations – deletion, duplication, translocation, inversion and sex linkage; sex determination in plants. Mutation – types, mutagenic agents (physical and chemical) and significance.

PLANT BREEDING

Unit IV **10 Hours**

Principles involved in plant breeding, methods of crop improvement – selection (pure line, mass and clonal). Hybridization techniques – interspecific and Intergeneric hybridization, Heterosis – types, causes and effects. Mutation breeding; types of polyploidy and its application in plant breeding.

BIOSTATISITCS

Unit V **10 Hours**

Measures of central tendency – Mean, median and mode. Measures of dispersion – range, variance, Standard Deviation and Standard Error. Small sample testing: t – Test, Chi – square test. Computer application with special reference to SPSS software. Data – types of data. Presentation of data – Graphical methods: Histogram, Bar and Pie diagrams.

Prescribed books:

Genetics

1. John, R. (2004). Fundamental Genetics.Cambridge University Press India Pvt. Ltd., New Delhi.
2. Jain, H.K. (1999). Genetics – Principles, Concepts & Implications. Oxford & IBH Publishing Co., (P) Ltd., New Delhi.
3. Lewin, B. (1990). Genes IV. Oxford University Press, Oxford.
4. Meyyan, R.P. (2000). Genetics & Evolution. Saras Publication, Nagercoil.
5. Palaniyappan, S. (1987). Marabiyal (Genetics – In Tamil). V.K. Publishing House, Madras.
6. Pandey, B.P. (2012). Cytology, Genetics and Molecular Genetics. Tata McGraw – Hill Education Private Ltd., New Delhi.

Plant Breeding

1. Chandrasekaran, S.N. and Parathasarathy, S.V. (1965). Cytogenetics and Plant Breeding. P. Varadhachari& Co., Madras.

Genetics

7. Adrin, M.S.R.B., Owen, R.D. and Edger, R.S. (1979). General Genetics. In: Mendelism. Eurasia Publishing House (P) Ltd., New Delhi.
8. Agarwal, V.K. (2000). Simplified course in Genetics (B.Sc., Zoology). S. Chand & Company Ltd., New Delhi.
9. Ahluwalia, K.B. (1990). Genetics. Wiley Eastern Ltd., Madras.
10. Gardner, E.J. and Snusted, D.P. (1984). Principles of Genetics (7th edition). John Wiley & Sons, New York.
11. Gupta, P.K. (2000). Genetics. Rastogi Publishers, Meerut.
12. Herskowitz, I.H. (1977). Principles of Genetics (2nd Ed.). MacMillan Publishing Co. Inc., New York.
13. Hexter, W. and Yost, H.T. Jr. (1977). The Science of Genetics. Prentice Hall of India (P) Ltd., New Delhi.

14. Renganathan, T.K. and Shanmugavel, S. (1996). Genetics & Genetic Engineering. Commercial Offset Printers, Sivakasi.
15. Sandhya,M.(1994). Genetics – A Blue Print of Life. Tata McGraw – Hill Education Private Ltd., New Delhi.
16. Sarin, C. (1994). Genetics. Tata McGraw – Hill Education Private Ltd., New Delhi.
17. Singleton, R. (1963). Elementary Genetics. D. Van Nostrand Co., Ltd. Inc., New York.
18. Sinnott, E.W., Dunn, L.C. and Dobshansky, J. (1958). Principles of Genetics (5th Edition) McGraw Hill Publishing Co., New York.
19. Strickberger, M.W. (1976). Genetics (2nd Ed.). MacMillan Publishing Co. Inc., New York.
20. Watson, J.D. (1977). Molecular Biology of the Gene. W.A. Benjamin Inc., California.
21. Winchester, A.M. (1958). Genetics (3rd Ed.). Oxford & IBH Publishing House, Calcutta.
22. Winter, P.C., Hickey, G.I. and Fletcher, H.L. (1999). Instant Notes in Genetics. Viva Books (P) Ltd., New Delhi, Mumbai, Chennai.

Plant Breeding

1. Chandrasekaran, S.N. and Parathasarathy, S.V. (1965). Cytogenetics and Plant Breeding. P. Varadhachari& Co., Madras.
2. Daniel Sundararaj, D. and Thulsidas, G. (1972). Introduction to Cytogenetics & Plant Breeding (3rd Ed.). Popular Book Depot, Madras.
3. Sinha, U. and Sinha, S. (1989). Cytogenetics, Plant Breeding & Evolution. Vikas Publishing House, New Delhi.

CORE XV

PAPER TITLE: GENETICS, PLANT BREEDING & BIOSTATISTICS, PLANT PHYSIOLOGY & BIOCHEMISTRY, PLANT BIOTECHNOLOGY

SUBJECT CODE :	**PRACTICAL**	**MARKS:100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 120 Hours**

COURSE OBJECTIVES:

- Discuss the basic principles of genetics, Law of mendel, Gene interaction, Allelic and non- allelic genes.
- List Genetic Problems related to Transmission and Distribution of Genetic Material.
- Describe linkage and crossing over of genes, solving gene mapping problems. Identification of DNA in Plant Material
- Construct a histogram, pie chat and line diagram of plants within the plants.
- Describe more about the characteristics, techniques, principles and application of plant tissue culture
- Explain the main techniques of in vitro culture of plant cells &tissues.
- Discuss the application of vital and physical forces theories on plant physiology most preferably ascent of sap, transpiration, mineral nutrition in plants and phloem transport
- Identify Glucose and Protein Estimation
- Find the methods used for the bio-production of plant secondary metabolites.

A. Genetics **40 Hours**

a. Students are expected to work out and record the problems in:

1. Monohybrid, dihybrid cross and back crosses.
2. All types of modified Mendelian ratios mentioned in the syllabus.

b. Study of human karyotype and study of characteristic karyotypes and symptoms of the syndromes mentioned in the syllabus and record it.

B. Plant breeding **10 Hours**

1. Emasculation and bagging (Demonstration / Photographs)

Biostatisitcs **10 Hours**

1. To study the standard deviation with reference to leaf length in plants (mean, medium and mode).
2. Construct a histogram, pie chat and line diagram of plants within the plants.

PRACTICAL – PLANT BIOTECHNOLOGY 30 Hours

Demonstration and photographs:
M. S. Medium preparation,
Sterilization techniques in plant tissue culture.
Explant sterilization.
Callus induction.
Plantlet.
Hardening.
Embryo culture.
Meristem culture and Anther culture, study of algal biofertilizers,
VAM fungi, Bacteria – Azospirillum

CORE XIII

PAPER TITLE: PLANT BIOTECHNOLOGY

SUBJECT CODE :	**THEORY**	**MARKS:100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS: 60**

COURSE OBJECTIVES:

- To understand the fundamental aspects of plant tissue culture and molecular biology of plants for the production of transgenics.
- To understand the concepts of modern technology pertaining to large scale production of agricultural products.

Unit I **10 Hours**

Biotechnology – definition, history and scope. Isolation and cultivation of economically important microbes (a) Fresh Water Alga (*Scenedesmus*) (b) Fungus (*Aspergillus*).

Unit II **15 Hours**

Plant Tissue Culture – micropropagation, Sterilization Methods, Culture Media – Composition and types of medium, inoculation, incubation and acclimatization. Organ culture: Anther, Embryo & Meristem culture. Organogenesis, somatic embryogenesis and artificial seeds. Somatic Hybridization: Isolation, fusion and protoplast culture. Somoclonal Variation & cryopreservation.

Unit III **15 Hours**

Single cell protein (SCP) – Microorganism used in SCP (*Scenedesmus* and *Spirulina*). Nutritional value of SCP. Algal Biomass production and maintenance. Biofertilizers – Blue green algae, *Azolla*, Fungi – *Mycorrhiza* (VAM and Ectomycorrhiza), Bacterium – *Azospirillum* and *Rhizobium*.

Unit IV **10 Hours**

Biotechnology-introduction and application in various fields. Genetic engineering tools: restriction endo nuclease, DNA ligase, reverses transcriptase, alkaline phosphatase. Vectors-Plasmid vectors, lambda bacteriophage vectors, methods of transferring desired gene into vectors – transformation techniques, Screening for selection of clones – replica plating method, colony hybridization.

Unit V **10 Hours**

Transgenic plants: Insect resistance, Herbicide resistant plants, golden rice, agar production, alginate production, cultivation of sea weeds. Gene delivery system: Plant Viruses, *Agrobacterium* mediated gene transfer (biological), Particle gun bombardment, microinjection, electrophoration. Production of transgenics: disease resistant plant (*Bt* gene).

Prescribed books

1. Kumar, H.D. (1991). A Textbook on Biotechnology. East west press, New Delhi.
2. Parihar, P. (2014). A Textbook of Biotechnology. Argobios Publications, Jodhpur
3. Purohit, S.S. (2003). Agricultural Biotechnology. Agrobios Publications, Joshpur.
4. Trevan, M.D., Boffey, S., Goulding, K.H. and Stanbury, P. (1988). Biotechnology – The Biological Principles. Tata Mc Graw Hill Publishing Co., New Delhi.

Suggested Reading:

1. Chatterji, A.K. (2011). Introduction to Environmental Biotechnology. Prentice Hall India Pvt., Ltd., New Delhi.
2. Dubey, R.C. (2013). A Textbook of Biotechnology. S. Chand & Company Ltd., New Delhi.
3. Gupta, P.K. (1994). Elements of Biotechnology. Rastogi Publications, Meerut.
4. Ignacimuthu, S. (1997). Plant Biotechnology. Oxford & IBM Publishing Co., New Delhi.
5. Kalyan Kumar De. (1997). Plant Tissue culture. New central Book Agency, Calcutta.

Elective – I

PAPER TITLE: HERBAL BOTANY

SUBJECT CODE :	**THEORY**	**MARKS:100**
SEMESTER: VI	**CREDITS: 5**	**TOTAL HOURS: 75**

COURSE OBJECTIVES:

- To understand the role of medicinal plants in Traditional medicine for health care
- To understand the active principles, biological effects of medicinal plants.
- To realize the standardization, quality control and
- To know about the role of Medicinal Plants Board and Herbal drug regulations in India

Unit I **15 Hours**

Herbal medicines: history and scope – definition of medical terms – role of medicinal plants in Traditional Medicine (Ayurveda, Siddha, Unani, Homeopathy and Folk); cultivation – harvesting – processing – storage – marketing and utilization of medicinal plants.

Unit II **15 Hours**

Phytochemistry – active principles and methods of their testing – identification and utilization of the medicinal herbs; *Catharanthus roseus* (cardiotonic), *Withania somnifera* (drugs acting on nervous system), *Clerodendron phlomoides* (anti – rheumatic) and *Centella asiatica* (memory booster).

Unit III **15 Hours**

Pharmacognosy – definition, history, scope and development of Pharmacognosy; Classification of drugs – Alphabetical, morphological, taxonomical, chemical and pharmacological classification of drugs

Unit IV **15 Hours**

Analytical pharmacognosy: Drug adulteration – types, methods of drug evaluation – Biological testing of herbal drugs – Phytochemical screening tests for secondary metabolites (alkaloids, flavonoids, steroids, triterpenoids, phenolic compounds).

Unit V **15 Hours**

Standardization and quality control methods of herbal drugs; WHO Guidelines for Herbal medicines. National Medicinal Plants Board of India – Aim & objectives, functions. Herbal drug regulations in India.

Prescribed books:

1. Agnes Arber (1999). Herbal plants and Drugs. Mangal Deep Publications.
2. Anne Green (2000). Principles of Ayurveda, Thomsons, London.
3. Chopra, R.N.,Nayar S.L. and Chopra, I.C. (1956). Glossary of Indian medicinal plants. C.S.I.R, New Delhi.
4. Kanny, Lall, Dey and Raj Bahadur (1984). The indigenous drugs of India, International Book Distributors.
5. Miller, L. and Miller, B. (1998). Ayurveda and Aromatherapy. Motilal Banarsidass, Delhi.
6. Kokate, C. K., Purohit, A. P., and Gokhale, S.B. (2004). Pharmacognosy, Nirali Prakashan, Pune.
7. Sivarajan, V.V. and Indra Balachandran (1994). Ayurvedic drugs and their plant source. Oxford IBH publishing Co.

Suggested Reading:

1. WHO. (1992). Quality Control Methods for Medicinal Plant Materials. World Health Organization, Geneva.
2. WHO. (1993). Guidelines for the Assessment of Herbal Medicines. WHO Technical Report Series, World Health Organization, Geneva.
3. WHO. (2002). General Guidelines for Methodologies on Research and Evaluation of Traditional Medicine. World Health Organization, Geneva.

Website:

1. https://www.nmpb.nic.in/

Elective – II

PAPER TITLE: PRESERVATION OF FRUITS AND VEGETABLES

SUBJECT CODE :	**THEORY**	**MARKS:100**
SEMESTER: VI	**CREDITS: 5**	**TOTAL HOURS: 75**

COURSE OBJECTIVES:

To acquaint with properties and role of various constituents in foods, interaction and changes during processing.

Discuss the proper handling technologies of fruits and vegetables to reduce post-harvest losses

List the principles and methods of preservation of fruits and vegetables into various products

To acquaint with principles of different techniques used in processing and preservation of foods

Explain the essentials of Intellectual Property Rights, nutritional security, standard protocol for food quality parameters and control systems, food standards, regulations, specifications.

UNIT I **15 Hours**

Preservation Technology – Nature of the fruits & vegetables in respect of their preservation. Different terms used in processing. Classification of fruits and vegetables (basis of p^H, physiology). Principles & techniques involved for different fruit &vegetable preservation.

UNIT II **15 Hours**

Canning operations on fruits and vegetables. Process flow diagram for canning. Canning machineries. Pre – treatment's before canning operations. Fruits and vegetable drying/dehydration: General methods of fruits &vegetable drying/dehydration, sun drying, mechanical drying. Types of dryers, characteristics of dried fruits and vegetables, treatments prior.

UNIT III **15 Hours**

Principle of making jam and jellies as per availability of the fruits. Process flow diagram for jam and jellies. Test of pectin for jam and jelly preparation. Glazed fruits, candy, fruit bar. Principle and methods of production. Pickles – principles of pickle production, different types of pickles from fruits and vegetables.

Unit IV **15 Hours**

Purpose and Scope of Preservation; Objectives of preservation and processing; Principles and Methods of Preservation – Asepsis, Low temperature, High temperature, Removal of moisture, Removal of air; Use of chemical preservatives, Fermentation, Irradiation, Newer methods. Scope of preservation industry in India.

Unit V **15 Hours**

Food Safety Regulations; Key terms, factors affecting food safety, recent concerns, standards and regulations, *Food Safety* and *Standards Authority* of India (FSSAI), FSS acts, FPO mark, International Food Standards (Codex Alimentarius), HACCP.

Prescribed books:

1. Avantina Sharma, (2006). Text Book of Food Science and Technology, International Book Distributing Co, Lucknow, UP.
2. Dauthy, M.E. (1995). Fruit and Vegetable processing, FAO Agricultural Services Bulletin, 119, Rome.
3. Desrosier, N.W. (1973). The technology of food preservation. The Av Publishing Co., Inc West Poet, Connectcut.
4. Fellows, P.J. (2002). Food Processing Technology. Principles and Practices, Second Edition, Woodland Publishing Ltd, Cambridge, England.
5. Lal G., Siddhappa G., and Tondon G. L. (1986). Preservation of fruits and vegetables, ICAR, New Delhi.
6. NIIR Board, (2005). The complete Technology book on processing, dehydration, canning, preservation of fruits and vegetables, National Institute of Industrial Research, Delhi.

Suggested Reading:

1. Peter Zeuthen and Leif Bogh – Sorenson (2005). Food Preservation Techniques, Woodland Publishing Ltd, Cambridge, England.
2. Salunkhe, D.K. and Kadam S.S. (1995). Handbook of Fruit Science and Technology: Production, Composition and Processing, Marcel Dekker, New York.
3. Shrivastava, R. P. and Kumar. S. (1998). Fruit and Vegetable Preservation: Principles and Practices, 2nd Edition, International Book Distribution Co., Lucknow.
4. Sivasankar, B. (2005). Food Processing and Preservation, Prentice hall of India Pvt Ltd, New Delhi.
5. Suman Bhatti and Uma Varma, (1995). Fruit and vegetable processing organizations and institutions, CBS Publishing, New Delhi.
6. Virag Gupta, (2018). The Food Safety and Standards Act 2006 Along with Rules and Regulations. Jain book Depot, New Delhi.

ALLIED I

PAPER TITLE: ALLIED BOTANY – I

SUBJECT CODE : 19UPBTA331	**THEORY**	**MARKS:100**
SEMESTER: I	**CREDITS: 3**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

1. To provide knowledge on the structure and reproduction of certain Cryptogams and Gymnosperms forms besides giving an overview.
2. To make the student to understand the organization of prokaryotic and eukaryotic cell, structure and function of organelles and cell division.
3. To make the student to become familiar and to understand the plant cell, tissues, and internal structures of stem, root and leaves.

Unit I **20 Hours**

Structure and life history of *Nostoc, Chlorella*, *Sargassum, Albugo*, *Penicillium* and *Agaricus.*

Unit II **20 Hours**

Morphology, Anatomy, reproduction and life history of *Funaria, Lycopodium* and *Cycas.*

Unit III **10 Hours**

Viruses: General account of Viruses, structure, replication and transmission of plant diseases Caused by Viruses. Bacteria: Structure, nutrition, reproduction and economic importance. General account of Plant virus (TMV). Outline of plant diseases of important crop plants caused by Bacteria and their control.

Unit IV **20 Hours**

CELL BIOLOGY – Plant cell envelops: Ultra structure of cell wall, molecular organization of cell membranes. Nucleus: Ultrastructure. Nucleic acids – Structure and replication of DNA, types and functions of RNA.

CHROMOSOMES AND CELL DIVISION – Chromosomes: Morphology, Organization of DNA in a chromosome, Euchromatin and Heterochromatin, Karyotype. Special types of chromosomes: Polytene, Lampbrush and B – Chromosomes 3. Cell division: Cell cycle and its regulation, Mitosis, Meiosis and their Significance.

Unit V **20 Hours**

ANATOMY – Meristems: Types, histological organization of shoot and root apices. Tissues: Simple, Complex and special tissues. Leaf – Diversity of internal structure, stomata and epidermal outgrowths. Primary structure of Dicot stem, dicot root and dicot leaf. Structure of monocot root, stem & leaf.

Prescribed Books:

1. Sambamurthy, A.V.S.S 2006. A textbook of Plant Pathology. I.K. International Pvt. Ltd., New Delhi
2. Sharma, O.P 2006. A text book of Thallophyta, McGraw Hill Publishing. Co. New Delhi.
3. Smith, G. M. (1955). Cryptogamic Botany. Vol. II (2nd ed). (Bryophytes and Pteridophytes). Tata McGraw Hill Publishing Co. Ltd., New Delhi.
4. Thakur, A.K. and S.K. Bassi. 2008. A text book of Botany: Diversity of Microbes and Cryptogams. S. Chand & company Ltd, New Delhi.
5. Vashishta, B.R., A.K. Sinha and V.P.Singh. 2008. Botany for Degree Students: Algae. S. Chand & company Ltd, New Delhi.
6. Vashishta, B.R.1990. Botany for Degree Students: Fungi. S. Chand & company Ltd, New Delhi.
7. Vashista. P.C. (1988) – A Text Book of Plant Anatomy. S.Nagin& Co.

Suggested Readings:

1. Alexopolous, J. and W.M Charles.1988 introduction to Mycology.Wiley Eastern, New Delhi. Ananthanarayan & Panikers; Microbiology 9th edition.
2. Cutter. E.G (1989) – Plant Anatomy – PartI – Addison – Wesley Publishing Co.
3. Eames, A. J. (1936). Morphology of Vascular Plants (Lower Groups). McGraw Hill,New York.
4. Esau.K. (1985) – Anatomy of Seed Plants –John Willey
5. Fahn, A. (1982). Plant Anatomy (3rd edition).Pergamon Press, Oxford.
6. Mauseth, J.D. (1988). Plant Anatomy. The Benjamin/Cummings Publisher, USA.
7. Pandey, B.P 2001. College Botany Vol. I: Algae, Fungai, Lichens, Bacteria, Viruses, Plant pathology, Industrial Microbiology and Bryophyta. S. Chand & company Ltd, New Delhi.
8. Pandey, B.P 2007. Botany for Degree students: Diversity of microbes, Cryptograms, Cell biology and Genetics. S. Chand & company Ltd, New Delhi.
9. Parihar, N. S. (1999). An Introduction to Embryophyta. Vol. II. Pteridophyta. Central Book Depot, Allahabad.
10. Sambamurthy, A.V.S.S 2006. A textbook of Algae. I.K. International Pvt. Ltd., New Delhi.

ALLIED II

PAPER TITLE: ALLIED BOTANY – II

SUBJECT CODE : 19UPBTA333	**THEORY**	**MARKS:100**
SEMESTER: II	**CREDITS: 3**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

1. To expose the students to the diagnostic features of selected families.
2. To provide an insight into the physico – chemical organization and the functional aspects of plants.
3. To give an insight into ecology and microbial processes in the environment.
4. To understand the lifecycle of angiospermic plant development and the various processes that are involved.
5. To know the basics in biotechnology.

Unit I **20 Hours**

Systematic study and economic importance of plants belonging to the following families Fabaceae, Cucurbitaceae, Asteraceae, Euphorbiaceae and Poaceae.

Unit II **15 Hours**

Absorption and transport of water and ascent of sap. Transpiration –Definition, types of transpiration, structure and opening and closing mechanism of stomata. Photosynthesis – Light reaction and dark reaction (Calvin cycle), Respiration – Glycolysis, Krebs cycle & Electron transport system. Growth Hormones – Auxins, Gibberellins and Cytokinins.

Unit III **15 Hours**

Ecosystem: Concept and components, energy flow, Food chain, Food web, Ecological pyramids. Energy flow in ecosystem – Trophic level, Food Chain, Food web. Productivity of ecosystem – Primary, Secondary and Net productivity. Biogeochemical cycles – Nitrogen.

Unit IV **20 Hours**

Structure and development of Anther. Structure of ovules, Types of ovules. A brief account on pollination, Fertilization, Double fertilization and Triple fusion.

Unit V **20 Hours**

Mendelism and Law (Mono, Dihybrid, test, back), Non – mendelian (Multiple alleles), Introduction to Plant Tissue culture – Historical background, Principle – Totipotency – differentiation – dedifferentiation and re-differentiation; vascular differentiations. Application of tissues and Cell culture – Micropropagation Genetic Engineering – Brief concept of different gene transfer methods, special emphasis on Agrobacterium mediated gene transfer,

Prescribed Books:

1. Pandey S N, Misra S P, 2008. Taxonomy of Angiosperms. Ane Books India, New Delhi.
2. Rendle A B, 1979. Classification of flowering plants, Vols. I & II. Vikas Publishing House, U.P.
3. Sambamurthy A, 2005. Taxonomy of Angiosperms. I.K. International Pvt. Ltd, New Delhi.
4. Sharma O P, 1996. Plant Taxonomy. Tata McGraw Hill, New Delhi.

Suggested Reading:

1. Jeffery C, 1968. An Introduction to Plant Taxonomy. J and A Churchill, London.
2. Lawrence G H M, 1951. Taxonomy of Vascular Plants. Macmillan, New York.
3. Maheshwari P and Umaro Singh, 1965. Dictionary of Economic Plants in India. ICAR, New Delhi.
4. Naik V N, 1984. Taxonomy of angiosperms. Tata Mc Graw – Hill Publishing Company, New Delhi.

ALLIED II

PAPER TITLE: ALLIED BOTANY – II

SUBJECT CODE : 19UPBTA332P	**PRACTICAL**	**MARKS:100**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 60**

COURSE OBJECTIVES:

Identify the morphology and anatomy of Algae, Fungi and Bryophytes and to investigate their significance and relate structure and function, draw and label diagrams of the specimen

To Identify the Pteridophytes morphology and anatomy of both vegetative and reproductive parts through dissection

To Identify the Gymnosperm morphology and anatomy of both vegetative and reproductive parts through dissection

Identify meristems, tissues , stem, root through permanent slides and photographs.

Identify the Structure and development of dicot and monocot embryos through dissection.

Identify observe and sketching the floral parts of the plants belonging to different families.

ALLIED BOTANY PRACTICAL **60 Hours**

1. Describe and to make suitable micro – preparations: Algae, Fungi, Bryophytes, Pteridophytes and Gymnosperms prescribed in the theory.
2. To describe in technical terms plants belonging to the families prescribed.
3. To describe experimental setup in plant physiology
4. Microphotographs of cell biology
5. Study of internal structure of dicot & monocot stem, root and leaf.
6. Structure of Mature anther and Ovule types (Permanent slides only).

Books

1. Ganguly A.K. 1971, General Botany, Vol. I. The New Book Stall, Calcutta.
2. Rao. K.N. Krishnamurthy K.V. and Rao. G., 1979, Ancillary Botany, Viswanathan Private Ltd.
3. Dutta A.C., College Botany, Vol. I & II.
4. Gupta P.K., Elements of Biotechnology Rastogi and Company

NON MAJOR ELECTIVE – I

PAPER TITLE: NURSERY AND LANDSCAPING

SUBJECT CODE : 19UNME401F	**THEORY**	**MARKS:100**
SEMESTER: I	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

Explain the principles of vegetative propagation.

Relate theoretical and practical knowledge to establish home gardens scientifically.

List and categorize types of soils, chemicals, fertilizers, and Integrated Pest Management.

Outline a fundamental understanding of plant identification, selection, use, and maintenance of plant material best suited for conventional and sustainable landscapes.

Relate and familiarize with grafting, layering and seedling culture

Unit I: **5 Hours**

Nursery: 1. Definition, objectives, scope and building up of infrastructure for nursery. 2. Planning and seasonal activities – Planting – direct seeding and transplants. 3. Nursery Management and Routine Garden Operations.

Unit II: **10 Hours**

Gardening 1. Definition, objectives and scope – different types of gardening. 2. Landscape and home gardening – parks and its components, plant materials and design 3. Computer applications in landscaping. 4. Gardening operations: soil laying, manuring, watering. 5. Landscaping Places of Public Importance: Landscaping highways and Educational Institutions 6. Some Famous gardens of India.

Unit III: **5 Hours**

Propagation methods 1 Sowing/raising of seeds and seedlings, transplanting of seedlings. 2. Air – layering, cutting, selection of cutting, propagule collecting season, treatment of cutting rooting medium and planting of cuttings – Hardening of plants. 3. Propagation of ornamental plants by rhizomes, corms tubers, bulbs and bulbils. 4. Green house – mist chamber, shed root, shade house and glass house for propagation.

Unit IV: **5 Hours**

Gardening – formal garden, informal garden, vegetable garden, landscaped layout designing – formation and maintenance of lawn. Gardens Operation; Planting and Transplantation, Pinching, Debudding. Defoliation, Staking, Pruning. Mulching and Topiary.

Unit V: **5 Hours**

Nursery structures – Green house – shade house, Mist chamber – topiary, Bonsai culture. Manure, composting – Vermicomposting

Terrace garden, Rock Garden, Hydroponics, Terrarium, Arches, Pergolas Bonsai and Lawn.

Cut – flowers, flower arrangements commercial floriculture, cultural practices of Rose and Jasmine.

Prescribed Books:

1. Bose, T.K. & Mukherjee, D. 1972. Gardening in India. Oxford & IBH Publishing Co., New Delhi.
2. Chauhan, D.V.S. 1968, Vegetable production in India, Ram Prasad, SMS Agra.
3. Edmund, J.B Senn, T.L Andrews F.S. and Halforce, R.G 1990. Fundamentals of Horticulture 14th ed) Tata McGraw Hill Pvt .Co. London.
4. Gopalaswami Iyengar, K.S 1970. Complete gardening in India, Kalyan press, Bangalore.
5. Jules J. Janick. J 1982. Horticulture science, 3rd Edition, Surjeet publication, New Delhi.
6. Kumar, N., 1997, Introduction to Horticulture, Rajalakshmi Publications, Nagercoil.
7. Kumar, N. 1990, Introduction to Horticulture. Rohini agencies, Nagercoil.
8. Percy Lancaste, 1979. Gardening in India, Mohan Makhijani and Rekhaprinters, New Delhi.

Suggested Reading

1. Prasad, 2005. Principles of Horticulture, International book distributors, Dehradun.
2. Randhawa G.S 1973. Ornamental Horticulture in India. Today and Tomorrow printers and publishers, New Delhi.
3. 11.Randhawa, G.S. and Mukhopadhyay, A. 1986. Floriculture in India. Allied Publishers.
4. Sandhu, M.K., 1989, Plant Propagation. Wiley Eastern Ltd., Bangalore, Madras.

NON MAJOR ELECTIVE – II

PAPER TITLE: MUSHROOM CULTIVATION

SUBJECT CODE : 19UNME402F	**THEORY**	**MARKS:100**
SEMESTER: II	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

1. To facilitate self – employment.
2. To know the nutrient value of mushroom.
3. Get basic information about the business opportunities in plant sciences.
4. Inform the students about sustainable agriculture and organic farming.
5. Inculcate an enthusiasm and awareness about mushroom cultivation.

Unit I **5 Hours**

History of Mushroom Culture, Mushroom as food. Medicinal value of edible mushrooms; Poisonous mushrooms. Types of edible mushrooms available in India – *Volvariella, Volvacea, Pleurotus citrinopileatus, Agaricus bisporus*. General outline of life cycle of Edible mushroom. Tests for identification – Nutritive value of mushrooms.

Unit II **5 Hours**

Types of mushrooms – button mushroom, oyster mushroom and milky mushroom, poisonous mushroom – methods of identification. Characteristics of common edible mushrooms .Life cycle of a common mushroom (Agaricus).

Unit III **10 Hours**

Culture Techniques – Spawn – isolation and preparation. Preparation of compost – Spawn running – Harvest methods. Storage: Short – term storage (Refrigeration – up to 24 hours).Long term storage, drying, storage in salt solutions. Nutritive values– Proteins, amino acids, mineral elements. Nutrition – Carbohydrates, Crude fibre content – Vitamins. Cultivation of milky mushrooms – using paddy straw and saw dust by polybag.

Unit IV **5 Hours**

Infrastructure and Inputs – Mushroom Cultivation: Infrastructure and implements – mushroom sheds, design, conditions, materials – Factors influencing mushroom cultivation. Farm design and control of pests and diseases. Preservation and storage of mushrooms .Diseases and pests of mushrooms.

Unit V **5 Hours**

Value added products from mushroom – pickles, candies, dried mushrooms. Delicious recipes of mushroom – Economic importance of mushrooms. Cost benefit analysis – Marketing in India and abroad. Research Centres – National level and Regional level.

Prescribed Books:

1. Pandey, R.K. and Ghosh, S.K. 1998. Hand book on mushroom cultivation. Emkay Publications Delhi.
2. Swaminathan, M.S. 1990. Food and Nutrition. The Bangalore Printing and Publishing Co. Ltd.Bangalore.
3. 9.Tewari and Pankaj Kapoor, S.C. 1988. Mushroom cultivation, Mittal Publications. New Delhi.

Suggested Book:

1. Nita Bahl, (1984). Handbook on Mushrooms, Oxford and IBH Publishing Company
2. Aneja K. R. 1996. *Experiments in Microbiology, Plant pathology, Tissue culture and Mushroom cultivation*. Wishwa Prakasan, Delhi.
3. Nair M.C (eds). *1990 Mushroom Technical Bulletin* 17, Kerala Agricultural University Mannuthy
4. Nita Bahl 2002. *Hand book on Mushrooms*, Oxford & IBH Publishing C. Pvt. Ltd. New Delhi.
5. Hirst, B. 2015. Mushrooms: A Beginners Guide to Home Cultivation. Create space Independent Publishing Platform. USA.
6. Marimuthu, T., Krishnamoorthy, A.S., Sivaprakasam, K. and Jayarajan, R. 1991.Oyster Mushrooms. Department of Plant Pathology, TNAU, Coimbatore.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13-19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20-25	10	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	3	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A - Grade' by NAAC
(Affiliated to the University of Madras)

BACHELOR OF SCIENCE
(VISUAL COMMUNICATION)

Regulations and Syllabus

(For the Candidates admitted in 2019 -2020 and thereafter)

SEMESTER - I

SEMESTER I
CORE I
PAPER TITLE: INTRODUCTION TO VISUAL COMMUNICATION (THEORY)

Subject Code :	Theory	100 Marks

Semester 1
Credits 4
Hours per Week 5

LEARNING OBJECTIVES

- To Understand the Basic Concepts in Communication with Special Reference to Visual Communication
- To Understand the Role and Significance of Communication in In Human Life
- To Familiarize How Communication Models Impact The Sender And Receiver.
- To Understand the Types of Non-Verbal Communication and Its Connection to Visual Communication

COURSE OUTCOMES

- Critically Understand the Impact of Communication on the Transformation and Progression of the Society
- Skilled Interpreter and Competent User of Non-Verbal Communication
- To Examine the Communication Differences When Working With Various Formats of Visual Communication

UNIT I Understanding Communication

Meaning And Definition Of Communication - Importance Of Verbal And Nonverbal Communication - Types Of Communication –Intrapersonal, Interpersonal And Group Communication, - Levels Of Communication- Technical, Semantic And Pragmatic- Semiotic Communication- Types Of Sings And Codes, Interpreting Signs, Sign, Signifier, Signified, Role Of Kinesics.

UNIT II The Process of Communication

Message, Meaning, Denotation, Connotation, Culture, Code - Models Of Communication Classical, Intermediary, Interactive Transactional Model, Berlo's SMCR Model, Shannon-Weaver Mathematical Model

UNIT III Theories of Communication

Cognitive Dissonance, Selective Perception, Cumulative Theory, Use and Gratification Theory, Social Learning Theories, Development and Democratic Participation Theory

UNIT IV Mass Communication

Different Types Of Mass Communication – Folk Media, Print Media, Broadcast Media, New Media, Advertisement, Still Pictures And Motion Pictures – Functions Of Mass Communication- Scope Of Mass Communication

UNIT V Visual Communication

Visual Thinking- Principles of Visual and Other Sensory Perceptions Color Psychology and Optical / Visual Illusions - The Process of Developing Ideas-Verbal, Visual, Combination and Thematic and Associative Techniques

Reference Books

- DeVito Joseph A. Human Communication – The Basic Course (2006) Pearson, New York
- Kincaid, Lawrence and Wilbur Schramm (1974) Fundamentals of Human Communication. East West Communication Institute, Honolulu
- William J Seiler and Melissa L Beall – Communication- Making Connection
- Denis Mc Quail – Mass Communication Theory – An Introduction (1994) Sage. London
- Shaun Moores – Interpreting Audience – The Ethnography of Media Conception (1993) Sage Publications, London
- The Process of Communication – An Introduction to Theory and Practice – David K S Berlo, Rinchart, 1960.

Web References

- www4.Uwm.Edu/Cuts/Bench/Commun.Htm
- www.En.Wikepedia.Org
- web.Njit.Edu/~Lipuma/352comproc/Comproc.Htm
- www.Buzzle.Com/Articles/Type-Of-Communication.Html
- www.Slideshare.Net/Arzoosahni/Visual-Communication-10203255
- En.Wikipedia.Org/Wiki/Visual_Communication

Question Paper Pattern

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Section A	Definition/Principle Answer All Questions (Each In 50 Words)	1-10	2	20
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Section C	Essay Answer Any 2 Out Of 5 Questions (Each In 1200 Words)	19-23	20	40

Distribution of Questions

Sections	Units	No. Of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

SEMESTER I
CORE II
PAPER TITLE: VISUAL ART (PRACTICAL)

Subject Code :	Theory	100 Marks

Semester	1
Credits	4
Hours per Week	6

COURSE OBJECTIVES
To Understand The Nuances Of Art And Master The Techniques Of Painting. To Acquire Knowledge to Express Ideas in the Form of Drawing and Paintings

COURSE OUTCOME
Students Will Learn the Aesthetics and Concepts of Freehand Drawing from the Basics to the Advanced Light and Shadows

UNIT I
Lines, Geometric Shapes, Form, Value and Space, Light and Shadow, Texture, Basic Still Life, Proportion and Enlargement (Using Grids)

UNIT II
One, Two and Three Point Perspectives, Perspective on Shapes and Cylinders, Applying Perspective on Nature and In Architecture, Linear and Areal Perspective,

UNIT III
Color (Theory), Color and Harmony, Water and Poster Color on Paper, Landscape, Architecture and Still Life (In Various Media), Introduction To Mixed Media And Pen (Cross Hatching And Pointillism)

UNIT IV
Human Anatomy, Figure Drawing (Developing Stick Figures), Human Body Proportion, Male and Female, Figures in Action, Frontal and Profile Study (Self-Portraiture),

UNIT V
Gestures and Expressions (Hands, Legs, Facial), Impressionism, Imaginative Drawing, Story Boarding, Field Work, Project

Books for Reference

- Gaspere De Fiore, [1983] Draw It! Paint It! Drawing Course, Eaglemoss Publications Ltd.
- Henry M. Gasser, [1968] How To Draw And Paint, Dell, New York.
- Arthur L Guptill, [1984] Freehand Drawing – Selftaught, Watson Guptill Publications, New York.
- Jogndevane, [1988] Drawing and Painting – The Portrait, Tiger Books International, London.
- Stansmith (Ed), [1986] How to Draw and Paint – Landscapes, the Figure, New Burlington Books, London.

SEMESTER I
ALLIED I
PAPER TITLE: BASIC PHOTOGRAPHY (THEORY)

Subject Code :	**Theory**	**100 Marks**

Semester 1
Credits 5
Hours per Week 5

COURSE OBJECTIVES
To Understand The History, Nuances Of Photography. Principals Working and Types of Cameras and Its Accessories, Lights and Its Uses at the End of This Course the Learner Is Expected

COURSE OUTCOME
Student Outcomes To Acquire Knowledge About Basic Photography To Strengthen The Knowledge On Concept, Model And Theories Of Photography To Develop Content Using The Features In Photography

UNIT I
Photography – Evolution – Language And Meaning – Principles Of Still Camera Parts Of A Camera –View Finder, Focusing System Etc. -Basics Of Camera (Aperture, Shutter Speed, Focal Length, F-Stop, Depth Of Field Etc.,) Types Of Lens, Functions Of Lens, Camera Operations.

UNIT II
Types Of Camera – Pinhole – Box – Miniature – TLR – SLR – Special Types Of Camera And Digital Camera Digital Still Camera – Tripod – Qualities Of A Good Tripod.Types and Functions of a Tripod.

UNIT III
Understanding Lighting-Indoor And Outdoor, Exposing And Focusing, Types Of Lighting, Natural And Artificial Lights, Controlling Lights, Exposure Meters, Differential Focus, Light Filters, Flashes. Designing With Lights, Light Painting.

UNIT IV
Heat and Light, Color Temperature, Manipulation of Color and Light.Factors Determining Camera Exposure – Basic Elements of Composition – Perspectives.Pioneers of Photography, Indian Photographers.

UNIT V
Branches of Photography - Nature – Architecture – Life – Landscape – Wildlife – Sports Advertising Portraits – Travel – Fashion – Industrial – Product – News Photography – Photo Journalism –Photo - Essays, Writing Captions, Photography for Advertising-Consumer and Industrial. Planning a Studio-Shoot, Location, Set Props and Casting.

Prescribed Books:

- Freeman, Michel, Introduction to Photography. London: Greenwood Press, 1990.
- Sammon, Rick Complete Guide to Digital Photography. New York: W.W
- Feininger, Andreas, Complete Color Photographer. London: Thamos and Hadson, 1971
- Mastering Digital SLR Photography - David D. Busch

Reference Books:

- Understanding Exposure by Bryan Peterson
- Tony Northrup's DSLR Book: How to Create Stunning Digital Photography
- The Digital Photography Book Volume 2 by Scott Kelby
- The Creative Digital Darkroom by KatrinEismann and Sean Duggan
- The Hot Shoe Diaries by Joe Mcnally
- Collins Complete Photography Course by John Garrett
- The Photographer's Story: The Art of Visual Narrative by Michael Freeman
- The Digital Photography Handbook: An Illustrated Step-By-Step Guide by Doug Harman
- The Lens: A Practical Guide for the Creative Photographer by N.K. Guy
- The Art of Photography: An Approach to Personal Expression by Bruce Barnbaum
- Scott Kelby's- Digital Photography
- The Photographer's Eye: Composition and Design for Better Digital Photos -Michael Freeman
- Picturing Time: The Greatest Photographs of Raghu Rai

Websites

- www.Kenrockwell.Com/Tech/Books.Htm
- www.Improvephotography.Com/Photography-Basics
- www.Learnbasicphotography.Com

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	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
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	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	2	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	0	
	Unit - 5	0	

SEMESTER I
NON MAJOR ELECTIVE
PAPER TITLE: VISUAL LITERACY (THEORY)

Subject Code :	Theory	100 Marks

Semester	1
Credits	2
Hours per Week	2

COURSE OBJECTIVES
To Provide General Orientation on Visual Literacy

UNIT I
Reading Visual Elements – Dot, Lines, Shapes, Forms, Contour, Texture, Scale, Perspective Etc.

UNIT II
Picture Reading – Figurative Level – Relationship Of Elements, Perception, Constancies And Perceptual Grouping; Symbolic Level – Verbalization And Creativity. Visual Building Vocabulary – Exaggeration, Distortion, Stylization and Abstraction.

UNIT III
Rendering Objects – Still Life, Sketching, Free – Hand Drawing; Color, Form and Pictorial Space, Emphasis on Surface Characteristics, Exploration of Media, Material and Scale.

UNIT IV
Vocabulary Of Color – Optical, Pigment, Chromatic, Achromatic, Tone, Shade, Tint, Value, Saturation Aspects Of Color, Meaning Of Color, Functions Of Color – Attraction, Association, Retention And Atmosphere, Psychological Impact Of Color.

UNIT V
Effective Understanding of Tools and Different Media of Drawing – Pencil, Crayon, Charcoal, Pastels, Pen and Ink, Markers, Water Color, Gouache, Acrylic, Oli Color, Collage And Mixed Medium And Techniques.

Prescribed Books:

- H. Kumar Vyas, Design and Environment, National Institute of Design, Ahmadabad.
- Robert W. Gill, Rendering With Pen and Ink, Thames and Hudson, 1981
- Stan Smith, Anatomy, Perspective and Composition, Macdonals, 1984

Websites:

- www.Visual-Literacy.Org
- www.Vislit.Org/Visual-Literacy

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	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

SEMESTER - II

SEMESTER II
CORE III
PAPER TITLE: FILM STUDIES (THEORY)

Subject Code :	**Theory**	**100 Marks**
Semester	2	
Credits	4	
Hours per Week	5	

COURSE OBJECTIVES:

- To Understand the History of Film Industry.
- To Understand The Era Of Classical Cinema.
- To Understand The Different Types Of Story Narration.

LEARNING OUTCOME:

- Gaining the Knowledge of the History of World Cinema.
- Gaining the Knowledge In Relation To the Stories That Creates the Impact.
- Gaining the Knowledge of the Different Cultural Expression through the Cinema.
- To Have A Clear Understanding About The History Of Various Film Forms And The Background Of Cinema.

UNIT I

History Of Indian Film Industry; Film In The Era Of Freedom Movement, Major Landmarks In Hindi Tamil And Other Regional Cinema, Indian Cinema Now

UNIT II

History of International Film- Early Cinema (1893-1903). Silent Era And Birth Of Talkies And Color Films- Development Of Classical Hollywood Cinema, German Expressionism, French Impressionist Cinema, French New Wave, Soviet Montage, Italian Neorealism

UNIT III

Film Forms (Types), Three Stages of Production-Preproduction, Production and Post Production; Script Basics- Story, Development, Script; Storyboard and Screenplay; Synopsis and Knot; Theme, Pace And Tone; Narrative Structure- Beginning, Middle and End; Conflict, Resolution and Climax, Narrate Approaches

UNIT IV

MISE EN SCENE And Framing, Importance Of Mise En Scene, Montage; Film As A Language; Film Theories; French Impressionism, Soviet Formalism (Soviet Montage); Montage And Film Semiotics, Japanese Film, Feministic Approach To Film, Film Noir, Neo Realism; Film Through The Angles Of Press Theories- Authoritarian; Social Responsibility; Marxian And Soviet Media Theory. Voyeurism, Diegetic, Audience as Meaning Makers; Lighting and MISE EN SCENE in Meaning Making Process

UNIT V

Auteurs And Their Styles(International; Sergei Eisentein, Orson Welles, Charles Chaplin, William Wyler, Kurasowa, Coppola, Majidi Among Others) Indian Auteurs (Sathyajit Ray, Ritwikghatak, Adoorgopalakrishnan, John Abraham, Balumahendra, Mahendran, K Balachander, Rituparnoghosh, Shyambenagal, Mrinalsen Among Others) , Film Criticism, Responsibilities Of A Film Critic, Editing And Post Production; Analysis Of Film And Film Research; Censorship; Film Organizations And Bodies

Projects:

- New Auteurs, Film Analysis, Film Club Activities

Prescribed Books:

- Thoraval, Yves (2000) the Cinema Of India (1896-2000)
- Robarge, Gaston: The Subject of Cinema
- Robarge, Gaston (1977): Films for an Ecology of Mind

Reference Books:

- Halliwell: The Filmgoers Companion 6th Edition
- Arora: Encyclopedia of Indian Cinema
- Baskar, Theodor: Eye of the Serpent

Websites:

- www.Filmclass.Net/Elementsfilm.Htm
- www.Raindance.Org/9-Elements-Of-Great-Films
- www.Elementsofcinema.Com/Cinematography/Composition.Html

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	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

SEMESTER II
CORE IV
PAPER TITLE: VECTOR GRAPHICS (PRACTICAL)

Subject Code :	**Theory**	**100 Marks**
Semester:	2	
Credits:	4	
No. Of Hours per Week:	5	

COURSE OBJECTIVES

- Create illustrations from the development of the original concept to final execution.
- Apply theories and principles of design and communication to the development of effective illustrations.

COURSE OUTCOME

- This course was designed to teach you everything you need to know to make full use of Adobe Illustrator. However, you should be forewarned that Illustrator is a large program because there is so much you can do with it.

UNIT I

- Design A Multi-Color News Paper Advertisement for Commercial Organizations
- Design A 'Poster' For The Above-Mentioned Event.

UNIT II

- Design a 'Brochure' For Any One of the Above-Mentioned Agencies,
- Design the 'Cd Cover'

UNIT III

- Design the 'Label' & Package Cover Of Any Consumer Product.
- Design A '5-Fold Greeting Card' For An Occasion Of Your Choice.
- Design the 'Hanging Ad'

UNIT IV

- Design A 'Spokes Character' For A Product Of Your Choice.
- Design a Web Banner for Company
- Design a Logo

UNIT V

- Digital Photo Graphics Developments
- Black & White Development
- Ad Photo Background and Character Development

Reference Book

- Vector Pattern Library (Dover Clip Art Design Tools)-Alan Weller
- Dover Clip Art Design Tools-Dover Publications; Green ed. edition (February 17, 2011)

Website Link

- www.vecteezy.com/free-vector/book
- www.freepik.com/free-photos-vectors/books
- www.freevector.com/vector/book

SEMESTER II
ALLIED II
PAPER TITLE: VISUAL DESIGN (PRACTICAL)

Subject Code :	**Theory**	**100 Marks**

Semester: 2
Credits: 5
No. Of Hours per Week: 6

COURSE OBJECTIVES:
To Understand The Concept Of Visualization And The Idea Of Graphic Design Form.

COURSE OUTCOME:
Students Will Learn the Basics of Design, Patterns and Texture and Its Key Concepts

Exercise:

- Dots – Same Size
- Dots – Small to Big
- Lines – Horizontal Lines
- Vertical Lines
- Diagonal Lines
- Lines – Thick to Thin
- Lines – Thin To Thick to Thin
- Lines – Thick Too Thin To Thick
- Curves
- Visual Texture Variations
- Calligraphy
- Typography
- Color Gradation
- Harmony and Disharmony in Colors
- The Color Triangle
- Textile Design
- Floor Designing
- Logo
- Letter Head
- Visiting Card
- Brochure
- Poster Designing
- Greeting Card
- Invitation
- Package
- Templets
- Digital Painting
- Movie Title Designing

SEMESTER II
NON MAJOR ELECTIVE
PAPER TITLE: MEDIA CULTURE AND SOCIETY (THEORY)

Subject Code :		**Theory**	**100 Marks**
Semester:	2		
Credits:	2		
No. Of Hours per Week:	2		

UNIT I

Media - Understanding Media; Definition, Characteristics and Function Of Media- Effects of Media on Individual, Society and Culture

UNIT II

Culture: Definition and Concept of Culture- Cultural Studies Approach to Media - Popular Culture Film, Television, Music Etc. - Understanding Other Cultures

UNIT III

Society - Evolution of Society- Influences of Religion and Culture on Society-Rural and Urban Society, Tribal Social System- A Gender Perspective to Society

UNIT IV

Media's Relationship With Culture And Society- Relationship Between Media And Various Social Issues- Role Of Media In The Shaping And Development Of Culture And Society-

UNIT V

Effects Of Social Media On Society - Relationship Between Internet Technology And Society Impact Of Social Media On Individual And Society – Social Media And Democratic Expression - Online Activism, Impact Of Online Social Groups On Society

References:

- Potter, James W (1998)
- Media Literacy. Sage Publications
- Grossberg, Lawrence Et Al (1998)
- Media-Making: Mass Media in a Popular Culture. Sage Publications Berger,
- AsaAuthur (1998).
- Media Analysis Technique. Sage Publications

Prescribed Books:

- John Clare, (2004). *Handbook for Media Handling*, UK: Gower Publishing Ltd.
- Allen H Centre and Patrick Jackson, *(*2003). *Public Relations Practices*, USA: PrenticeHall Inc.
- Dorothy I. Doty And Marilyn Pincus, *Publicity and Public Relations*, USA: Barron's Educational Series Inc.,

Websites:

- www.Newschool.Edu/Public-Engagement/Ms-Media-Management/
- www.Digitalmediamanagement.com

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	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

SEMESTER - III

SEMESTER III
CORE V
PAPER TITLE: TELEVISION PRODUCTION (THEORY)

Subject Code :		Theory	100 Marks
Semester:	3		
Credits:	4		
Hours per Week:	6		

COURSE OBJECTIVES:

- This Course Aims To Provide Students With The Fundamental Knowledge And Skills Both In Theory And Practice For Content Production, Program Making, Broadcast Management And Broadcasting In Radio, To And I Based Media.

LEARNING OUTCOME:

- Acquire Technical Knowledge Needed For Audio Visual Content Production
- Be Able To Run the Work Flow of Shooting/Recording, Editing and Broadcasting
- Be Able To Work in Multi-Camera Productions and Studio Environment
- Be Able To Work in Different Stages of Program Production
- Be Able To Identify Different Program and Broadcast Formats
- Be Able To Develop and Apply a Program Idea
- Be Able To Work as a Team and Under Stress

UNIT I

Introduction Of Visualization, Idea To Script Process;, Development Of Ideas, Script Discussions, Characterization, Dialogue Writing, Screen Play, Thinking In Terms Of Visuals, Principles Of Script Writing, Creative Writing, Script Formats. Story Board, Planning Episode Wise, Stages Of Production, Duties Of Program Producer, Director And Script Writer, Production Crew/Team And Their Duties, Budgeting, Floor Plan, In-Door, Set, On-Sights Sets, - Outdoor On-Sight Sets, Blue Matte. Etc.,

UNIT II

Types Of Shots, Shot Composition, Angles, Camera Movements, Camera Techniques & Operation, Types Of Camera, Video Formats(VHS, SVHS, U-Matic, Beta, Digital), Audience Interaction Production Standards (NTSC, PAL, SECAM)Formats/Genres (PSA, Talk Show, Game Show, Interview, News Etc.)Single and Multi-Camera Production, Eng. And Esp. Techniques, Managing a Studio Floor, Production Control Room and Production Signals, Ob Van, Transmission Of Live Field and Studio Programs,

UNIT III

Lighting- Three Point Lighting, Color Temperature, Types Of Lighting - Types Of Lights Lighting Equipment (Cutter, Diffuser, Filters- Various Types Of Filters Etc.), Breaking The Rules, Composition And Framing- 180 Degree Rule, Framing Ideals (Balance, Rule Of Thirds, Harmony, Contrast Etc.), Sound Design, Types Of Sounds/Audio - Types Of Mic – Directional, Physical, Purpose, Switcher And Console, Audio And Video Switcher, Voice Over.

UNIT IV

Introduction To Sound – Speed Of Sound And The Sources Of Sound – Basics Of Sound: Frequencies Of Sound – Harmonics – The Loudness ;Introduction To Recording Sound: Live Recording – Dubbing – Sound Effects – Music Songs And Background Scene; Introduction To Audio Equipment: Microphone, Mix Console, Speakers, Amplifiers And Digital Work Station Different Work Stations, Dynamic Microphones, Condenser Microphones, Ribbon Microphones, Polar Pattern –Directional Characteristics – Cardio, Hyper Cardio, Bi

Direction, Omni Direction Measuring Polar Response –Frequency Response, Proximity Effect, Microphone Impedance, Microphone Sensitivity, Balanced And Un Balanced Line.

UNIT V

Editing Procedure, Assembling Shots, Symbolic Editing and Editing Errors. The Language Of Editing And Shooting-Sound In Editing-Categories Of Sound, Post-Synchronization, Voice-Over Or Narration, Music And Dubbing, Video Editing - Linear, Non-Linear, Types Of Editing Modes. (Assemble Mode, Insert Mode, On Line Mode) Computer Editing - Time Code Roll Editing, Etc., Television Graphics & Titling And Specials Effects -Synchronizing Of Video And Audio.

Prescribed Books:

- Millerson, G. H (1993) Effective W. Production. Focal Press
- Holland, P (1998). The Television Handbook. Routledge\
- VasukiBelavady (2008) Television Production; Tools and Techniques, Oxford Univ Press, India

Websites:

- www.Cybercollege.Com/Tvp017.Htm
- www.Tvproduction1.Com/
- www.Electronics.Howstuffworks.Com/Tv-Production.Htm

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	Unit – 5	1	
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	Unit – 4	1	
	Unit - 5	1	

SEMESTER III
CORE VI
PAPER TITLE: DIGITAL ADVERTISING (THEORY)

Subject Code :	Theory	100 Marks

Semester: 3
Credits: 4
No. Of Hours per Week: 6

COURSE OBJECTIVES
To Understand the Art of Advertising, It's History and Also It's Practice.

UNIT I
Definition, Role, Elements, Nature & Scope Of Advertising- Functions Of Advertising – Types Of Advertising – Merits And Demerits – Advertising And Consumers - Latest Trends In Advertising

UNIT II
Audience Segmentation – Analysis – Targeting and Positioning – Audience Research– Advertising Strategy – Ad Copy – Structure – Message – Appeals – Levels of Feedback.

UNIT III
Advertising Agency & Media - Ad Agency –Structure And Functions – Departments - Types Of Agencies Legal Aspects & Ethical Issues - Corporate And Promotional Advertising. Web Advertising.

UNIT IV
Creative Strategy And Brief, Communication Plan, Writing Styles And Visualizing – Brand Management – Brand Building – Positioning Brand Personality, Brand Image, Brand Equity.

UNIT V
Conceptualization and Ideation, Translation of Ideas into Campaigns, Visualization Designing & Layout, Copy Writing - Types Of Headlines, Body Copy, Base Lines, Slogans, Logos, & Trademarks. Scripting, Story Board, Advertising Campaign-From Conception To Execution.

Prescribed Books:

- Sandage, Fryburger and Rotzoll (L996) Advertising Theory and Practice. Aaitbs Publishers
- Stansfied, Richard: Advertising Managers Handbook. Ubbspd Publications. Third Edition
- Advertising Handbook: A Reference Annuakon Press TV, Radio and Outdoor Advertising.

Reference Books:

- Different Years Atlantis Publications
- Mohan: Advertising Management: Concepts and Cases. Tata Mcgraw- Hill
- Jewler, E (1998): Creative Strategy in Advertising. Thomson Learning.

Websites:

www.Advertising.Com
www.Businessinsider.Com/Advertising

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	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

SEMESTER III
CORE VII
PAPER TITLE: SCRIPT WRITING (PRACTICAL)

Subject Code :	**Theory**	**100 Marks**

Semester: 3
Credits: 4
No. Of Hours per Week: 6

Course Objectives

- To Understand Idea of Script
- To Understand 3 Act Play
- To Understand Relationship Idea To Screenplay.

Learning Outcome

- Gain Knowledge of Story & Content
- Gain Knowledge of Structure of Story Writing
- Gain Knowledge of Screenplay & Script Writing

UNIT I

Storytelling: Life as a Source -Memory, Imagination, Experience - Yours & Others. The Nature and Role of Intuition.Universalizing the Personal Experience - Importance of Research.Adaptation from Literary Works.The Difference between Actually Being Inspired and Stealing Ideas.

UNIT II

Audiovisual Writing: What Are The Elements Of Visual Storytelling? The Discipline of Writing a Screenplay.The Outer Manifestation of Inner Feelings - The Format for Writing the Synopsis, Step-Outline, Screenplay and Script for a Film.

UNIT III

The Elements of Scriptwriting: Action, Character, Setting, Theme, Structure.
Practical: One-Page Character Sketches of a Fictional Character & a Real Person the Student knows personally. Characterization - How To Establish Characters Onscreen.The Protagonist and the Antagonist.

UNIT IV

Dramatic Need of the Protagonist & Its Relation to The plot. The Way the Character Grows and Changes during the Film. Establishing Characters on Screen. Show, Do Not Tell.
Assignment: A Character Sketch of One of the Major Characters of a Film & an Analysis of How The character has Been Established in the Film. The 3-Act Structure.Set-Up, Confrontation, Climax, Resolution - Plot, Sub-Plot, Weaving Them Together.The Structure of Commercial Films.

UNIT V

The Students Should Write Concepts For Short Films And Bring Them To Class. One Of These Concepts Will Be Selected, The Students Should Write A Brief Step Outline For A Short Film In Class. Followed By Any Type Of Conflict (Static Conflict, Rising Conflict, And Foreshadowing Conflict. How Mystery, Surprise And Suspense Are Used). Finally The Approved Full Script For The Short Film Has To Be Submitted In The Prescribed Format Which Will Be Directed By The Student In The Final Year As Project.

References:

- Field, Syd. The Foundations of Screen Writing. Delta, 2005.
- Higgins, Dennis and Bernbach William. The Art Of
- Advertising, Mcgraw-Hill Professional, 1965.
- Quirk Randolph, Greenbaum Sidney, Leech. N,
- Mencher, Melvin. Basic Media Writing, William C.Brown, 1995.
- Murphy Raymond. English Grammar in Use. Cambridge University Press, 2003.
- Swan, Walter. How English Works: A Grammar Practice Book, Oup, USA, 1997.
- Trottier, David. The Script Writer's Bible: A Complete Guide to Writing, Formatting and selling your Script. Silman James, 2010.
- Bly. W, Robert. The Copy Writer's Handbook, 3rd Edition. Henry Holt And Company, 2007.
- G.Stoval, James. Writing For the Mass Media. 8th Edition. Pearson, 2011.
- Straczinsky, J. Michael. The Complete Book of Script Writing... F&W Publications, 2002.

SEMESTER III
ALLIED III
PAPER TITLE: PHOTOGRAPHY (PRACTICAL)

Subject Code :	Theory	100 Marks

Semester: 3
Credits: 5
Hours per Week: 6

COURSE OBJECTIVES:
To Understand The Nuances Of Practical Photography And Lighting Techniques.To Apply And Learn The Knowledge On Concept, Model And Theories Of Photography To Develop Content Using The Features In Camera.

COURSE OUTCOME:
Student Outcomes To Acquire Knowledge About Photography And Its Technics And Apply Knowledge On Concepts, Student Will Be Practically Strong To Photograph Images Under Any Conditions, Lights And As Needs.

Exercise:
Photography Record Should Include All Necessary Details (Exposure Time, Lens Type Etc.)
Final Practical Exam Will Test the Student's Knowledge on Photography as a Viva

Photography Topics

1. Outdoor – Single /Group (People)
2. Composition Rules
3. Nature – Landscape – Dawn, Dusk and HDR
4. Still Life
5. One, Two, Three Point Perspective
6. Architecture –Interior, Exterior
7. Action Photography – Pan, Freeze Frame
8. Indoor Photography – Portrait – Single, Group, Fashion.
9. Lighting – Top Light, Key Light, Back Light, And Side Light, Low, High Key, Spot Light
10. Panorama
11. Silhouette
12. Montage
13. Photo Feature
14. Photo Language
15. Special Effects

SEMESTER - IV

SEMESTER IV
CORE VIII
PAPER TITLE: VISUAL TEXT ANALYSIS (THEORY)

Subject Code :	Theory	100 Marks

Semester: 4
Credits: 4
Hours per Week: 5

LEARNING OBJECTS
Understanding the Meaning of Visual Text Analysis
Learning Strategies for Visual Text Analysis
Learning Impact of Visual Text Analysis on Media's Construction of Society

COURSE OUTCOME
Make the Students Understand the Meaning of Visual Text
Make the Students Explore the Techniques Used To Produce the Visual Text
Engages Students in Discussion to Bring Their Background Knowledge to the Reading of the Visual Text

UNIT I
Understanding the Meaning of Visual Text Analysis– Definition and Meaning - Types Of Visual Text- Production of Visual Text for Different Media- Interpretation of Visual Texts – The Purpose Visual Text-

UNIT II
Elements & Principles Of Visual Text: The Psychology Of The Eye, Perception Of Depth, Distance And Movement- Elements Of Visual Text; Sensual, Perceptional, Technological And Compositional Features - Application Of Visual text Analysis Tools To Different Mediums; Drawing Photography, Moving Images Web Images

UNIT III
Strategies for Visual Text Analysis: Symbolism, Salience, Foreground /Background, Vectors, Gaze; Panels /Frames and Gutters - Main Idea, Inferences and Drawing Conclusions of Visual Text - Semiotic Analysis of Visual Text

UNIT IV
Visual Text Analysis Theories: Visual Message and Meanings; the Sender and Receiver as Psychological Meaning Makers – Different Procedures for Analyzing A Visual Messages

UNIT V
Visual Text Analysis On Media's Construction Of Society: Narrative And Representation Of Class, Gender, Race, Age, Minorities, Children Etc.- Media Myths; Rhetoric Of The Image, Stereotyping Of Visual Text, Masculinity, Feminism

SEMESTER IV
CORE IX
PAPER TITLE: AUDIO PRODUCTION (PRACTICAL)

Subject Code :	**Theory**	**100 Marks**

Semester: 4
Credits: 4
Hours per Week: 5

COURSE OBJECTIVES
To Understand the Concept of Microphone
To Understand The Working Principle Of Audio Devices In Recording.
To Understand The In Depth Of Sound.

LEARNING OUTCOME
Gaining the Knowledge of How to Handle Microphones in Field
Gaining the Knowledge of How to Handle Sound Devices Practically.
Gaining the Knowledge of Dubbing, Effects Posting and Mixing For Short Films.

UNIT I
To Study The Pick-Up Pattern Of Pressure – Microphone.

UNIT II
Study and Practice in Analogue Audio Mixing Console.

UNIT III
Practice in Recording Dialogues in Sound Studio

UNIT IV
Study and Familiarization in Handling Computers.
Study of Different Types of Operating System

UNIT V
Practice in Digital Multi Track Audio Work Station Pro Tools Hd. Recording – Editing
Study and Practice in Digital Mixing Console with Different Interface like A DAT Interface Audio Interface

Exercise:
At The End Of The Semester, The Completed Sound Project Will Be Evaluated For Its Sound Design And Creativity.

References:

- Practical Recording Techniques, Seventh Edition, Brue Bartlett & Jenny Bartlett, 2017
- Modern Recording Techniques, Ninth Edition, David Miles Huber & Robert E. Runstein,
  2018

SEMESTER IV
ALLIED IV
PAPER TITLE: MULTIMEDIA (PRACTICAL)

Subject Code :	Theory	100 Marks

Semester: 4
Credits: 5
Hours per Week: 6

COURSE OBJECTIVES
To Get Equipped With Multimedia Skills And Apply That In To Other Forms Of Media. This Subject Provides The Student With The Knowledge And Skills Required To Plan, Design And Implement Multimedia Systems And Technologies. It Explores the Impact of Multimedia.

LEARNING OUTCOME
Be Able To Critically Analyse and Synthesise the Key Components of Multimedia Technologies Including Text, Graphics and Animation; Be Able To Evaluate the Role of Multimedia Technologies in the Online and Web Environment.

SOFTWARES TAUGHT:
- 3D Max
- Maya
- After Effects
- Adobe Premiere

UNIT I
3d Properties Development3d Props Development, Set Model Development, Furniture and Household Items, 3d Character Development, Basic Character Design, High Ploy Development, 3d Background Development, tree View Making

UNIT II
Low Polygon Development, Character, Set Low Poly Designs, Vertex, Edge, Poly Control High Polygon Development, High Poly Character, Set Model Poly Count Management, Texturing
Make a Colour to Models, Up Mapping, Texturing Adjustments

UNIT III
UV Mapping, Get a Map from Designs, Colour to Map, Fix the UV to Design, Lighting, Types of Lighting, Purpose, Controls, Relationship Editor

UNIT IV
Rendering, Types of Rendering, Size Of Work, Camera, Rigging & Animation
To Animate the Camera, Light & Character Designs

UNIT V
Camera, Types of Cameras, Difference between Normal Camera and Spot Camera
Visual Effects & Editing
Usage of Partials, Compositing & Editing

FINAL SUBMISSION

- Creation of Text in 2d Format and a 3d Object with Animation.
- Creation of an Image Using Any Special Effect with Movement. (Before and After The effect)
- Animation for an Advertisement or Concept for 30 Seconds. At Least Five Concepts Should Be Included In The Record.

SEMESTER - V

SEMESTER V
CORE X
PAPER TITLE: MEDIA ETHICS AND LAW (THEORY)

Subject Code :	**Theory**	**100 Marks**

Semester: 5
Credits: 4
Hours per Week: 5

COURSE OBJECTIVES

- To Understand Laws That Governs Media Industry
- To Understand Media Ethics and Responsibilities
- To Understand the Contribution Of Media. Towards Society

COURSE OUTCOME

- Well Versed In Laws That Regulate the Media
- Well Versed In Media Ethics and Social Responsibilities
- Uphold the Values of Media and Take Its Message Forward

UNIT I

Media Laws: Laws on Media Control; Contempt of Court, Defamation, Libel and Slander- Indian Penal Code (IPC) and Code Of Criminal Procedure (CRPC) Cyber Laws And Cybercrimes Censorship And Media

UNIT II

Media's Ethics: Values And Ethics In Media; Self-Control And Regulation Restrictions And Limitations; Media Personal, Advertisers And Media Organization- Media Freedom, Misinformation And Disinformation - Ethical Dilemmas; Infringement On Personal Liberty And Right To Privacy.

UNIT III

Media Acts: Copy Right Act – Press Act - Right to Information Act - Official Secrets Act- Prasad Barthi Act – Cable TV Act, Cinematographic Act,

UNIT IV

Media Official Bodies; Press Council of India, Telecom Regulatory Authority of India (TRAI), Central Board Of Film Certification (CBFC) And Their Constitutional Powers

UNIT V

Cyber Laws And Ethics: Cyber Laws, Different Kinds Of Cyber Crime Against Individuals, Institution And State, Hacking, Digital Forgery, Cyber Stalking/Harassment, Cyber Pornography, Identity Theft & Fraud, Social Media And Ethics-Cyber Terrorism, Cyber Defamation, Right To Privacy And Data Protection, Different Offences Under It Act, 2000

Prescribed Books:

- Rao, M. C. (1974). The Press, National Book Trust.
- Srivastava, K.M. (2005). Media Ethics- Veda to Gandhi and Beyond, Ministry Of
- Information and Broadcasting, Government of India.

Reference Books:

- Sharma, P.K.(1999). Journalism Ethics, Random Publications.Basu, D.D.(2005). Press Laws, Prentice Hall.
- Iyer ,V. (2000), Mass Media Laws And Regulations In India, Ami

Websites:

- www.Slideshare.Net/Sabinav/Introduction-To-Media-Ethics
- www.Mediaethicsmagazine.Com
- www.Ethics.Journalism.Wisc.Edu/Resources/Digital-Media-Ethics

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	Definition/Principle Answer All Questions (Each In 50 Words)	1-10	2	20
Section B	Short Answer Answer Any 5 Out Of 8 Questions (Each In 300 Words)	11-18	8	40
Section C	Essay Answer Any 2 Out Of 5 Questions (Each In 1200 Words)	19-23	20	40

Distribution Of Questions:

Sections	Units	No. Of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

SEMESTER V
CORE XI
PAPER TITLE: TELEVISION PRODUCTION (PRACTICAL)

Subject Code :	**Theory**	**100 Marks**

Semester: 5
Credits: 4
Hours per Week: 6

COURSE OBJECTIVES

- To Understand Pre-Production
- To Understand Production
- To Understand Post Production

LEARNING OUTCOME

- Gain Knowledge Of Pre-Production
- Gain Knowledge Of Production
- Gain Knowledge Of Post-Production

Exercise:

- Understand Camera Operation
- Understand Basic Lighting
- Understand Operation of Video Equipment
- Understand Audio Production
- Understand Planning
- Understand Production Procedures
- Understand Responsibilities of Director and Producer

Development and Pre-Production

- Script - Pitching - Storyboard – Planning - Teamwork

Production

Equipment – Location – Organization – Camera – Lighting – Audio - Teamwork

Post Production

Editing Organization - Editing Video - Editing Audio - Editing Titles - Teamwork

- At The End Of The Semester Students Must Submit The Following Programmes For 15 Mins. The Script Must Be Original and Must Be An Individual Project. Evaluation Will Be Done Based On The Submission And Viva.
- News
- Short Film

Prescribed Books:

- Holland, P (1998). The Television Handbook. Routledge\
- VasukiBelavady (2008)Television Production; Tools And Techniques, Oxford Univ Press, India

SEMESTER V
CORE XII
PAPER TITLE: VISUAL EFFECTS (PRACTICAL)

Subject Code :	Theory	100 Marks

Semester: 5
Credits: 4
Hours per Week: 6

COURSE OBJECTIVE
Student will demonstrate the artistic and technical abilities required in visual effects by producing a demo reel showing the creation and integration of live action footage and 2D and/or 3D computer generated images.

COURSE OUTCOME
Design visual effects sequences using storyboarding and pre-visualization that meet production requirements.Use filmmaking terminology to communicate effectively throughout all stages of production.

UNIT I
Introduction and Interface - Importing Footage and Editing, Data Management - Key-framing and Tweening - Workflow, Exporting and File Formats - Masks, Layer Modes, Basic Effects

UNIT II
Keying Layer Properties - Nesting, Pre-comping, Non-destructive Workflow - Text, Type and Kinetic Typography

UNIT III
Shooting for Post Production - Color Correction in After Effects - Manipulating Footage I Manipulating Footage II

UNIT IV
Green screening - Rotoscoping - advanced effects – stereoscopic

UNIT V
3D Camera and Mocha - Particles and Physics – compositing - Rendering - Final Project

REFERENCE BOOK
- The After Effects Illusionist: All the Effects in One Complete Guide
- After Effects Visual Effects and Compositing - Mark Christiansen
- Design for Motion: Fundamentals and Techniques of Motion Design- Austin Shaw

SEMESTER V
ELECTIVE I INTERDISCIPLINARY
PAPER TITLE: UNDERSTANDING FILMS (THEORY)

Subject Code :	Theory	100 Marks

Semester: 5
Credits: 5
Hours per Week: 6

COURSE OBJECTIVES

- Analyze motion pictures utilizing precise film vocabulary.
- Differentiate between multiple film forms, narratives, and genres.
- Appraise films in terms of style and mise-en-scene.
- Evaluate films in their historical context.
- Compare and contrast a film's relationship with other art forms and media.
- Construct an original thesis and organize a college-level essay analyzing specific films and filmmakers.

LEARNING OUTCOME

- Recognize types of films, their impact on society, and their roles in our lives
- Recall the concepts behind storytelling, Mise en Scène, and cinematography
- Identify ways sound contributes to movies
- List the roles of directors and critics in the film industry
- Identify types of movie genres and various editing styles

UNIT I
Film and Its Impact on Society
Film: Beyond Entertainment - Social Media - Movies and Escapism - Censorship and Hollywood - Television and Censorship - Pushing the Envelope: Case Studies

UNIT II
Movie Genres
What are Movie Genres? - Westerns and Gangster Films - Mysteries and Film Noir - Horror, Fantasy and Science Fiction - Romantic Comedy - Musicals and Documentaries

UNIT III
Cinematography
What is Cinematography? - How Does Mise en Scène Relate to Cinematography? - Lighting - Color - Saturation and Desaturation - The Camera, Lens and Their Uses - Framing - Special Effects

UNIT IV
Editing
What is Editing? - Rearranging the Story into a Plot - The Basics - From Frames to Acts - Manipulating the Audience - Classical Editing Style - Rhythm and Pacing

Sound and Music
What Does Sound Contribute to Movies? - The History of Sound in Film - Sound Technology and Equipment - Three Basic Categories of Film Sound - Sound Effects - Music - Sound Production Techniques - Live Recording - Post-Dubbing

UNIT V

Directing and Style

What is a Director? - The Director as Facilitator - Auteur Theory - How Directors Do It - Subject Matter - Working with Actors - Alternatives to Traditional Hollywood Style - Some Pacesetters

Criticism and Analysis

What is a Critic? - Popular and Analytical Criticism - Levels of Meaning - Explicit and Implicit Content - Approaches to Analysis and Interpretation - Criticism: Weighing the Balance

At the end of each Semester, each student shall submit an analytical Record for a minimum of 10 films.

REFERENCE BOOK

- Art of Watching Films (2006) **Author** : Joseph M. Boggs, Dennis W. Petrie
- The Great Movies (2003) Author : Roger Ebert
- Anatomy of Film (1990) **Author:** Bernard F. Dick

Question Paper Pattern:

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Section B	Short Answer Answer Any 5 Out Of 8 Questions (Each In 300 Words)	11-18	8	40
Section C	Essay Answer Any 2 Out Of 5 Questions (Each In 1200 Words)	19-23	20	40

Distribution of Questions:

Sections	Units	No. Of Questions	
		Theory	Problems
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	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

SEMESTER - VI

SEMESTER VI
CORE XIII
PAPER TITLE: MEDIA ORGANIZATION (THEORY)

Subject Code :	**Theory**	**100 Marks**

Semester **6**
Credits **4**
Hours per week **6**

COURSE OBJECTIVES

- To Understand How Media Organizations Work
- To Understand the Nature of Corporate Communication
- How to Start One's Own Business
- To Identify Responsibilities Of Media Organization

LEARNING OUTCOME

- Familiarity With The Nuts And Bolts Of Media Organization
- Understanding Human Resource Development In Media Organization
- Understanding The Role Of Media Organization In Developmental Communication
- Inspiring Students To Be An Entrepreneur

UNIT I

Characteristics Of Media Organization – How Media Organization Is Different From Other Organization - Different Departments In A Media Organization. Hierarchy In Media Organization - Media Organization's Organizational Behavior, Leadership and Motivation

UNIT II

Human Resource Development: Employee Relationship With Organization - Job Profile And Recruitment – Compensation And Benefits- Performance Appraisal: Employee Empowerment

UNIT III

Corporate Communication Practices - Internal Communication Chain- Importance Of Interpersonal Communication- External Corporate Communication Through The Four Models Of Public Relations (PR)- E Media Communication, Website, E Mails, Online Newsletter, Videos And E Media Releases

UNIT IV

Emerging Channels for Communication and Entrepreneurship - Social Networking, Electronic Channels for Communication, - Basics to Start Your Own Business, Planning, Organizing, and Managing, How To Start and Run an Online Business

UNIT V

Media Organizations Social Responsibilities- Role Of Media Organization In Developmental Communication, Facilitating Discussion, Enabling Engagement, Inspiring Action And Social Change

Prescribed Books:

- John Clare, (2004). *Handbook for Media Handling*, UK: Gower Publishing Ltd.
- Allen H Centre and Patrick Jackson, *(*2003). *Public Relations Practices*, USA: Prentice Hall Inc.
- Dorothy I. Doty And Marilyn Pincus, *Publicity And Public Relations*, USA: Barron's Educational Series Inc.,

Websites:

- Www.Newschool.Edu/Public-Engagement/Ms-Media-Management
- Digitalmediamanagement.com

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer All Questions (Each in 50 Words)	1-10	2	**20**
Section B	**Short Answer** Answer Any 5 Out Of 8 Questions (Each In 300 Words)	11-18	8	**40**
Section C	**Essay** Answer Any 2 Out Of 5 Questions (Each In 1200 Words)	19-23	20	**40**

Distribution of Questions:

Sections	Units	No. Of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

SEMESTER VI
CORE XIV
PAPER TITLE: ADVERTISING PHOTOGRAPHY (PRACTICAL)

Subject Code :	Theory	100 Marks

Semester 6
Credits 4
Hours per Week 6

COURSE OBJECTIVE
To Understand The Art Of Making Photographs For The Purpose Of Print Advertisement Using The Technic or Topic Listed As Reference For The Image To Be Produced.

COURSE OUTCOME
Student Learn To Create A Professional Photograph For Advertisement On Basis Of Lighting And Concepts Behind Marketing Need On Advertising.

Exercise

- The Evaluation Is Based On Submissions Of Print Advertisement Developed By The Students Following Classroom Inputs, Using Commercial Photographic Strategies Practiced.

Photography Topics

- Visual of the Product Alone. (Photograph Against Plain Backdrop)
- Visual Of The Product In A Setting Where It Is Used.
- Visual in Use.
- Visual of a Benefit from Using the Product.
- Visual Showing the Loss or Disadvantage Resulting From Not Using the Advertised Product.
- Dramatization of the Headline.
- Dramatization of the Evidence.
- Dramatizing A Detail (In The Product)
- Comparison between Two Brands.
- Contrast Between Before And After Using The Product.
- Visuals Using Trade Characters.
- Symbolism.
- Abstract Illustration. (Logo)
- Continuity Strip
- Mood Setting Visual.
- Visual of the Product in the Package.
- Visual of the Product Ingredients or Raw Materials.
- Special Effects. (Freezing Movements)
- Montage.
- Visual with Model.

SEMESTER VI
ELECTIVE II
PAPER TITLE: FILM APPRECIATION (THEORY)

Subject Code :	**Theory**	**100 Marks**

Semester: 6
Credits: 4
No. Of Hours per Week: 6

COURSE OBJECTIVES

- Analyze Motion Pictures Utilizing Precise Film Vocabulary.
- Differentiate Between Multiple Film Forms, Narratives, And Genres.
- Appraise Films In Terms Of Style And Mise-En-Scene.
- Evaluate Films In Their Historical Context.
- Compare And Contrast a Film's Relationship with Other Art Forms and Media.
- Construct An Original Thesis And Organize A College-Level Essay Analyzing Specific Films And Filmmakers.

LEARNING OUTCOME

- Recognize Types of Films, Their Impact on Society, And Their Roles in Our Lives
- Recall the Concepts behind Storytelling, Mise En Scène, and Cinematography
- Identify Ways Sound Contributes To Movies
- List the Roles of Directors and Critics in the Film Industry
- Identify Types of Movie Genres and Various Editing Styles

UNIT I

Movies for Fun & Profit, Art & Communication-Movies and Their Roles in Our Lives - Film: Looking for Meaning - Evaluating Films - Books vs. Movies - Elements of a Film - From Theaters to Netflix to I phones - Home Video Revolution - The Current Film Landscape

Film and Its Impact on Society-Film: Beyond Entertainment - Social Media - Movies and Escapism - Censorship and Hollywood - Television and Censorship - Pushing the Envelope: Case Studies

UNIT II

Storytelling-Films Start With Stories - Narrative Elements In Film - Story Time Vs. Plot Time - Conflict And Character - Literacy Elements In Film - Themes And Symbolism - Metaphor And Allegory - Irony - How Storytelling Makes The Audience Care About Movies
Movie Genres-What Are Movie Genres? - Westerns and Gangster Films - Mysteries and Film Noir - Horror, Fantasy and Science Fiction - Romantic Comedy - Musicals and Documentaries

UNIT III

Mise En Scène and Actors-What Is Mise En Scène? - Settings, Props and Costumes - The Actor Types of Acting - Types of Actors and Casting - Auditions - The Actor's Role in Shaping a Film
What Is Cinematography? - How Does Mise En Scène Relate To Cinematography? - Lighting - Color - Saturation and Desaturation - The Camera, Lens and Their Uses - Framing - Special Effects

UNIT IV

Editing-What Is Editing? - Rearranging the Story into a Plot - The Basics - From Frames to Acts - Manipulating the Audience - Classical Editing Style - Rhythm and Pacing

Sound and Music-What Does Sound Contribute To Movies? - The History Of Sound In Film - Sound Technology And Equipment - Three Basic Categories Of Film Sound - Sound Effects - Music - Sound Production Techniques - Live Recording - Post-Dubbing

UNIT V

Directing and Style-What Is A Director? - The Director As Facilitator - Auteur Theory - How Directors Do It - Subject Matter - Working With Actors - Alternatives To Traditional Hollywood Style - Some Pacesetters

Criticism and Analysis-What Is A Critic? - Popular and Analytical Criticism - Levels of Meaning - Explicit and Implicit Content - Approaches to Analysis and Interpretation - Criticism: Weighing the Balance.

REFERENCE BOOK

- Art of Watching Films (2006) **Author** : Joseph M. Boggs, Dennis W. Petrie
- The Great Movies (2003) Author : Roger Ebert
- Anatomy of Film (1990) **Author:** Bernard F. Dick

At The End Of Each Semester, Each Student Shall Submit An Analytical Record For A Minimum Of 10 Films.

SEMESTER VI
ELECTIVE III
PAPER TITLE: INTERNSHIP

Subject Code :	**Theory**	**100 Marks**

Semester: 6
Credits: 5
Hours per Week: 6

COURSE OBJECTIVES

To Help Student Get Exposed To Actual Situations And Functioning Of The Media Industry And Experience Reality.

Methodology: The Student Will Be Attached To The Media Industry For A Period Of Three Months On An Internship Basis. The Intern Will Be Exposed To A Particular Area Of Specialization. The Department In Coordination With The Industry Will Closely Monitor The Progress Of The Intern. A Report And A Viva-Voce Will Complete The Process Of Evaluation.

SEMESTER VI
ELECTIVE II
PAPER TITLE: PROJECT (PRACTICAL)

Subject Code :	Theory	100 Marks

Semester: 6
Credits: 5
Hours per Week: 6

COURSE OBJECTIVES
To Make the Students to Have a Portfolio of Their Work So That It Is Helpful For Them to Meet the Demands of the Industry on Any Field Of Interest

COURSE OUTCOME
Student Will Have a Profile Created By Them under Special Supervision of Individual Subject Experts as a Proof of Evidence on Their Area of Interest for Their Career Purposes

- Audio Production
- Multimedia
- Photography
- Television Production

Exercise:
AUDIO PRODUCTION
OBJECTIVE*:*

- Student Will Learn the Art of Making Audio Clips in High Definition

EXERCISE:
Interface – Audio Interface at the End of the Semester, the Completed Sound Project Will Be Evaluated For Its Sound Design and Creativity.

MULTIMEDIA
COURSE OBJECTIVES
A study of the techniques and practical application of visual effects to motion graphics sequences using specific software. Topics address simulation of natural environmental effects, realistic compositing of pyrotechnic footage, motion tracking and match-moving. The focus will be centered on industry standards and procedures for planning, creating and applying such effects.

COURSE OUTCOME
Student Learn a successful completion of this subject, Students will be able to identify common visual effects used in motion graphics, Use various techniques for emulating Realistic optical effects, Combine techniques to create rich environments. Predict common pitfalls in planning Visual effects Sequences Merge elements from various sources to achieve intended effect

EXERCISE:
A video clip for minimum 5 minutes using the following techniques are made to learn and produce the final output in a digital format
Rotoscoping Video
Key light & wire removal technic
Stereoscopic video
Composition & Editing

PHOTOGRAPHY

OBJECTIVE:

In Photography Students Work With Digital Photography And Editing In Response To Assigned And Independent Unique Projects That Foster Creative Photographing Of Products Solving And The Development Of Industrial Need In The Field Of Advertising Photography.

Exercise:

Five Fully Furnished Print Advertisement for Five Different Existing Commercial Products Is To Be Produced and Printed In Large Format And Submitted As Record Work

Photography Record Should Include All Necessary Details (Exposure Time, Lens Type Etc.) Final Practical Exam Will Test the Student's Knowledge on Advertising Photography as a Viva.

TELIVISION PRODUCTION

COURSE OBJECTIVES

To Understand Documentary Film
To Understand Pre-Production
To Understand Production
To Understand Post Production.

LEARNING OUTCOME

Gaining the Knowledge of Pre-Production Practical Difficulties.
Gaining the Knowledge of Production Schedules.
Gaining the Knowledge of Post-Production in Various Departments.
Gaining the Knowledge of Documentary Film

Exercise:

Development and Pre-Production
Script - Pitching - Storyboard – Planning - Teamwork

Production

Equipment – Location – Organization – Camera – Lighting – Audio - Teamwork

Post Production

Editing Organization - Editing Video - Editing Audio - Editing Titles - Teamwork
The Script For The Documentary Film (10mins) Prepared By The Student In The Final Semester Has To Be Directed By The Student.

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042 Re-Accredited at 'A- Grade' by NAAC (Affiliated to the University of Madras)

BACHELOR OF INFORMATION TECHNOLOGY B.Sc(IT)

Regulations and Syllabus

(For the Candidates admitted in 2019 -2020 Batch)

B.Sc. (Information Technology) COURSE STRUCTURE - 2019 Batch

Sem.	Part	Course Component	Subject Name	Cdt	Hrs	CIA	ESE	Total
I	I	Language	Language-I	3	6	50	50	100
	II	English	English-I	3	4	50	50	100
	III	Core Paper-I	Programming in C & Linux	4	6	50	50	100
		Core Paper-II	Practical – Programming in C & Linux Lab	4	4	50	50	100
		Allied – I	Allied Mathematics	5	6	50	50	100
	IV	NME -Non Major Elective I	Basic Tamil/Practical Computing Skills	2	2	50	50	100
		Soft skills -I	Essentials of Language And Communication Skills Level-I	3	2	50	50	100
CREDIT TOTAL = 24								
II	I	Language	Language – II	3	6	50	50	100
	II	English	English- II	3	4	50	50	100
	III	Core III	Programming in Java	4	5	50	50	100
		Core IV	Practical - Programming in Java Lab	4	5	50	50	100
		Allied II	Operation Research	5	6	50	50	100
	IV	1. NME/ Basic /Advance Tamil	Practical - Html Lab/ Basic/Advance Tamil	2	2	50	50	100
		2. Soft Skill II	Essentials of Spoken and Presentation Skills Level-I	3	2	50	50	100
CREDIT TOTAL = 24								
III	III	Core V	Design and Analysis of Algorithm	4	5	50	50	100
		Core VI	Data Analysis using Spread Sheet	4	6	50	50	100
		Core VII	Practical - Data Analysis using Spread Sheet Lab	4	5	50	50	100
		Core VIII	Operating Systems	4	6	50	50	100
		Allied III	Statistics – I	5	6	50	50	100
	IV	Soft Skill III	Personality Enrichment	3	2		100	100
CREDIT TOTAL = 24								
IV	III	Core IX	Python Programming	4	6	50	50	100
		Core X	Data Base Management Systems	4	6	50	50	100
		Core XI	Practical -- Python Programming Lab	4	7	50	50	100
		Allied IV	Statistics – II	5	7	50	50	100
	IV	Soft Skill IV	Word Press Lab	3	2		100	100
		EVS	Environmental Studies	2	2		100	100
CREDIT TOTAL = 22								
V	III	Core XII	Big Data Analytics	4	6	50	50	100
		Core XIII	Data Science using R	4	6	50	50	100
		Core XIV	Practical – R Programming Lab	4	6	50	50	100
		Elective – I	Information Security / Software Project Management /Network Security & Cryptography	5	6	50	50	100
		Elective – II	Marketing Analytics/ Decision Management Systems/ E- Commerce	5	5	50	50	100
	IV	Value Education	Value Education	2	1		100	100
CREDIT TOTAL = 24								
VI	III	Core XV	Mini Project	4	6	50	50	100
		Core XVI	Software Engineering	4	6	50	50	100
		Core XVII	UI Programming	4	6	50	50	100
		Core XVIII	Practical –UI Programming Lab	4	6	50	50	100
		Elective - III	Cloud Computing / Mobile Computing / Parallel Computing	5	6	50	50	100
	V	Extension Activity		1		-	-	-
CREDIT TOTAL = 22								

SEM	PART	SUBJECT NAME	HOURS/ WEEK	CREDITS	MARKS		
					CIA	ESE	TOTAL
I	I	LANGUAGE-I	6	3	50	50	100
	II	ENGLISH-I	4	3	50	50	100
	III	CORE I PROGRAMMING IN C & LINUX	6	4	50	50	100
		CORE II PRACTICAL – PROGRAMMING IN C & LINUX LAB	4	4	40	60	100
		ALLIED I ALLIED MATHEMATICS	6	5	50	50	100
		1. NON MAJOR ELECTIVE 1 - BASIC TAMIL/ PRACTICAL - COMPUTING SKILLS	2	2	40	60	100
	IV	1.SOFT SKILL I ESSENTIALS OF LANGUAGE AND COMMUNICATION SKILLS LEVEL-I	2	3	50	50	100
TOTAL			**30**	**24**	**700**		

SEMESTER- I

CORE - I PROGRAMMING IN C & LINUX

SUBJECT CODE : 19UBIT301	**THEORY**	**MARKS 100**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

To develop the ability to analyze a problem and develop an algorithm to solve it using C and Shell Programming

UNIT-I (18 Hours)

Fundamental character set – Identifier and keywords – data types – Constants – variables – Declarations – Expressions – Statements – Arithmetic, Unary, Relational and logical, Assignment and conditional Operators
– Bitwise Operators - Library Functions - Data input output functions – Simple C programs.

UNIT-II (18 Hours)

Flow of control – if, if-else, while, do-while, for loop, Nested control structures – Switch, Break and continue, go to statements – Comma operator- Arrays – defining and Processing - Multi-Dimensional Arrays.

UNIT-III (18 Hours)

Functions – Definition – Proto-types – Passing arguments – Recursions – storage Classes – Automatic, External, Static, Register Variable – Structure – Union-File Creating, Processing, Opening and Closing a data file.

UNIT-IV (18 Hours)

Introduction to Linux – Linux Components – Linux Files – File Attributes and Permission – Standard I/O – Redirection –Grep and Stream Editor

UNIT-V (18 Hours)

Shell Programming – Shell Variables – Export, Read, Exit Commands – Control Structures – Arithmetic in Shell Programming – Structure of an AWK Script – AWK Control Structures – Executing AWK Scripts with the Shell.

RECOMMENDED TEXTS

1. E. Balaguruswamy,, “Programming in ANSI C”, TMH publishing Company LTD
2. M.G. Venkateshmurthy, 2005, Introduction to Uinux& Shell Programming, Pearson Education India, Delhi.

REFERENCE BOOKS

1. N. Kanthane, 2005, Programming with ANSI and Turbo C, Pearson Education

Question paper pattern:

Section	QuestionComponent	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 8 questions. Each answer should not exceed 200 words	13-20	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	21-26	10	**40**
		TOTAL		**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	3
	Unit – 4	3
	Unit – 5	2
Section B	Unit – 1	1
	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

CORE –II

PRACTICAL – PROGRAMMING IN C & LINUX LAB

SUBJECT CODE : 19UBIT302P	**PRACTICAL**	**MARKS 100**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 60**

COURSE OBJECTIVES:

To Read, understand , develop and trace the execution of programs written in C and Shell language

C PROGRAMS:

1. Determining a given number is prime or not.
2. Pascal's triangle
3. String Manipulation
4. Matrix multiplication
5. Finding determinant of a Matrix
6. Checking for tautologies and Contradictions.
7. Euclidean's Algorithm for finding GCD (Towers of Honai).
8. Creating database for telephone numbers and related operations. Use file concepts.

Linux Programs:

1. Check whether the given number is Armstrong / prime / perfect or not.
2. Accepts any number of arguments and prints them in the reverse order.
3. Write a script that does the following:
   a. display the name of the script being executed.
   b. Display the first, third and tenth argument given to the script.
   c. Display the total number of arguments passed to the script.
   d. If there were more than three positional parameters, use shift to move all the values 3 places to the left.
   e. Print all the values of the remaining arguments.
   f. Print the number of arguments .

   Note: test with zero, one, three and over ten arguments.
4. Design a menu driven program for rename, remove and copy commands.
5. Check whether the given user has logged in or not.
6. To check file permissions (read/write/execute/exit) and file types (file / directory /size zero)
7. Write a program to get two user inputs (filename and whether to download or upload the fil

ALLIED - I ALLIED MATHEMATICS

SUBJECT CODE :19UMAT336	THEORY	MARKS 100
SEMESTER: I	CREDITS: 5	TOTAL HOURS: 90

COURSE OBJECTIVES:

UNIT I : (18 hours)

MATRICES: Eigen Values – Eigen Vectors - Cayley - Hamilton Theorem (without proof). Chapter 4-Section 4.5 ,4.5.2, 4.5.3.

UNIT-II : (18 hours)

Theory ofEquations: Polynomial Equations,irrational roots,complex roots, Reciprocal equations-Approximation of roots of a polynomial equation by Newton's Method.
Chapter 3, Section 3.1 to 3.4.1

UNIT III: (18 hours)

Algebraic Equations : Gauss elimination method - Inverse of a matrix - Gauss -Jordan method-Gauss- Seidel method.
Chapter 4-Section 4.3,4.4,4.5,4.8

UNIT IV: (18 hours)

Roots of Equations: Bisection Method – False-Position Method– Newton-Raphson Method. Chapter 3- Section 3.3, 3.4,3.5

UNIT V: (18 hours)

Numerical Integration: Trapezoidal Rule - Simpson's 1/3 rule and 3/8 rule , Weddle's rule Romberg's method. Chapter 8-Section 8.5 Content and Treatment as in

1. Allied Mathematics-Volume I by P. Duraipandian and S. Udayabaskaran, S. Chand Publication.
2. Numerical methods by S.Arumugam, A.Thangapandi Isaac and A.Somasundaram. Scitech Publications.

REFERENCE BOOKS

1. Allied Mathematics,A.Singaravelu.
2. Ancillary Mathematics, A. ManickavasagamPillai and Narayanan.
3. Numerical Methods with Programming in C-T.Veerarajan and T.Ramachandran.

WEBSITES:

1. www.freetechbooks.com/mathematics-f38.html
2. www.e-booksdirectory.com
3. www.freebookcenre.net/SpecialCat/Free-Mathematics-Books-Download.html

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10questions	1 – 12	2	**20**
Section B	**Short Answer** Answer any 5 questions out of 8	13–20	7	**35**
Section C	**Essay** Answer any 3 questions out of 5	21– 25	15	**45**
		TOTAL		**100**

Distribution of Questions :

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	1	2
	Unit – 2	1	2
	Unit – 3	1	
	Unit – 4		2
	Unit – 5	1	2
Section B	Unit – 1		2
	Unit – 2		2
	Unit – 3		1
	Unit – 4		1
	Unit – 5		2
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit - 5		1

NME - COMPUTING SKILLS – PRACTICAL

SUBJECT CODE : 19UNME401P	**PRACTICAL**	**MARKS 100**
SEMESTER: I	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES

Solve common business problems using appropriate Information Technology applications and systems

UNIT I: (6 Hours)

Introduction to Computers – Classification of computers; Role of Computers in society; Inside Computers – Hardware (processing, memory, i/o, storage), Software(systems, application), CPU, OS (DOS, Windows, Unix, Linux), Storage devices; Programming – Overview, need for languages, skills; Networking Basics; Virus; Hacking

UNIT II : (6 Hours)

Word Processing – Open, Save and close word document; Editing text- tools, formatting, bullets; Spell Checker; Navigating in word – keyword, Mouse; document formatting- paragraph alignment, indentation, headers and footers, numbering; printing- preview, options

UNIT III : (6 Hours)

File Management - Understanding the importance file management, backing of files, Navigating thru My Computer and Windows Explorer; Files and Folders – editing, retrieving, deleting, renaming , subfolders – manipulate windows – maximize, minimize; Power point basics – terminology, templates, viewing.

UNIT IV : (6 Hours)

Spreadsheets – MS Excel – opening, entering text and data, formatting, navigating; Formulas – entering, handling and copying; Charts –creating, formatting and printing, header and footer, centering data, printing

UNIT V: (6 Hours)

Networks – Internet Explorer- components; www – working, browsing, searching, saving – Bookmark – favorite, create, delete – Printing a web page; email- creating, receiving, reading and sending messages

Note :Unit II to Unit V needs exposure thru Practicals.

RECOMMENDED TEXTS:

1. Introduction to Computers – Peter Norton, Tata McGraw Hill
2. Microsoft 2003 – Jennifer Ackerman Kettell, Guy Hat-Davis, Curt Simmons, Tata McGraw Hill

SEMESTER- II

SEMESTER	PART	SUBJECT NAME	HRS / WEEK	CREDITS	MARKS		
					CIA	E S E	TOTAL
II	I	LANGUAGE II	6	3	50	50	100
	II	ENGLISH-II	4	3	50	50	100
	III	CORE III - PROGRAMMING IN JAVA	5	4	50	50	100
		CORE PAPER IV - PRACTICAL - PROGRAMMING IN JAVA LAB	5	4	40	60	100
		ALLIED II - OPERATION RESEARCH	6	5	50	50	100
	IV	NON-MAJOR ELECTIVE 2 – PRACTICAL - HTML LAB/ BASIC/ADVANCE TAMIL	2	2	40	60	100
		SOFT SKILL II- ESSENTIALS OF SPOKEN AND PRESENTATION SKILLS LEVEL-I	2	3	50	50	100
		TOTAL	30	24	700		

CORE - III PROGRAMMING IN JAVA

SUBJECT CODE : 19UBIT303	**THEORY**	**MARKS 100**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 75**

COURSE OBJECTIVES:

To gain knowledge of the structure and model of the Java programming language

UNIT I (15 Hours)

Introduction to Java – Features of Java – Object Oriented Concepts – Lexical Issues – Data Types – Variables – Arrays – Operators – Control Statements.

UNIT II (15 Hours)

Classes – Objects – Constructors – Overloading method – Static and fixed methods – Inner Classes – String Class – Inheritance – Overriding methods – Using super – Abstract class.

UNIT III (15 Hours)

Packages – Access Protection – Importing packages – Exception Handling – Throw and Throws – Thread – Synchronizing – Messaging – Runnable Interface – Inner thread Communication – Deadlock – Suspending, Resuming and stopping threads – Multithreading

UNIT IV (15 Hours)

I/O streams – File Streams – Applets-String Buffer-Char Array-Java Utilities-Code Documentation.

UNIT V (15 Hours)

AWT - Working with windows using AWT Classes-AWT Controls-Layout Managers and Menus

RECOMMENDED TEXTS

1. E. Balaguruswamy,, “Programming in JAVA”, TMH publishing Company LTD
2. C. S. Horstmann, Gary Cornell, 1999, Core Java 2 Vol. I Fundamentals, Pearson Education, Delhi.

REFERENCE BOOKS

1. K.Arnold and J.Gosling- The Java Programming Language – Second Edition, Addison Wesley,2002.
2. P.Naughton and H.Schildt –Java2 (The Complete References)-Seventh Edition,TMH 2004.

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 8 questions. Each answer should not exceed 200 words	13-20	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	21-26	10	**40**
		TOTAL		**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	3
	Unit – 4	3
	Unit – 5	2
Section B	Unit – 1	1
	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

CORE - IV

PRACTICAL - PROGRAMMING IN JAVA LAB

SUBJECT CODE : 19UBIT304	**PRACTICAL**	**MARKS 100**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 75**

COURSE OBJECTIVES:

To Implement Object Oriented programming concept and to build Java Application.

1. Finding area and Perimeter of a circle. Use Buffered Reader Class.
2. Substring Removal from a String. Use String Buffer Class
3. Determining the order of numbers generated randomly using Random Class.
4. Implementation of Point Class for Image Manipulation.
5. Usage of Calender Class and manipulation
6. String Manipulation using Char Array.
7. Database Creation for storing e-mail addresses and manipulation
8. Usage of Vector Classes
9. Implementation Thread based applications & Exception Handling.

APPLET

1. Working with Frames and various controls
2. Working with Dialogs and Menus.
3. Working with Panel and Layout.

ALLIED – II OPERATIONS RESEARCH

SUBJECT CODE :19UMAT338	THEORY	MARKS 100
SEMESTER: I	CREDITS: 5	TOTAL HOURS: 90

UNIT -I : (18 hours)

Linear Programming:-- Formulation - Graphical Solution - Simplex method Chapter 2, Section 2.1 to 2.8. Chapter 3, Section 3.1.1to 3.1.3

UNIT -II : (18 hours)

Transportation Problem:- – Mathematical formulation – Initial basic feasible solution – Test of optimality (MODI method) – Maximization problem – Unbalanced Transportation problem. Chapter7, Section 7.1 to 7.5

UNIT -III : (18 hours)

Assignment Problem:- - Mathematical formulation – Optimality (Hungarian) – Maximization problem, Unbalanced assignment problem. Chapter 8, Section 8.1 to 8.7

UNIT - IV : (18 hours)

Sequencing problem :-, n jobs through 2 machines ,n jobs through 3 machines , 2 jobs through m machines, n jobs through m machines Chapter 14, Section 14.1 to 14.7

Game theory :-Two person zero –sum games – Maximin-Minimax Principle –Saddle point and value of the game-Games without saddle point,Mixed Strategies – Dominance Property – solving 2 x n game or m x 2 game by graphical method. Chapter 16, Section 16.1 to 16.4 & 16.6 to 16.7

UNIT - V : (18 hours)

Network Analysis:-PERT – CPM : Project Network Diagram – Critical Path (Crashing excluded) PERT computation. Chapter 15, Section 15.1 to 15.7

Content and treatment as in

Resource Management Techniques (Operations Research) by V.Sundaresan, K.S.Ganapathy Subramanian,K.Ganesan (A.R Publications) Ninth edition-June 2015

REFERENCE BOOKS

1. KantiSwaroop, Gupta P.K. and Manmohan – Problems in Operations Research, Sultan Chand & Sons.
2. Ravidran A., Philips,D.T. and Solberg J.J.,Operations Research, John Wiley & sons.
3. Taha H.A., Operations Research, Macmillian Publishing company, Newyork
4. Introduction to Operations Research, P.R.Vittal
5. Gupta P.K. and HiraD.S. Problems in Operations Research, S.Chand& Co.

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any 10 out of 12 questions	1 – 12	2	**20**
Section B	**Short Answer** Answer any **5**out of 8 questions	13–20	7	**35**
Section C	**Essay** Answer any 3out of 5 questions	21–25	15	**45**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	1	1
	Unit – 2	1	1
	Unit – 3	1	1
	Unit – 4	1	2
	Unit – 5	1	2
Section B	Unit – 1		1
	Unit – 2		2
	Unit – 3		2
	Unit – 4		2
	Unit – 5		1
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit - 5		1

NME – Practical – HTML Lab

SUBJECT CODE : 19UNME402P	**PRACTICAL**	**MARKS 100**
SEMESTER: II	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

To Learn basic concepts of HTML and build an dynamic Website

1. A Program to illustrate body and pre tags
2. A Program to illustrate text Font tag
3. A Program to illustrate text formatting tags
4. A Program to illustrate Order List tag
5. A Program to illustrate UnOrder List tag
6. A Program to illustrate Definition List tag
7. A Program to illustrate Img tag
8. A Program to illustrate Hyper Link tag (Anchor tag)
9. Create a HTML page to demonstrate the usage of Frames. Choose the content of the page on your own.
10. A Program to illustrate Table tag

SEMESTER- III

SEMESTER	PART	SUBJECT NAME	HRS /	CREDITS	MARKS		
					CIA	ESE	TOTAL
III	III	CORE PAPER V – DESIGN AND ANALYSIS OF ALGORITHM	5	4	50	50	100
		CORE PAPER VI – DATA ANALYSIS USING SPREAD SHEET	6	4	50	50	100
		CORE PAPER VII - PRACTICAL - DATA ANALYSIS USING SPREAD SHEET LAB	5	4	40	60	100
		CORE PAPER VIII- OPERATING SYSTEMS	6	4	50	50	100
		ALLIED III – ALLIED	6	5	50	50	100
	IV	SOFT SKILL III- PERSONALITY ENRICHMENT	2	3		100	100
		TOTAL	30	24	600		

CORE - V
DESIGN AND ANALYSIS OF ALGORITHM

SUBJECT CODE : 19UBIT305	**THEORY**	**MARKS 100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 75**

COURSE OBJECTIVES:

To Learn and Analyze the different Algorithm design techniques for problem solving.

UNIT I: (15 Hours)

Introduction - Definition of Algorithm – pseudo code conventions – recursive algorithms – time and space complexity –big-"oh" notation – practical complexities .

UNIT II: (15 Hours)

Divide and Conquer: General Method - Finding maximum and minimum – merge sort - Quicksort, Stassen's matrix multiplication

UNIT III: (15 Hours)

Greedy Method: General Method –knapsack problem - Tree vertex splitting - Job sequencing with dead lines – optimal storage on tapes.

UNIT IV: (15 Hours)

Dynamic Programming: General Method - multistage graphs – all pairs shortest paths – single source shortest paths - String Editing – 0/1 knapsack.

UNIT V: (15 Hours)

Search techniques for graphs – DFS-BFS-connected components – biconnected components Back Tracking: General Method -Sum of subsets Branch and Bound: General Method - Traveling Salesperson problem.

RECOMMENDED TEXTS

1. Horowitz and Sahani, Fundamentals of Computer Algorithms, 2ND Edition, 2012
2. S.K.Basu, "Design Methods and Analysis of Algorithms", Fourth edition, 2010

REFERENCE BOOKS

1. Alfred.V.Aho , Data Structures and Algorithms Pearson
2. Robert Sedgewick and Kevin Wayne, "Algorithms", Fourth Edition, Pearson Education, 2012

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 8 questions. Each answer should not exceed 200 words	13-20	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions.Each answer should not exceed 500 words.	21-26	10	**40**
		TOTAL		**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	3
	Unit – 4	2
	Unit – 5	3
Section B	Unit – 1	1
	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

CORE - VI

DATA ANALYSIS USING SPREAD SHEET

SUBJECT CODE : 19UBIT306	**THEORY**	**MARKS 100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

Learn Advance Excel Function and to Analyze and Protect the data using Data Validation Techniques.

UNIT-I : (18 Hours)

Cell Editing, Usage of Formulae and Bulit-in Functions, File Manipulations, Data Sorting (both number and alphabets), Worksheet Preparation, Drawing Graphs, Usage of Auto Formatting. Inserting Clip arts and Pictures, Frame movements of the above, Insertion of new slides

UNIT II: (18 Hours)

Uses of Advance Excel Formulas -VLOOKUP, HLOOKUP, SUMIF, SUMIFS, SUMPRODUCT, DSUM, COUNTIF, COUNTIFS, IF, IFERROR, ISERROR, ISNA, ISNUMBER, ISNONTEXT, OR, AND, SEARCH, INDEX, MATCH etc

UNIT III: (18 Hours)

Various Methods and Uses of IF Conditions, When should use the "IF" Conditions? , Creation of Multiple IF Conditions in One Cell, Use the IF Conditions with the Other Advance Functions, How to use nested IF statements in Excel with AND, OR Functions.

UNIT IV: (18 Hours)

Sorting, Data Forms, Adding Data Using the Data Form, Finding Records Using Criteria: Filtering Data, AutoFilter, Totals and Subtotals Total, Row, Various Methods of Filter Creating and Updating Subtotals

UNIT V: (18 Hours)

Introduction to VBA, Variables in VBA- Variable Data Types- Message Box and Inputbox functions – Looping in VBA.

RECOMMENDED TEXTS

1. Jordan Goldmeler, “Advanced Excel Essentials” ,APress, 2015 edition.

REFERENCE BOOKS

1. John Walkenbach , “Microsoft Excel 2013 Bible” ,Wiley Publications ,2013

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 8 questions. Each answer should not exceed 200 words	13-20	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	21-26	10	**40**
		TOTAL		**100**

Distribution of Questions

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	3
	Unit – 4	3
	Unit – 5	2
Section B	Unit – 1	1
	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	1
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	2

CORE - VII

PRACTICAL - DATA ANALYSIS USING SPREAD SHEET LAB

SUBJECT CODE : 19UBIT307P	**PRACTICAL**	**MARKS 100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 75**

COURSE OBJECTIVES:

Understand Excel Advanced Functions and Implement VBA Macros

1. Excel Basic Functions
2. Formatting and Proofing
3. Mathematical Functions
4. Text Functions
5. Data and Time Functions
6. Sorting
7. Filtering
8. Logical Functions
9. Data Validation
10. Pivot tables
11. Charts and Slicers
12. VBA Macros

CORE - VIII OPERATING SYSTEMS

SUBJECT CODE : 19UBIT308	**THEORY**	**MARKS 100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

To Understand and Evaluate the requirement for process synchronization and coordination handled by operating system

UNIT I: (18 Hours)

Introduction: Views –Goals –Types of system – OS Structure –Components – Services - System Structures – Layered Approach -Virtual Machines - System Design and Implementation. Process Management: Process - Process Scheduling – Cooperating Process–CPU Scheduling : CPU Schedulers – Scheduling criteria – Scheduling Algorithms

UNIT II: (18 Hours)

Process Synchronization: Critical-Section problem - Semaphores – Classic Problems of Synchronization – Critical Region – Monitors. Deadlock : Methods for handling Deadlocks – Prevention, Avoidance, and Detection of Deadlock - Recovery from deadlock.

UNIT III: (18 Hours)

Memory Management : Address Binding – Dynamic Loading and Linking – Overlays – Logical and Physical Address Space - Contiguous Allocation – Internal & External Fragmentation . Non Contiguous Allocation: Paging and Segmentation schemes

UNIT IV: (18 Hours)

VirtualMemory **::** Demand Paging – Page Replacement - Page Replacement Algorithms – Thrashing. – File System: Concepts – Access methods – Directory Structure –Protection Consistency Semantics – File System Structures – Allocation methods – Free Space Management.

UNIT V: (18 Hours)

I/O Systems: Overview - I/O Hardware – Application I/O Interface – Kernel I/O subsystem – Transforming I/O Requests to Hardware Operations – Performance.

RECOMMENDED TEXTS

1. Abraham Silberschatz, Peter Baer Galvin and Greg Gagne, “Operating System Concepts”, 9 th Edition, John Wiley and Sons Inc., 2012

REFERENCE BOOKS

1. H.M. Deitel ,, An Introduction to Operating System,- Second Edition, Addison Wesley.
2. Andrew S.Tanenbaum, Modern Operating Systems, Pearson Education, II Ed.

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 8 questions. Each answer should not exceed 200 words	13-20	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	21-26	10	**40**
		TOTAL		**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	3
	Unit – 4	3
	Unit – 5	2
Section B	Unit – 1	1
	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

ALLIED- III ALLIED STATISTICS – I

SUBJECT CODE : 19UMAT341	THEORY	MARKS 100
SEMESTER: III	CREDITS: 5	TOTAL HOURS: 90

COURSE OBJECTIVES

UNIT I: (18 hours)

Collection of data and sampling – Primary and secondary data – limitations. Chapter - 3 (Page Nos: 40-47, 57-60) Chapter - 4 (Page Nos: 64-74)

UNIT II: (18 hours)

Classification and tabulation of data – Diagrammatic and graphical representation of data. Chapter - 5 (Page Nos: 92-106, 109-113), Chapter - 6 (Page Nos: 130-145, 165-175)

UNIT III: (18 hours)

Measures of Central value – Mean, median, mode, geometric and harmonic mean – properties, merits and demerits – Measures of Dispersion – Range, Mean deviation, Quartile Deviation and Standard Deviation. Chapter - 7 (Page Nos: 180-226), Chapter - 8 (Page Nos: 271-292)

UNIT-IV: (18 hours)

Correlation – Types – Scatter diagram method – Karl Pearson's coefficient of correlation – Rank Correlation– Regression for two lines. Chapter - 10 (Page Nos: 383-394, 406-414), Chapter – 11 (Page Nos: 441-451)

UNIT-V: (18 hours)

Index Numbers – Simple Aggregative Method – Simple average of price relatives method – Weighted Aggregative method –Laspayre's, Paasche's, Bowley's, Fisher's and Marshall-Edgeworth method – Test of Adequacy – Time Reversal Test – Factor Reversal Test – Chain Index Numbers – Conversion of Chain index to Fixed Index. Chapter - 13 (Page Nos: 523-548)

CONTENT AND TREATMENT AS IN

Business Statistics – S.P.Gupta and M.P.Gupta,Sultan Chand &Sons,Sixteenth Edition

REFERENCE BOOKS

1. Fundamental of Mathematical Statistics - S.C. Gupta & V.K. Kapoor - Sultan Chand
2. Statistical methods by S.P. Gupta, thirty eighth edition(2009)-Sultan Chand

WEBSITES:

1. www.e-booksdirectory.com
2. www.bookboon.com/en/statistics-and mathematics-ebooks

3. www.freebookcentre.net

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any **10**out of 12 questions	1 – 12	2	**20**
Section B	**Short Answer** Answer any 5out of 8 questions	13–20	8	**40**
Section C	**Essay** Answer any 2out of 4 questions	21– 24	20	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	1
	Unit – 2	1	2
	Unit – 3	2	
	Unit – 4	1	1
	Unit – 5	1	1
Section B	Unit – 1		2
	Unit – 2		1
	Unit – 3		1
	Unit – 4		2
	Unit – 5		2
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		
	Unit – 4		1
	Unit - 5		1

SOFT SKILL III PERSONALITY ENRICHMENT

SUBJECT CODE : 19UGSL403	**THEORY**	**MARKS 100**
SEMESTER: III	**CREDITS: 3**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

To build self-confidence, enhance self-esteem and improve overall Skills

UNIT 1- SELF DISCLOSURE (6 Hours)

Characteristics of self disclosure – Self disclosure benefits and appropriateness – Self disclosure and self awareness – Self disclosure and feedback.

EXERCISE:

1. Self Description– Reflect and answer the following questions on a sheet of paper about yourself: Who am I? What am I like? How do others perceive me? What are my strengths as a person? In what areas do I want to develop greater skills?
2. Adjective Checklist – the following exercise is aimed at providing an opportunity for participants to disclose their view of themselves to the other members of their group and to receive feedback on how the other group members perceive them.
3. Self Disclosure and Self Awareness – the purpose of this exercise is to allow participants to focus on the areas as described in the Johari Window.

UNIT II – ANGER, STRESS AND MANAGING FEELING (6 Hours)

The nature of stress- managing stress through social support systems – the nature of anger – guidelines for managing anger constructively – dealing with an angry person

EXERCISE:

1. Handling put downs techniques practiced through role plays.
2. changing your feelings discuss how people can make their assumptions more constructively.
3. defusing the Bomb exercise discuss how one can manage provocations.

UNIT III – INTERPERSONAL EFFECTIVENESS (6 Hours)

Managing anxiety and fear – Breathing – an antidote to stress – progressive muscle relaxation – understanding your shyness – building one' self esteem – avoiding self blame – taking risks, tolerating failure, persisting and celebrating success – self talk.

EXERCISE:

1. Being positive about yourself
2. Understanding your shyness analyze the social situation of shyness and the causes of yours hyness.
3. Systematic Muscle Relaxation train one in the procedure for systematic muscle relaxation.
4. Learning how to breathe deeply help one to relax systematically when one is anxious by
5. controlling one's breathing.

UNIT IV: STUDY SKILLS (6 Hours)

Importance of study environment – using VCR3 to increase memory power: visualizing, concentrating, relating, repeating, reviewing- memory hindrances – memory helpers – knowingvs memorizing – memory and studying – the SQ3R method; survey, write questions, read, recite, review – mnemonic devices – rhymes – acronyms – pegging – cooperative learning .

EXERCISE:

1. Using the techniques of memory enhancers to review your classroom and textbook notes

UNIT V: GOAL SETTING AND MANAGING TIME (6 Hours)

The basis of effective goals – steps to be followed to obtain optimum results from goal setting –Identifying the reasons for procrastination – guidelines to overcome procrastination – priority management at home and college

EXERCISE:

1. Steps to prepare one's short term goals and long term goals.
2. Role play activity through reelection of identifying how priority management affect one's ability to live a balanced life.

RECOMMENDED TEXTS

1. Johnson, D.W. (1997). Reaching out – Interpersonal Effectiveness and Self Actualization. 6thed. Boston: Allyn and Bacon.

2. Sherfield, R. M. ; Montgomery, R.J. and Moody, P, G. (2010). Developing Soft Skills. 4th ed.New Delhi: Pearson.

3. Robbins, S. P. and Hunsaker, Phillip, L. (2009). Training in Interpersonal skills. Tips formanaging people at work. 5th ed. New Delhi: PHI Learning.

SEMESTER- IV

SEMESTER	PART	SUBJECT NAME	HRS / WEEK	CREDITS	MARKS		
					CIA	ESE	TOTAL
IV	III	CORE PAPER IX – PYTHON PROGRAMMING	6	4	50	50	100
		CORE PAPER X – DATA BASE MANAGEMENT SYSTEMS	6	4	50	50	100
		CORE PAPER XI - PRACTICAL -- PYTHON PROGRAMMING LAB	7	4	40	60	100
		ALLIED IV – ALLIED STATISTICS - II	7	5	50	50	100
	IV	SKILL IV- WORD PRESS LAB	2	3		100	100
		RONMENTAL STUDIES	2	2		100	100
		TOTAL	30	22			600

CORE – IX

PYTHON PROGRAMMING

SUBJECT CODE : 19UBIT309	**THEORY**	**MARKS 100**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

To explore the mechanism of python programming using modules and package

UNIT-1: (18 Hours)

Introducing the Python Interpreter - Program Execution-Execution Model Variations - Introducing Python Object Types- Python's Core Data Types –Numbers, Strings , Lists – Dictionaries , Tuples , Files. Numeric Type Basics - Numeric Extensions - Shared References

UNIT-II: (18 Hours)

String Fundamentals : String Basics ,String Literals ,Strings in Action, String Methods, String Formatting Expressions, String Formatting Method Calls, General Type Categories. Lists and Dictionaries**:** Lists, Dictionaries, Tuples, Files, Built-in Type Gotchas - Assignments, Expressions, and Prints :Assignment Statements - Expression Statements - Print Operations

Unit-III : (18 Hours)

if Statements Truth Values and Boolean Tests - if/else Ternary Expression - while and for Loops - while Loops -break, continue, pass, and the Loop else - for Loops- Loop Coding Techniques - Iterations and Comprehensions

UNIT-IV : (18 Hours)

Function Basics - Coding Functions - Scopes - Python Scope Basics-The global Statement-Scopes and Nested Functions -The nonlocal Statement in 3.X - Function Design Concepts – python and OOPS. Advanced Function Topics - Recursive Functions - Function Objects: Attributes and Annotations

UNIT-V : (18 Hours)

Anonymous Functions: lambda - Functional Programming Tools - Timing Iteration Alternatives - Modules and Packages - Python Program Architecture - Module Coding Basics : Module Creation- Module Usage - Module Namespaces -Reloading Modules – Module design Concepts – Data Hiding in Modules- Exception Basic – Exception Objects .

RECOMMENDED TEXTS

1. Mark Lutz , "Learning Python, Powerful Object-Oriented Programming", 5th Edition O'Reilly Media

REFERENCE BOOKS

1. The Complete Reference Python , Martin .C.Brown
2. Timothy A. Budd, "Exploring Python", Mc-Graw Hill Education (India) Private Ltd.,, 2015.

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 8 questions. Each answer should not exceed 200 words	13-20	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	21-26	10	**40**
		TOTAL		**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	3
	Unit – 4	3
	Unit – 5	2
Section B	Unit – 1	1
	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

CORE –X

DATABASE MANAGEMENT SYSTEMS

SUBJECT CODE : 19UBIT310	**THEORY**	**MARKS 100**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

Analyze the existing design of a database schema and Create database for real-life application, with constraints and keys, using SQL

UNIT-I: (18 Hours)

Introduction to Database Systems – Record based Data Models - Networking Model, Hierarchical Model and Relational Model — Storage and File Structure – RAID Technology.

UNIT-II: (18 Hours)

E-R Model – Constraints – E-R- Diagrams Weak Entity Sets – Relational Database Design – Features of Relational Design – ACID Properties – Normalization – 1NF, 2NF, 3NF

UNIT-III: (18 Hours)

SQL Datatypes - Table Constraints**:** – Not Null, Primary Key, Unique, Check, DDL: –Table creation and Manipulation, View creation and Manipulation – Different types views : Simple and Complex views.

UNIT-IV: (18 Hour)

DML : Record Insertion, Updation and Deletion of Records – Select query : Basic Select Query clauses, usage of Group By, Having, Order By clauses, Like

UNIT-V : (18 Hours)

Transaction Management – Serializability – Recoverability – Concurrency Control – Dead Lock Handling – Recovery System.

RECOMMENDED TEXTS:

1. Abraham Silberschatz, Henry F. Korth, S. Sudharshan, ―Database System Concepts‖, Sixth Edition, Tata McGraw Hill, 2011.
2. Ramez Elmasri, Shamkant B. Navathe, ―Fundamentals of Database Systems‖, Sixth Edition, Pearson Education, 2011.

REFERENCE BOOKS:

1. C.J.Date, A.Kannan, S.Swamynathan, ―An Introduction to Database Systems‖, Eighth Edition, Pearson Education, 2006.
2. Raghu Ramakrishnan, ―Database Management Systems‖, Fourth Edition, McGraw-Hill College Publications, 2015.
3. G.K.Gupta,"Database Management Systems‖, Tata McGraw Hill, 2011.

Question paper pattern

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 8 questions. Each answer should not exceed 200 words	13-20	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	21-26	10	**40**
		TOTAL		**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	3
	Unit – 4	3
	Unit – 5	2
Section B	Unit – 1	1
	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

CORE – XI

PRACTICAL - PYTHON PROGRAMMING LAB

SUBJECT CODE : 19UBIT311P	**PRACTICAL**	**MARKS 100**
SETER: IV	**CREDITS: 4**	**TOTAL HOURS: 105**

COURSE OBJECTIVES:

To learn how to design and program complex and numeric Python applications

1. Write sample programs to find the usages of Python interpreter
2. Python Math Modules
3. String operations
4. Usages of Range statement
5. List Operation
6. Usages of Dictionary
7. Simple programs using OPPS concepts in python
8. Sample programs for Exception Handling in python
9. Usages of Tuples in Python.
10. Develop programs using Python packages.

ALLIED – IV ALLIED STATISTICS – II

SUBJECT CODE : 19UMAT	THEORY	MARKS 100
SEMESTER: IV	CREDITS: 5	TOTAL HOURS: 105

COURSE OBJECTIVES:

UNIT - I: (18 hours)

Time Series – Components of Time series – Measurement of trend – Seasonal variations. Chapter - 14 (Page Nos: 592-618, 628-641)

UNIT -II: (18 hours)

Probability and expected value – Axiomatic approach to probability – Calculation of Probability – Theorems of probability – Conditional probability – Baye's theorem – Expectation. Volume II Chapter – 1 (Page Nos: 753, 758-799)

UNIT -III: (18 hours)

Theoretical distributions – Binomial, Poisson and Normal Distributions. Volume II Chapter – 2 (Page Nos: 806-857)

UNIT -IV: (18 hours)

Tests of hypothesis – Tests of Significance for small samples. Volume II Chapter – 3 (Page Nos: 882-888, 910-926) Volume II Chapter – 4 (Page Nos: 954-1000)

UNIT -V: (18 hours)

F – test and Analysis of Variance. Volume II Chapter – 3 (Page Nos: 1006-1038)

CONTENT AND TREATMENT AS IN

Business Statistics – S.P.Gupta and M.P.Gupta,Sultan Chand &Sons, Sixteenth Editio

REFERENCE BOOKS

1. Fundamental of Mathematical Statistics - S.C. Gupta & V.K. Kapoor - Sultan Chand
2. Statistical methods by S.P. Gupta, thirty eighth edition(2009)-Sultan Chand

WEBSITES

1. www.e-booksdirectory.com
2. www.bookboon.com/en/statistics-and mathematics-ebooks
3. www.freebookcentre.net

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any **10**out of 12 questions	1 – 12	**2**	**20**
Section B	**Short Answer** Answer any **5**out of 8 questions	13–20	**8**	**40**
Section C	**Essay** Answer any **2**out of 4 questions	21– 24	**20**	**40**
TOTAL MARKS				**100**

Distribution of Questions :

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	1
	Unit – 2	1	2
	Unit – 3	2	
	Unit – 4	1	1
	Unit – 5	1	1
Section B	Unit – 1		2
	Unit – 2		2
	Unit – 3		2
	Unit – 4		1
	Unit – 5		1
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		
	Unit - 5		1

SOFT SKILL - IV PRACTICAL - WORD PRESS LAB

SUBJECT CODE : 19UGSL407	**PRACTICAL**	**MARKS 100**
SEMESTER: IV	**CREDITS: 3**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

To Create and manage functional multi-page website using Word Press on a remote server

1. Word press Dashboard
2. Creating Wordpress Site
3. Creating Wordpress Themes
4. Wordpress Post
5. Wordpress Pages
6. Media Settings
7. Design and build your first WordPress theme.
8. Organizing wordpress Content
9. Wordpress text Formatting
10. Creating Menus in Wordpress

EVS ENVIRONMENTAL STUDIES

SUBJECT CODE : 19UEVS401	**THEORY**	**MARKS 100**
SEMESTER: IV	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

To explore, understand, appreciate and value their environment and solve environmental problems

UNIT-1 (6 Hours)

Multidisciplinary nature of environmental studies Definition, scope and importance.

UNIT-II (6 Hours)

Natural Resources : Renewable and non-renewable resources : Natural resources and associated problems. - Forest resources : Use and over-exploitation, deforestation, case studies. - Timber extraction, mining, dams and their effects on forest and tribal people. - Water resources : Use and over-utilization of surface and ground water - floods, drought, conflicts over water, dams-benefits and problems. - Mineral resources : Use and exploitation, environmental effects of extracting and using mineral resources, case studies. - Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

Energy resources : Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies. Land resources : Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.

UNIT-III (6 Hours)

Ecosystems - Concept of an ecosystem. -Structure and function of an ecosystem. - Producers, consumers and decomposers. - Energy flow in the ecosystem. - Ecological succession. - Food chains, food webs and ecological pyramids. - Introduction, types, characteristic features, structure and function of the following ecosystem :- . Forest ecosystem, Grassland ecosystem ,. Desert ecosystem,. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit-IV (6 Hours)

Biodiversity and its conservation - Introduction – Definition : genetic, species and ecosystem diversity. – Bio geographical classification of India - Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic- and option values - Biodiversity at global, National and local levels. - India as a mega-diversity nation - Hot-sports of biodiversity.

- Threats to biodiversity : habitat loss, poaching of wildlife, man-wildlife conflicts.
- Endangered and endemic species of India
- Conservation of biodiversity : In-situ and Ex-situ conservation of biodiversity

UNIT-V (6 Hours)

Environmental Pollution Definition

Cause, effects and control measures of :-

a. Air pollution b. Water pollution c. Soil pollution d. Marine pollution

e. Noise pollution f. Thermal pollution g. Nuclear hazards

- Solid waste Management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution.
- Pollution case studies.
- Disaster management: floods, earthquake, cyclone and landslides.

RECOMMENDED TEXTS

1. Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.

REFERENCE BOOKS

1. Cunningham, W.P.Cooper, T.H. Gorhani, E & Hepworth, M.T.2001, Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p.

SEMESTER- V

SEMESTE	PART	SUBJECT NAME	HRS /	CREDITS	MARKS		
					CIA	ESE	TOTAL
V		CORE PAPER XII – BIG	6	4	50	50	100
		DATA ANALTICS					
		CORE PAPER XIII – DATA	6	4	50	50	100
		SCIENCE USING R					
		CORE PAPER XV -	6	4	40	60	100
		PRACTICAL - R					
		PROGRAMMING LAB					
	III	ELECTIVE I - INFORMATION SECURITY /					
		SOFTWARE PROJECT MANAGEMENT / NETWORK	6	5	50	50	100
		SECURITY &					
		CRYPTOGRAPHY					
		ELECTIVE II -					
		MARKETING ANALYTICS /					
		DECISION MANAGEMENT SYSTEMS / E	5	5	50	50	100
	IV	VALUE EDUCATION	1	2	---	100	100

CORE –XII

BIG DATA ANALYTICS

SUBJECT CODE :	**THEORY**	**MARKS 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

Understand the key issues in big data management and its associated applications in intelligent business and scientific computing

UNIT-I (18 Hours)

Basicnomenclature-Analyticsprocessmodel–Analyticsmodelrequirements – Job Profiles in Analytics – Types of Data Sources- Sampling – Sampling - Types of Data Elements

UNIT-II (18 Hours)

Missing Values–Outlier Detection and Treatments– Weight of Evidence Coding. Predictive Analytics basics – Linear Regression-Logistic Regression - Decision Trees

Unit-III (18 Hours)

Descriptive Analytics: Association Rules- Support and Confidence- Applications of Association Rule – Sequence Rules – Segmentation.

UNIT-IV (18 Hours)

Hierarchical clustering -Social Network Analytics: Social Network Definitions - Social Network Metrics - Social Network Learning -Relational Neighbor Classifier

UNIT-V (18 Hours)

Data Quality - Software–Privacy - Model Design and Documentation - Corporate Governance. Example applications: Credit Risk Modeling

RECOMMENDED TEXT:

1. Baesens,2014,Analyticsina Big Data World :The Essential Guide toData Science and Its applications, Wiley India PrivateLimited.

REFERENCE BOOKS

1. Anand Rajaraman and Jeffrey David Ullman, “Mining of Massive Datasets”, Cambridge University Press, 2012.
2. Kim H. Pries and Robert Dunnigan, “Big Data Analytics: A Practical Guide for Managers ” CRC Press, 2015.

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 8 questions. Each answer should not exceed 200 words	13-20	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	21-26	10	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	3
	Unit – 4	3
	Unit – 5	2
Section B	Unit – 1	1
	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

CORE – XIII DATA SCIENCE USING R

SUBJECT CODE :	**THEORY**	**MARKS 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

Understand R Programming Environment and to explore Mathematical and Statistical Functions

UNIT -I (18 Hours)

History and Overview of R -Basic Features of R - Free Software -Design of the R System - Limitations of R - R Resources -Getting Started with R -Installation -Getting started with the R interface --Entering Input- Evaluation -R Objects -Numbers –Attributes-Creating Vectors -Mixing Objects -Explicit coercion -Matrices -Lists -Factors -Missing Values -Data Frames –Names.

UNIT -II : (18 Hours)

Getting Data In and Out of R -Reading and Writing Data -Reading Data Files with read. table() -Reading in Larger Datasets with read. table -Calculating Memory Requirements for R Objects - Using the read r package-Lines of a Text File

UNIT-III (18 Hours)

Reading From a URL connection -Subsetting -R Objects -Subsetting a Vector -Subsetting a Matrix - Subsetting Lists -Subsetting Nested Elements of a List -Extracting Multiple Elements of a List -Partial Matching -Removing NA Values -Vectorized Operations -Vectorized Matrix Operations

UNIT-IV : (18 Hours)

Dates and Times -Dates in R -Times in R -Operations on Dates and Times-Managing Data Frames with the dplyr package -Data Frames -The dplyr Package -dplyr Grammar-Installing the dplyr package -select() - filter() -arrange()-rename() -mutate()-group_by()-Control structures -if-else -for Loops -Nested for loops - while Loops -repeat Loops -next, break

UNIT -V (18 Hours)

Functions -Functions in R -Your First Function -Argument Matching -Lazy Evaluation -The ... Argument- Arguments Coming After the ... Argument-Coding -standards for R -Loop Functions - Looping on the Command Line -lapply() -sapply() -split() -Splitting a Data Frame -tapply -apply() -Col/Row Sums and Means -Other Ways to Apply -mapply()

RECOMMENDED TEXTS

1. R Programming for Data Science – Roger D.Peng, Learn Pub Book,Learn Publishing

REFERENCE BOOKS

1. R for dummies – Andrie de vries and JorisMeys, A John Wiley sons ,Ltd Publication
2. Mining Massive Data Sets, A. Rajaraman and J. Ullman, Cambridge University Press,

2012

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 8 questions. Each answer should not exceed 200 words	13-20	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	21-26	10	**40**
		TOTAL		**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	3
	Unit – 4	3
	Unit – 5	2
Section B	Unit – 1	1
	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

CORE – XIV

PRACTICAL – R PROGRAMMING LAB

SUBJECT CODE :	**PRACTICAL**	**MARKS 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

Understand and apply the basics in R Programming from Statistical Perspective

1. Write a program that prints 'Hello World' to the screen.
2. Write a program that asks the user for a number n and prints the sum of the numbers 1 to n
3. Write a program that prints a multiplication table for numbers up to 12.
4. Write a function that returns the largest element in a list.
5. Write a function that computes the running total of a list.
6. Write a function that tests whether a string is a palindrome.
7. Implement linear search.
8. Implement binary search.
9. Implement matrices addition , subtraction and Multiplication
10. Fifteen students were enrolled in a course. There ages were: 20 20 20 20 20 21 21 21 22 22 22 22 23 23 23

    (i) Find the median age of all students under 22 years

    (ii) Find the median age of all students

    (iii) Find the mean age of all students

    (iv) Find the modal age for all students

    (v) Two more students enter the class. The age of both students is 23. What is now mean, mode and median

ELECTIVE - I INFORMATION SECURITY

SUBJECT CODE :	THEORY	MARKS 100
SEMESTER: V	CREDITS: 5	TOTAL HOURS: 90

COURSE OBJECTIVES:

To Learn Database and Network Threats and how to Implement Reliable Network Security

UNIT-I (18 Hours)

Introduction: Security- Attacks- Computer criminals-Method of defense Program Security: Secure programs -Non-malicious program errors - Viruses and other malicious code-Targeted malicious code- Controls against program threats.

UNIT-II (18 Hours)

Operating System Security: Protected objects and methods of protection-Memory address protection- Control of access to general objects-File protection mechanism-Authentication: Authentication basics- Password-Challenge-response-Biometrics.

UNIT-III (18 Hours)

Database Security: Security requirements-Reliabilityandintegrity-Sensitivedata-Interface-Multilevel database-Proposals for multilevel security.

UNIT-IV (18 Hours)

Security in Networks: Threats in networks –Network security control-Firewalls-Intrusion detection systems- Secure e-mail-Networks and cryptography-Example protocols: PEM-SSL-IPSec.

UNIT-V (18 Hours)

Administrating Security: Security planning- Risk analysis-Organizational security policies-Physical security- Legal-Privacy-and Ethical Issues in Computer Security-Protecting programs and data- Information and law-Rights of employees and employers-Software failures-Computer crime-Privacy-Ethical issues in computer society-Case studies of ethics.

RECOMMENDED TEXTS:

1. C.P.Pfleeger,and S.L.Pfleeger, Security in Computing, PearsonEducation,4th Edition, 2003
2. Matt Bishop, Computer Security: Art and Science, Pearson Education,2003.

REFERENCE BOOKS :

1. Stallings**,** Cryptography/w Security:Principlesandpractice, 4th Edition,2006.
2. Kaufman, Perlman, Spincer, Network Security, Prentice Hall, 2nd Edition, 2003
3. Eric Maiwald, Network Security: A BeginnersGuide,TMH, 1999
4. MacroPistoia,Java NetworkSecurity, Pearson Education, 2nd Edition,1999
5. Whitman, Mattord,Principles of Information Security, Thomson, 2nd Edition, 2005

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 8 questions. Each answer should not exceed 200 words	13-20	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	21-26	10	**40**
		TOTAL		**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	3
	Unit – 4	3
	Unit – 5	2
Section B	Unit – 1	1
	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

ELECTIVE - I

SOFTWARE PROJECT MANAGEMENT

SUBJECT CODE :	**THEORY**	**MARKS 100**
SEMESTER: V	**CREDITS: 5**	**TOTAL HOURS: 90**

COURSE OBJECTIVES

Understand suitable project organization structure, leadership, decision and motivation styles, proper safety and ethical practices and be responsible to the society

UNIT I (18 Hours)

Introduction to Software Project Management- Software project versus other types of project-problems- management control- Stakeholders- Requirement Specification – Information and control in organizations Introduction to step wise project planning- Select- identify scope and objectives identify project infrastructure- Analyse project characteristics- products and activities- Estimate effort for each activity- Identify activity risks- Allocate resources- Review/ publicize plan- Execute plan and lower levels of planning. Project evaluation- Introduction – Strategic assessment- technical assessment - cost benefit analysis- cash flow forecasting- cost- benefit evaluation techniques- risk evaluation

UNIT II (18 Hours)

Selection of an appropriate project approach- choosing technologies-technical plan contents list- choice of process models- structured methods-rapid application development- waterfall model-process model-spiral model - software prototyping- ways of categorizing prototypes- incremental delivery- selecting process model.

UNIT III (18 Hours)

Software effort estimation- introduction where- problems with over and under estimates- basis for software estimating software effort estimation technique- expert judgement- Albercht function point analysis- COCOMO -Activity Planning- Objectives- Project schedules projects and activities- sequencing and scheduling activities

UNIT IV (18 Hours)

Network planning models- formulating a network model- using dummy activities- representing lagged activities- adding time dimension- forward pass- backward pass - identifying the critical path- Activity float- shortening project duration – identifying critical activities- precedence networks.

UNIT V (18 Hours)

Risk Management- nature of risk- managing- identification-analysis reducing risks.

PRESCRIBED TEXT:

Software Project Management – By Bob Huges, Mike Ctotrell – 5th Edition-2011- TMH

REFERENCE BOOKS

1. Neil Whitten - Managing software development projects for success, John Wiley and sons
2. Roger S Pressman - Software engineering - McGraw Hill
3. Watts Humphrey - Managing Software Process, Addison Wesley

Question paper pattern:

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	TOTAL			**100**

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	Unit – 4	3
	Unit – 5	2
Section B	Unit – 1	1
	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

ELECTIVE - I

NETWORK SECURITY & CRYPTOGRAPHY

SUBJECT CODE :	THEORY	MARKS 100
SEMESTER: V	CREDITS: 5	TOTAL HOURS: 90

COURSE OBJECTIVES:

To understand basics of Cryptography and various protocols for network security to protect against the threats in the networks.

UNIT I : INTRODUCTION (18 Hours)

Types of Physical Medium-Topologies-Wireless Networking: Wireless Protocols. Data Link Layer: Layered Data Link Protocols-SLIP and PPP-MAC and ARP. Network Layer: Routing Risks-Addressing - Fragmentation-Security.

UNIT II: INTERNET PROTOCOL (18 Hours)

IP Addressing – ICMP - Security options. Transport Layer: Common Protocols- Transport Layer Functions- Gateways. TCP: Connection Oriented Protocols-TCP Connections-UDP. Session Layer: Session State Machine-Session and Stacks. SSL: SSL Functionality-Certificates. SSH: SSH and Security-SSH Protocols. STMP: Email Goals-Common servers. HTTP: HTTP Goals-URL.

UNIT III: CRYPTOGRAPHY (18 Hours)

Importance - Threat Models - Concepts-Common Mitigation Methods. Network theory: Standards Bodies- Network Stacks-Multiple Stacks-Layers and Protocols-Common Tools. Cryptography: Securing Information- Necessary Elements-Authentication and Keys-cryptography and Randomness-Hashes-Ciphers-Encryption- Steganography.

UNIT IV: TECHNIQUES (18 Hours)

Data Encryption Techniques-Data Encryption Standards-Symmetric ciphers. Public key Cryptosystems-Key Management.

UNIT V: SECURITY (18 Hours)

Authentication - Digital Signatures - E-Mail Security - Web Security – Intrusion - Firewall.

RECOMMENDED TEXTS

1. Neal Krawetz, Introduction Network Security, India Edition, Thomson Delmar Learning. 2007
2. V.K.Pachghare, Cryptography and Information Security, PHI Learning Private Limited 2009.

REFERENCE BOOKS :

1. William Stallings, Cryptography and Network Security, Prentice –Hall of India, 2008

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	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

ELECTIVE – II MARKETING ANALYTICS

SUBJECT CODE :	THEORY	MARKS 100
SEMESTER: V	CREDITS: 5	TOTAL HOURS: 75

COURSE OBJECTIVES:

To Understand data **analysis** techniques and their theoretical foundations to help acquire skills that can be applied to real **marketing** problems

UNIT-I **(**15 Hours)

MARKETING DATA SUMMARIZATION: Slicing and Dicing Marketing Data with PivotTables - Using Excel Charts to Summarize Marketing Data - Using Excel Functions to Summarize Marketing Data.

UNIT-II **(**15 Hours)

FORECASTING TECHNIQUES: Simple Linear Regression and Correlation - Using Multiple Regression to Forecast Sales - Forecasting in the Presence of Special Events - Modeling Trend and Seasonality - Ratio to Moving Average Forecasting Method - Winter's Method - Using Neural Networks to Forecast Sales.

UNIT-III (15 Hours)

CUSTOMER NEEDS: Conjoint Analysis - Logistic Regression - Discrete Choice Analysis – Customer Value - Introduction to Customer value, Benefits. 9 IT2015 SRM(E&T)

UNIT-IV (15 Hours)

MARKET SEGMENTATION: Cluster Analysis - User-Based Collaborative Filtering - Collaborative Filtering - Using Classification Trees for Segmentation.

UNIT-V (15 Hours)

RETAILING AND MARKET RESEARCH TOOLS: Retailing - Introduction to retailing, Market Basket Analysis and Lift - Marketing Research Tools - Principal Components Analysis.

RECOMMENDED TEXTS

1. L.Winston, "Marketing Analytics: Data driven techniques with MS-Excel", Wiley, 1st ed. 2014.

REFERENCE BOOKS

1. Stephan Sorger, "Marketing Analytics: Strategic models and metrics", CreateSpace Independent Publishing Platform, 1st ed., 2013.

Question paper pattern:

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		TOTAL		**100**

Distribution of Questions

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	Unit – 2	2
	Unit – 3	3
	Unit – 4	3
	Unit – 5	2
Section B	Unit – 1	1
	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

ELECTIVE – II

DECISION MANAGEMENT SYSTEMS

SUBJECT CODE :	THEORY	MARKS 100
SEMESTER: V	CREDITS: 5	TOTAL HOURS: 75

COURSE OBJECTIVES:

To Learn, Test, Build, Design and Implement Decision Services

UNIT-I: (15 Hours)

PRINCIPLES OF DMS :Principles of Decision Management Systems - Begin with the Decision in Mind - Be Transparent and Agile - Be Predictive, Not Reactive - Test, Learn, and Continuously Improve.

UNIT-II : (15 Hours)

BUILDING DECISION MANAGEMENT SYSTEMS: Building Decision Management Systems - Discover and Model Decisions - Characteristics of Suitable Decisions - A Decision Taxonomy - Finding Decisions - Documenting Decisions - Prioritizing Decisions.

UNIT-III : (15 Hours)

DESIGN AND IMPLEMENT DECISION SERVICES: Design and Implement Decision Services - Build Decision Services - Integrate Decision Services - Best Practices for Decision Services Construction - Monitor and Improve Decisions - What Is Decision Analysis? - Monitor Decisions - Determine the Appropriate Response - Develop New Decision-Making Approaches - Confirm the Impact Is as Expected - Deploy the Change.

UNIT-IV : (15 Hours)

ENABLERS FOR DECISION MANAGEMENT SYSTEMS : Enablers for Decision Management Systems - People Enablers - The Three-Legged Stool - A Decision Management Center of Excellence - Organizational Change - Process Enablers - Managing a Decision Inventory - Adapting the Software Development Lifecycle - Decision Service Integration Patterns - Moving to Fact-Based Decisioning - The OODA Loop - Technology Enablers.

UNIT-V: (15 Hours)

BUSINESS RULES MANAGEMENT SYSTEMS :Business Rules Management Systems - Predictive Analytics Workbenches - Optimization Systems - Pre-Configured Decision Management Systems - Data Infrastructure - A Service-Oriented Platform.

RECOMMENDED TEXTS

1. James Taylor, “Decision Management Systems-A Practical guide to using Business rules and Predictive Analytics”, IBM Press, 2012.
2. Efraim Turban , Jay E. Aronson , Ting-Peng Liang, “Decision Support Systems & Intelligent Systems”, 9th edition, Prentice Hall, 2010.

REFERENCE BOOKS

1. lberto Cordoba, “Understanding the Predictive Analytics Lifecycle”, Wiley, 2014.
2. Eric Siegel, Thomas H. Davenport, “Predictive Analytics: The Power to Predict Who Will Click, Buy, Lie, or Die”, Wiley, 2013.

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
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Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	21-26	10	**40**
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		Theory
Section A	Unit – 1	2
	Unit – 2	2
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	Unit – 4	3
	Unit – 5	2
Section B	Unit – 1	1
	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

ELECTIVE – II ECOMMERCE

SUBJECT CODE :	THEORY	MARKS 100
SEMESTER: V	CREDITS: 5	TOTAL HOURS: 75

COURSE OBJECTIVES:

To Understand the E Commerce Technologies and the security Issues

UNIT-I (15 Hours)

Electronic Commerce and Opportunities : Background The Electronic Commerce Environment – Electronic Marketplace Technologies – Modes of Electronic Commerce: Overview : Electronic Data Interchange.

UNIT-II (15 Hours)

Approaches to Safe Electronic Commerce . Overview – Secure Transport Protocols – Secure Transaction – Secure Electronic Payment Protocol (SEPP) – Secure Electronic Transaction (SET)

UNIT III (15 Hours)

Certificates for Authentication – Security on Web Servers – Payment Schemes: Internet Monetary Payment and Security Requirements- Payment and purchase order process – Online electronic cash.

UNIT-IV (15 Hours)

Internet / Intranet Security Issues and Solutions : The Need for Computer Security – Specific Intruder Approaches – Security Strategies-Security Tools – Encryption – Enterprise Networking and Access to the Internet Antivirus Programs.- Security Teams

UNIT-V (15 Hours

MasterCard/Visa Secure Electronic Transaction : Introduction –Business Requirements – Concepts – payment Processing. E-mail and secure e-mail technologies for Electronic Commerce: Introduction _ The Means of Distribution – A model for Message Handling- MIME, S/MIME, MOSS , MIME and Related Facilities for EDI over the Internet.

RECOMMENDED TEXTS:

1. Daniel Minoli & Emma Minoli, “Web Commerce Technology Handbook”. Tata McGraw Hill

REFERENCE BOOK:

1. K.Bajaj& D Nag , “E-Commerce”, Tata McGraw Hill – 1999.
2. MamtaBhusry – “E-Commerce”

Question paper pattern:

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Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	1-12	3	**30**
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	Unit – 2	2
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	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

VALUE EDUCATION

SUBJECT CODE :	THEORY	MARKS 100
SEMESTER: V	CREDITS: 2	TOTAL HOURS: 15

COURSE OBJECTIVES:

To teach the philosophy of Life, personal value, social value, mind cultural value and personal health - To teach professional ethical values, codes of ethics, responsibilities, safety, rights and related global issues.

UNIT I (3 Hours)

Value education-its purpose and significance in the present world – Value system – The role of culture and civilization-Holistic living – Balancing the outer and inner – Body, Mind and Intellectual level- Duties and responsibilities.

UNIT II (3 Hours)

Salient values for life- Truth, commitment, honesty and integrity, forgiveness and love, empathy and ability to sacrifice, care, unity , and inclusiveness, Self esteem and self confidence, punctuality – Time, task and resource management – Problem solving and decision making skills- Interpersonal and Intra personal relationship – Team work – Positive and creative thinking

UNIT III (3 Hours)

Human Rights – Universal Declaration of Human Rights – Human Rights violations – National Integration – Peace and non-Violence – Dr. A P J Kalam's ten points for enlightened citizenship – Social Values and Welfare of the citizen – The role of media in value building.

UNIT IV (3 Hours)

Environment and Ecological balance – interdependence of all beings – living and non-living. The binding of man and nature – Environment conservation and enrichment.

UNIT V (3 Hours)

Social Evils – Corruption, Cyber crime, Terrorism – Alcoholism, Drug addiction – Dowry – Domestic violence – untouchability – female infanticide – atrocities against women- How to tackle them

RECOMMENDED TEXTS:

1. M.G.Chitakra: Education and Human Values,A.P.H.Publishing Corporation, New Delhi, 2003

SEMESTER- VI

SEMESTER	PART	SUBJECT NAME	HRS / WEEK	CREDITS	MARKS		
					CIA	ESE	TOTAL
VI	III	CORE PAPER XV – MINIPROJECT	6	4	50	50	100
		CORE PAPER XVI – SOFTWARE ENGINEERING	6	4	50	50	100
		CORE PAPER XVII – UI PROGRAMMING	6	4	50	50	100
		CORE PAPER XVIII – PRACTICAL - UI PROGRAMMING LAB	6	4	40	60	100
		ELECTIVE III- CLOUD COMPUTING / MOBILE COMPUTING / PARALLEL COMPUTING	6	5	50	50	100
	V	EXTENSION ACTIVITY	------	1			
		TOTAL	30	22			500

CORE – XV MINI PROJECT

SUBJECT CODE :	**PRACTICAL**	**MARKS 100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES

To Enable Students with knowledge to develop a Project within the chosen area of technology.

A mini-project should be done by the students based on concepts they have already learnt in the first two years of the programme. It may be based on database concepts, object oriented concepts, image processing, data Science , optimization tools, Big Data , etc.

Objectives Of The Mini Project : Working on Mini project is to get used to the larger project, which will be handled in Industry. The project work constitutes an important component of the B.Sc(IT) programme and it is to be carried out with due care and should be executed with seriousness by the students. The objective of this mini project is to help the student develop the ability to apply theoretical and practical tools/ techniques to solve real life problems related to industry, academic institutions and research laboratories.

Guidelines: A student is expected to devote about 3 months in planning, analyzing, designing and implementing the project. The initiation of project should be with the project proposal that is to be treated as an assignment:

Mini-project evaluation: The evaluation of the mini-project will be based on the project reports submitted by the student, a presentation and a demonstration.

CORE –XVI SOFTWARE ENGINEERING

SUBJECT CODE :	**THEORY**	**MARKS 100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

Understand and demonstrate basic knowledge in software engineering. Identify risks; manage the change to assure quality in software projects

UNIT-I (18 Hours)

The Product – the process – project management concepts – software projects and project metrics.

UNIT-II (18 Hours)

Software project planning-risk analysis and management-project scheduling and tracking-software quality assurance.

UNIT-III (18 Hours)

Software configuration management-system engineering-analysis concepts and principles-analysis modeling.

UNIT-IV (18 Hours)

Design concepts and principles- architectural designs-user interface design.

UNIT-V (18 Hours)

Component level design- software testing techniques- software testing strategies – technical metrics for software.

RECOMMENDED TEXTS

1. Roger S. Pressman – software Engineering a Practitioner's Approach -5thedition, McGraw hill.

REFERENCE BOOKS

1. Ian Sommerville – Software Engineering – 5th Edition –Addison Wesley.

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	1-12	3	**30**
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	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

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CORE – XVII

UI PROGRAMMING

SUBJECT CODE :	THEORY	MARKS 100
SEMESTER: VI	CREDITS: 4	TOTAL HOURS: 90

COURSE OBJECTIVES:

To Understand and Implement User Interface design with HTML, CSS and JavaScript

UNIT-I (18 Hours

Introduction to HTML, Overview of basic HTML , Structure of HTML, Creating and opening HTML file, Singular and paired tags, Text formatting tag, Anchor tag, Lists, Image, Image Map, Table, Frames and Frameset.

UNIT-II (18 Hours)

HTML5: Introduction to HTML5, Need of HTML5, DOCTYPE Element, Tags-Section, Article, aside, header, footer, nav, dialog, figure etc. Events in HTML5, Input tag (Type, Auto focus, placeholder, required etc. attributes.) in HTML5, Graphics in HTML5, Media tags in HTML5

UNIT-III (18 Hours)

Cascading Style Sheet-Introduction, Use of CSS, Types of CSS, Class & ID Selector, CSS Font Properties, CSS Text Properties, CSS Background Properties ,CSS List Properties, CSS Margin Properties, CSS Comments

UNIT-IV (18 Hours)

JavaScript: Introduction, Client side programming, script tag, comments, variables, Document Methods: write and writeln methods, Dialog Boxes-alert, prompt, confirm, Operators: Arithmetic, Assignment, Relational, Logical

UNIT-V (18 Hours)

Java Script Control Structure , Conditional Statements, Loops, break and continue. Events Familiarization: onLoad, onClick, onBlur, onSubmit, onChange.

RECOMMENDED TEXTS

1. Jon Duckett, Web Programming with HTML,XHTML, CSS, JavaScript,Wrox Beginning
2. HTML5 Black Book Kogent Learning Solutions IncDreamtech.

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	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

CORE - XVIII

PRACTICAL - UI PROGRAMMING LAB

SUBJECT CODE :	**PRACTICAL**	**MARKS 100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES

Implement User Design Process and to develop dynamic web pages.

1. Write an HTML code to develop a Web page having two frames that divide the Web page into two equal rows and then divide the second row into two equal columns.
2. Write an HTML code to develop a Web page having frames as described in the above question and then fill each frame with a different background color.
3. Design a home page which will display your information, i.e., Bio data, using Image Link and File Link to upload images and necessary documents.
4. Design a timetable and display it in tabular format.
5. To create a web page that displays college information using various Style sheets.
6. Write a program to Use different font, styles
7. Use CSS to Set a background image for both the page and single elements on the page
8. Write a code to create a scrolling text in a text box
9. Create a program to generate a hit counte
10. Change the Background Color of a web page using Button Events

Elective – III CLOUD COMPUTING

SUBJECT CODE :	THEORY	MARKS 100
SEMESTER: VI	CREDITS: 5	TOTAL HOURS: 90

COURSE OBJECTIVES:

To Enable students to understand the Cloud Computing concepts and services

UNIT-I (18 Hours)

Understanding Cloud Computing: Cloud Computing –History of Cloud Computing – Cloud Architecture – Cloud Storage –Why Cloud Computing Matters –Advantages of Cloud Computing – Disadvantages of Cloud Computing –Companies in the Cloud Today – Cloud Services.

UNIT-II: (18 Hours)

Developing Cloud Services: Web-Based Application –Pros and Cons of Cloud Service Development – Types of Cloud Service Development –Software as a Service –Platform as a Service-Infrastructure as a service –Web Services –On-Demand Computing –Discovering Cloud Services Development Services and Tools –Amazon Ec2 –Google App Engine –IBM Clouds.

UNIT-III : (18 Hours)

Cloud Computing For Everyone: Centralizing Email Communications –Collaborating on Schedules – Collaborating on To-Do Lists –Collaborating Contact Lists –Cloud Computing for the Community – Collaborating on Group Projects and Events –Cloud Computing for the Corporation.

UNIT-IV: (18 Hours)

Using Cloud Services: Collaborating on Calendars, Schedules and Task Management – Exploring Online Scheduling Applications –Exploring Online Planning and Task Management– Collaborating on Event Management –Collaborating on Contact Management –Collaborating on Project Management –Collaborating on Word Processing -Collaborating on Databases –Storing and Sharing Files.

UNIT-V : (18 Hours

Other Ways To Collaborate Online: Collaborating via Web-Based Communication Tools – Evaluating Web Mail Services –Evaluating Web Conference Tools –Collaborating via Social Networks and Groupware–Collaborating via Blogs and Wikis.

RECOMMENDED TEXTS:

1. MichaelMiller, Cloud Computing: Web-BasedApplicationsThatChange the WayYou Work and Collaborate Online, QuePublishing, August2008.
2. KumarSaurabh, “CloudComputing–Insights into New EraInfrastructure”,Wiley IndianEdition, 2011.
3. HaleyBeard, Cloud Computing Best Practices for Managing and Measuring Processes for On-demand Computing, Applications and Data Centers in the Cloud with SLAs, Emereo PtyLimited, July2008.

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	Unit – 5	2
Section B	Unit – 1	1
	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

Elective – III MOBILE COMPUTING

SUBJECT CODE :	THEORY	MARKS 100
SEMESTER: VI	CREDITS: 5	TOTAL HOURS: 90

COURSE OBJECTIVES:

To Understand Working of Wireless devices and interconnectivity

UNIT-I (18 Hours)

Introduction - Mobile and Wireless Devices – Simplified Reference Model – Need for Mobile Computing – Wireless Transmissions –Multiplexing – Spread Spectrum and Cellular Systems- Medium Access Control – Comparisons.

UNIT-II (18 Hours

Telecommunication Systems – GSM – Architecture – Sessions – Protocols – Hand Over and Security – UMTS and IMT – 2000 – Satellite Systems.

UNIT-III (18 Hours)

Wireless Lan - IEEE S02.11 – Hiper LAN – Bluetooth – Security and Link Management.

UNIT-IV (18 Hours)

Mobile network layer - Mobile IP – Goals – Packet Delivery – Strategies – Registration – Tunneling and Reverse Tunneling – Adhoc Networks – Routing Strategies.

UNIT-V (18 Hours)

Mobile transport layer - Congestion Control – Implication of TCP Improvement – Mobility – Indirect – Snooping – Mobile – Transaction oriented TCP - TCP over wireless – Performance.

RECOMMENDED TEXTS:

1. J.Schiller, 2003, Mobile Communications,2ndedition, Pearson Education,Delhi.

REFERENCE BOOKS :

1. Hansmann, Merk, Nicklous, Stober, 2004, Principles of Mobile Computing, 2nd Edition, Springer (India).
2. Pahlavan, Krishnamurthy, 2003(2002), Principle of wireless Networks: A unified Approach, Pearson Education, Delhi.
3. MartynMallick, 2004, Mobile and Wireless Design Essentials, Wiley Dreamtech India Pvt. Ltd., NewDelhi.
4. W.Stallings, 2004, Wireless Communications and Networks, 2nd Edition, Pearson Education, Delhi.

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 8 questions. Each answer should not exceed 200 words	13-20	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	21-26	10	**40**
		TOTAL		**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	3
	Unit – 4	3
	Unit – 5	2
Section B	Unit – 1	1
	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

Elective – III PARALLEL COMPUTING

SUBJECT CODE :	**THEORY**	**MARKS 100**
SEMESTER: VI	**CREDITS: 5**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

To Learn the major concepts and ideas in parallel computing and its applications and to understand various models of parallelism

UNIT-I : (18 Hours)

Introduction To Parallel Computing- History of Parallel Computers - Problem Solving in Parallel - Performance Evaluation - Elementary Concepts -The Need of Parallel Computation - Levels of Parallel Processing - Dataflow Computing - Applications of Parallel Processing.

UNIT-II : (18 Hours)

Introduction to Classification Of Parallel Computers -Types of Classification - Flynn's Classification - Handler's Classification -Structural Classification - Classification Based on Grain Size.

UNIT-III : (18 Hours)

Introduction to Interconnection Networks - Network Properties- Design issues of Interconnection Network- Various Interconnection Networks-Concept of Permutation Network - Performance Metrics.

UNIT-IV : (18 Hours)

Introduction to Parallel Computer Architecture - Pipeline Processing - Vector Processing - Array Processing - Superscalar Processors - VLIW Architecture - Multi-threaded Processors. **Introduction to Operating System For Parallel Computer** - Parallel Programming Environment Characteristics- Synchronization Principles- Multitasking Environment.

UNIT-V : (18 Hours)

Introduction Performance Evaluations - Metrics for Performance Evaluation - Factors Causing Parallel Overheads- Laws For Measuring Speedup Performance - Tools For Performance Measurement - Performance Analysis- Performance Instrumentations.

Introduction to Recent Trends In Parallel Computing- Recent Parallel Programming Models - Parallel Virtual Machine.

RECOMMENDED TEXTS:

1. Rajaraman V. and Siva Ram Murthy C. Parallel Computers - Architecture and Programming, Second Edition, Prentice Hall of India .

2. SelimG.AklParallel Computation, Models and Methods: Prentice Hall of India.

3. Kai Hwang: Advanced Computer Architecture: Parallelism, Scalability, Programmability (2001), Tata McGraw Hill, 2001.

REFERENCE BOOKS :

1. Henessy J. L. and Patterson D. A. Computer Architecture: A Qualititative Approach, Morgan Kaufman (1990)
2. Thomas L. Casavant, PavelTvrdik, FrantisckPlasil, Parallel Computers: Theory and Practice,

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 8 questions. Each answer should not exceed 200 words	13-20	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	21-26	10	**40**
		TOTAL		**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	3
	Unit – 4	3
	Unit – 5	2
Section B	Unit – 1	1
	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

INTER DISCLIPINARY ELECTIVE

SUBJECT CODE :	THEORY / PRACTICAL	MARKS
SEMESTER:	CREDITS:	TOTAL HOURS:

COURSE OBJECTIVES

To explain the Concepts of Internet and Web Designing.

UNIT I

BASIC INTERNET CONCEPTS: What is Internet – History – Host Machines and Host Names- Client / Server Model – Domain Names – Protocols- IP Address.

UNIT II

ADVANCED INTERNET CONCEPTS: Anatomy of an Email Message – Viewing - Sending – Replying - Search Engines – Meta Search Engine

UNIT III

HTML INTRODUCTION: History of HTML – HTML Document – Anchor Tags – Hyper Links- Sample HTML Documents.

UNIT IV

HEAD AND BODY SECTIONS: Header Section – Title – Prologue – Links – Comment – Heading – Horizontal Rule – Paragraph – Images and Pictures - Ordered and Unordered List.

UNIT V

TABLES: Table Creation – Cols pan, Row Span – Cell Spacing, Cell Padding – Nested Tables. FRAMES: Frameset Definition – Frame Definition – Nested Frames. FORMS: Action Attribute – Method Attribute – Drop Down List – Sample Forms.

TEXT BOOKS

1. Wendy G. Lehnert, “Internet 101 - A Beginners Guide to Internet and the World Wide Web”, Addison Wesley. UNITS I & II .

2. Xavier.C, World , “Wide Web design with HTML”, Tata McGraw Hill Publishing Limited, New Delhi. UNITS III, IV & V

Question paper pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions. Each answer should not exceed 30 words.	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 8 questions. Each answer should not exceed 200 words	13-20	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions. Each answer should not exceed 500 words.	21-26	10	**40**
		TOTAL		**100**

Distribution of Questions:

Sections	Units	No. of Questions
		Theory
Section A	Unit – 1	2
	Unit – 2	2
	Unit – 3	3
	Unit – 4	3
	Unit – 5	2
Section B	Unit – 1	1
	Unit – 2	2
	Unit – 3	1
	Unit – 4	1
	Unit – 5	1
Section C	Unit – 1	2
	Unit – 2	1
	Unit – 3	1
	Unit – 4	1
	Unit - 5	1

SOFT SKILLS -UG

SYLLABUS FOR UNDER GRADUATES

2020-21

FIRST YEAR

FIRST SEMESTER: Introduction to Study Skills

CREDITS:2

30 hrs.

Objectives

- to help, develop and improve the vocabulary of the learners
- to help the learners develop the skill of inference
- to help the learners to acquire writing skills in English

Use of Dictionary and Dictation

Speech Sounds in English & Right Pronunciation Stress & Intonation

Vocabulary Building Exercises Listening and Reading Comprehension Paragraph and Essay Writing

BOOKS FOR REFERENCE:

1. Hewings, Martin. 1999. Advanced English Grammar: A Self- study Reference and Practice Book for South Asian Students. Reprint 2003. Cambridge University Press. New Delhi.
2. Lewis Norman.1991. Word Power Made Easy.
3. Mohan, Krishna &Meenakshi Raman. 2000. Effective English Communication. Tata Mc Graw Hill Publishing Company Ltd.
4. Mohan, Krishna &Meera Banerji. 2001. Developing Communication Skills. Macmillan.
5. Syamala. 2002. Effective English Communication for You. Emerald Publishers, Chennai.
6. Harishankar, Bharathi. Ed. Essentials of Language and Communication. University of Madras.
7. Swan, Michael and Catherine Walter. 1990. The Cambridge English Course-2. Cambridge University Press.

SYLLABUS FOR UNDER GRADUATES

2020-21

FIRST YEAR

SECOND SEMESTER: Life Skills

CREDITS:2
30 hrs.

Objectives

- to build the confidence of learners to face the challenges of a globalized society
- to sensitize learners' ethical, moral and social values in their work environment
- to help them understand how to overcome stress-related problems
- to train the learners to use their time effectively

SWOC Analysis Etiquette

Stress Management Time Management

Discussion of Success Stories

i. Auto-suggestions
ii. Problem solving
iii. Decision Making
iv. Presentation Skills-Oral/PPT

Books for Reference:

1. Pease, Allen. 1998. Body Language: How to read other's thoughts by their gestures. Sudha Publications. New Delhi.
2. Powell. In Company. MacMillan
3. http://www.essentiallifeskills.net//

2020-21

THIRD SEMESTER: Job-oriented Skills

CREDITS:2
30 hrs.

Objectives:

- to prepare the students to be job-ready.
- to help learners use English Language appropriately to the role or situation.
- to develop confidence in them to face Interviews.
- to train them to prepare their own CV/Resume

Different kinds of Interviews Letter of Application and CV

Technical Writing - Circulars, Memos, Agenda and Minutes Group Discussion

Review

i. Books
ii. Films

Books for Reference:

1. Harishankar, Bharathi. ed. Essentials of Spoken and Presentation Skills. University of Madras.

2. John, Seely. 1998. The Oxford Guide to writing and speaking. Oxford U P, 1998, Delhi.

3. The Princeton Language Institute and Lanny Laskowski.2001. 10 days to more confident Public Speaking. Warner Books.

4. http://jobsearch.about.com/cs/curriculumvitae.html.//

5. http://www.cvtips.com//

QUESTION PAPER PATTERN

UG - SOFT SKILLS

TIME – 3 HRS **MAXIMUM MARKS – 50**

PART – A (5X2=10)

Answer any FIVE from the questions given below from Q.No.1 to Q.No.7 (5 out of 7)

PART – B (4X5=20)

Answer any FOUR from the questions given below from Q.No.8 to Q.No.13 (4 out of 6)

PART – C (2X10=20)

Answer TWO questions only choosing one each from Q.No.14 &Q.No.15 (Internal Choice)

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A- Grade' by NAAC
(Affiliated to the University of Madras)

BACHELOR OF BUSINESS ADMINISTRATION

Regulations and Syllabus

(For the Candidates admitted in 2019 -2022 and thereafter)

Modification in 2019-2022 Batch Syllabus

S.No	Semester	Subject Title	Unit Number	Modification Carried out
1.	I	Principles of Management	Unit No. 1	Expanded with Management theories
			Unit No. 4	Inclusion of leadership styles
2.	II	Business and Corporate Laws	Unit 2	Inclusion of Duties of Bailor and Bailee
			Unit 3	Inclusion of Agency
			Unit 5	Inclusion of Shares
3.	II	NME-Importance of Emotional Intelligence	Subject Change	Subject is swapped with Basics of Insurance
4.	III	Financial Management	Unit No. 5	Inclusion of Capital Budgeting
5.	III & IV	Business Statistics and OR – I & II	—	Reference books included
5.	V	Business Taxation	Unit No. 1,2,3,4 &5	Inclusion of GST
6.	VI	IDE - Managerial Skills Development	Subject Change	Event Management is swapped with Managerial Skills Development
7.	VI	Human Resource Management	Unit No. 3	Inclusion of Motivational theories
			Unit No. 5	Inclusion of Arbitration, adjudication and settlement

DEPARTMENT OF BBA
COURSE STRUCTURE 2019-2022 BATCH

I SEMESTER

PART	COURSE COMPONENTS	COURSE TITLE	Credit	Ins. Hours/	Marks		
					CIA	Ext. Exam	Total
	SEMESTER – I						
I	Language	Language I	3	6	50	50	100
II	English	English I	3	6	50	50	100
III	Core Subject -I	Financial Accounting (Common to BBA.,B.Com (ISM,BM,MM,A&F)	4	5	50	50	100
III	Core Subject – II	Principles of Management (Common to BBA.,B.Com (ISM,BM,MM,A&F)	4	5	50	50	100
III	Allied – I	Corporate Communication (Common to BBA.,B.Com (BM&MM)	5	6	50	50	100
IV	Soft Skill	Skill based subject (English Dept)	3	-		100	100
IV	Non Major Elective	Non-Tamil Students : Basic/ Advanced Tamil Tamil Students Analytical &Logical reasoning (Common to BBA.,B.Com (HONS.,ISM,BM,MM,A&F)	2	2		100	100
Total Credits – 24 Total Hours/ Weeks - 30							

II SEMESTER

PART	COURSE COMPONENTS	COURSE TITLE	Credit	Ins. Hours/	Marks		
					CIA	Ext. Exam	Total
	SEMESTER – II						
I	Language	Language-II	3	6	50	50	100
II	English	English-II	3	6	50	50	100
III	Core Subject – III	Business and Corporate Laws (Common to BBA.,B.Com (BM,MM,A&F)	4	5	50	50	100
III	Core Subject – IV	Management Accounting (Common to BBA.,B.Com (ISM,BM,MM,A&F)	4	6	50	50	100
III	Allied – II	Managerial Economics	5	5	50	50	100
IV	Soft Skill	Skill based subject (English Dept)	3	-		100	100
IV	Non Major Elective	Non-Tamil Students : Basic/ Advanced Tamil Tamil Students: Importance of Emotional Intelligence(Common to BBA.,B.Com (BM,ISM,MM, A&F)	2	2		100	100
Total Credits – 24 Total Hours/ Weeks - 30							

DEPARTMENT OF BBA
COURSE STRUCTURE 2019-2022 BATCH

THIRD SEMESTER

PART	COURSE COMPONENTS	COURSE TITLE	Credit	Ins. Hours/	Marks		
					CIA	Ext. Exam	Total
	SEMESTER - III						
I	Core –V	Marketing Management (Common to BBA.,B.Com (ISM,MM,A&F)	4	5	50	50	100
II	Core –VI	Financial Management (Common to BBA., B.Com (ISM,BM)	4	6	50	50	100
III	Core –VII	E – Business (Common to BBA.,B.Com (ISM & MM,)	4	6	50	50	100
III	Core –VIII	Entrepreneurial Development (Common to BBA.,B.Com (ISM,BM,MM,A&F)	4	5	50	50	100
III	Allied –III	Business Statistics & O.R – I (Common to BBA.,B.Com (ISM,BM,MM)	5	6	50	50	100
IV	Soft Skill	Personality Enrichment	3	2		100	100
Total Credits – 24 Total Hours/ Weeks - 30							

FOURTH SEMESTER

PART	COURSE COMPONENTS	COURSE TITLE	Credit	Ins. Hours/ Week	Marks		
					CIA	Ext. Exam	Total
I	Core –IX	International Economics (Common to BBA.,B.Com (BM)	4	5	50	50	100
II	Core - X	Management Information System (Common to BBA.,B.Com (ISM)	4	5	50	50	100
III	Core –XI	Financial Services (Common to BBA.,B.Com (BM,MM,A&F)	4	5	50	50	100
III	Core –XII	Business Taxation (Common to BBA.,B.Com (BM,A&F)	4	5	50	50	100
III	Allied –IV	Business Statistics & O.R – II (Common to BBA, B.Com (ISM,BM,MM)	5	6	50	50	100
IV	Soft Skill	Computing Skills	3	2		100	100
IV	Environmental Studies		2	2		100	100
Total Credits – 26 Total Hours/ Weeks - 30							

DEPARTMENT OF BBA
COURSE STRUCTURE 2019-2022 BATCH

FIFTH SEMESTER

PART	COURSE COMPONENTS	COURSE TITLE	Credit	Ins. Hours/ Week	Marks		
					CIA	Ext. Exam	Total
	SEMESTER – V						
I	Core –XIII	Business Environment	4	6	50	50	100
II	Core –XIV	Organizational Behaviour	4	5	50	50	100
III	Core –XV	Business Research	4	6	50	50	100
III	Core –XVI	Advertising Management & Sales Promotion (Common to BBA.,B.Com (MM)	4	6	50	50	100
III	Elective – I :	(1)Managerial Skill Development	5	6	50	50	100
IV	Value Education		2	1		100	100
Total Credits – 23 Total Hours/ Weeks - 30							

SIXTH SEMESTER

PART	COURSE COMPONENTS	COURSE TITLE	Credit	Ins. Hours/ Week	Marks		
					CIA	Ext. Exam	Total
I	Core –XVII	Operations Management	4	6	50	50	100
II	Core –XVIII	Human Resources Management (Common to BBA., B.Com (ISM,MM)	4	6	50	50	100
III	Core –XIX	Services Marketing (Common to BBA.,B.Com (MM)	4	6	50	50	100
III	Elective – II :	(1) Customer Relationship Management	5	6	50	50	100
	Elective – III :	Project Work (Group)	5	6	20	80	100
V		Community Services	1				
Total Credits – 23 Total Hours/ Weeks - 30							
Grand Total Credits - 144, Grand Total Hours/ week- 180							

CORE – I
FINANCIAL ACCOUNTING

SUBJECT CODE : 19UCAF301	**THEORY & PROBLEM**	**MARKS : 100**
SEMESTER : I	**CREDITS : 4**	**NO. OF HOURS PER WEEK : 5**

(Common to BBA, B.Com (A&F), B.Com (BM), B.Com (MM), B.Com(ISM))

COURSE OBJECTIVES:

- To build the conceptual understanding developed in simple financial accounting.
- To get the basic skills in financial accounting for the beginners.

UNIT I: (15 Hours)

Meaning and scope of Accounting, Basic Accounting Concepts and Conventions – Objectives of Accounting – Accounting Transactions – Double Entry Book Keeping – Journal, Ledger, Preparation of Trial Balance.

UNIT II: (15 Hours)

Preparation of Cash Book , Preparation of Final Accounts of a Sole Trading Concern – Adjustments entries – Closing Stock, Outstanding Expenses, Prepaid Expenses, Depreciation, Accrued Income, Income received in Advance, Bad Debts, Provision for Bad and doubtful debts, Interest on Capital and Interest on Drawings (simple problems)

UNIT III: (15 Hours)

Classification of errors – Rectification of errors – Preparation of Suspense Account, Insurance claims – Average Clause (Loss of stock only)

UNIT IV: (15 Hours)

Depreciation – Meaning, Causes, Types – Straight Line Method – Written Down Value Method (simple problems).

UNIT V: (15 Hours)

Single Entry – Meaning, Features, Defects, Difference between Single Entry and Double Entry System – Statement of Affairs Method – Conversion Method (simple problems).

PRESCRIBED BOOKS

1. T.S. Reddy &A.Murthy, Financial Accounting - Margham Publications Chennai – 5/e
2. Financial Accounting – Dr. S. Manikandan and R.Rakesh Shankar –3rd Edition- SCITECH Publisher
3. Dalston L. Cecil and Jenitra L. Merwin, Financial Accounting, Learn Tech press, Trichy, 1st Edition 2015.

REFERENCE BOOKS

1. Jain &Narang, Financial Accounting - Kalyani Publishers. New Delhi. 2014
2. R.L.Gupta&V.K.Gupta Advanced Accounting - Sultan Chand & Sons. New Delhi.
3. ShuklaGrewal Advanced Accounting – S Chand New Delhi 18th Edition.
4. P.C. Tulsian – Financial Accounting Forth Impression, 2009.
5. S.Parthasarathy and A.Jaffarulla, Financial Accounting - Kalyani Publishers –New Delhi.

Web References

1. http://www.accountingcoach.com
2. http://www.learnaccountingforfree.com

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer ANY 10 out of 12 questions (Each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
A	Unit – 1	2	1
	Unit – 2	1	2
	Unit – 3	1	1
	Unit – 4	1	1
	Unit – 5	1	1
B	Unit – 1	1	1
	Unit – 2		1
	Unit – 3		1
	Unit – 4	1	1
	Unit – 5		1
C	Unit – 1		1
	Unit – 2		1
	Unit – 3		
	Unit – 4		1
	Unit – 5		1

CORE 2

PRINCIPLES OF MANAGEMENT

SUBJECT CODE: 19UBBA302	**THEORY**	**MARKS : 100**
SEMESTER: I	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

(Common to BBA, B.Com (A&F), B.Com (BM), B.Com (MM), B.Com(ISM))

COURSE OBJECTIVES:

- To enable the students to acquire knowledge on principles, concepts and functions of management and inherit the importance of decision making.

UNIT I (25 Hours)

Management: Importance – Definition – Is Management art or science or –Is Management a profession –Functions of Management: POLC framework - Role and Functions of Managers - Managerial skills – Levels of Management – Application of management in various functional areas – Production, Accounting, Finance, Marketing and Personnel Management. Administrative Management by Henri Fayol - Scientific Management by F.W.Taylor - Bureaucratic Management by Max Weber - Human Relations Management by Elton Mayo - Modern Management by Peter Drucker Approaches to Management - Systems Approach & Contingency Approach

UNIT II (10 Hours)

Planning- Definition, Objectives of planning – Importance of planning-Types of plans - Decisionmaking: Nature and significance-Process of Decision making-Types of Decisions.

UNIT III (20 Hours)

Organizing – Meaning and definition of Organizing, Importance of Organizing, and Principles of Organizing. Delegation and Decentralization-Span of control:Meaning,Factors affecting span of control-Types of organizational structure-Line organizational structure –Staff organizational structure- line and staff – Departmentation -Bases of Departmentation -Departmentation by functions, Departmentation by products, Departmentation by territories, Departmentation by customers, Departmentation by process, Departmentation by numbers and Combined Base Departmentation.

UNIT IV (10 Hours)

Staffing & Recruitment –Meaning, Directing-Meaning-Importance of Directing-Leadership-Styles of leadership - Authoritative leadership (Autocratic), Participative leadership (Democratic) - Delegative leadership (Laissez-faire)

UNIT V- (10 Hours)

Co-ordination: What is co-ordination, Need for co-ordination, Types of co-ordination, Essential requisites for excellent co-ordination-Controlling: Meaning and Importance, Functions of controlling, Process of control and types of Control.

PRESCRIBED BOOKS:

1. C.B.Gupta, Management Theory & Practice - Sultan Chand & Sons - New Delhi, 16TH Edition.
2. L.M.Prasad, Principles & Practice of Management - Sultan Chand & Sons - New Delhi, 8th Edition.

RECOMMENDED TEXTS:

1. P.C. Tripathi& P.N Reddy, Principles of Management - Tata Mc.Graw Hill - New Delhi, 5th Edition
2. Weihrich and Koontz, Management – A Global Perspective, 8th Edition.
3. N.Premavathy, Principles of Management - Sri Vishnu Publication – Chennai8th Edition
4. J.Jayashankar, Business Management – Margham Publications – Chennai

Web References:

1. http://www.12manage.com
2. http://www.businessballs.com
3. https://www.tutorialspoint.com/management_principles/management_principles_tutorial.pdf

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	3	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

ALLIED 1

CORPORATE COMMUNICATION

SUBJECT CODE: 19UBBA303	**THEORY**	**MARKS :100**
SEMESTER: I	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 6**

(Common to BBA., B.Com (BM&MM)

COURSE OBJECTIVES:

- To enable the students to acquire knowledge about the importance of communication in today's competitive business environment

UNIT I (20 Hours)

Concept of Communication – Meaning, Definition, Process, Need, Feedback, Principles of effective Communication – Barriers to Communication: Physical, Semantic/Language, Socio- Cultural and Psychological Barriers - Ways to overcome these Barriers. Types of Communication: Verbal, Non-verbal – Characteristics of Verbal communication and Non-verbal communication Merits and Demerits of Verbal and Non-verbal communication.

UNIT II (20 Hours)

Channels of Communication: Formal and Informal—Vertical, Horizontal, Diagonal, Grapevine. Business Letters and Layout: Parts, Structure, Layouts— Full Block, Modified Block, Semi – Block, Principles of Effective Letter Writing.

UNIT III (20 Hours)

P**ersonal correspondence**-Resume writing – Types - Job Application Letter - Letter of Acceptance of Job Offer, Inter-Office-Memo, Letter of Resignation **Business Correspondence**: Trade Letters –Inquiry, Order, Credit and Status Enquiry, Complaints, Claims, Sales Letters, promotional leaflets and fliers.

UNIT IV (15 Hours)

Report Writing – Agenda, Minutes of Meeting – Memorandum – Office Order – Circular Notes Correspondence with share holders –Correspondence with directors.

UNIT V (15 Hours)

Modern Forms of Communication: Fax – E-mail – Video Conferencing – Benefits and Perils of communication through social media: Website and Apps.

PRESCRIBED BOOKS:

1. Raghunthan N.S., B. Santhanam, 3rd Edition, Margham Publications,Chennai,
2. Gupta C.B., Business communication, Organisation and Management, 2014.

REFERENCE BOOKS:

1. Rajendra Pal & J.S. Korlahalli, Essentials of Business Communication - Sultan Chand & Sons - New Delhi.
2. Shirley Taylor, Communication for Business - Pearson Publications - New Delhi.
3. Bovee, Thill, Schatzman, Business Communication Today - Peason Education Private Ltd. - New Delhi.
4. Penrose, Rasbery, Myers, Advanced Business Communication - Bangalore.
5. Mary Ellen Guffey, Business Communication – Process and Product – International Thomson Publishing - Ohio.

Web References:

1. http://www.businesscommunication.org
2. http://www.iabc.com
3. http://www.etiquettetrainer.com

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	3	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

NON MAJOR ELECTIVE - 1

ANALYTICAL AND LOGICAL REASONING

SUBJECT CODE : 19UNME401K	**THEORY**	**MARKS : 100 (50 CIA + 50 ESE)**
SEMESTER : I	**CREDITS : 2**	**No. OF HOURS PER WEEK : 2**

(Common to B.Com (A&F), B.Com(BM), B.Com(MM), B.Com(ISM), B.Com(HONS))

COURSE OBJECTIVE:

- To enable students to learn to describe the problem-solving process
- To make the students identify various problem-solving techniques and apply these in solving business problems
- To Understand thinking models and practice exercises to help in thinking outside-the-box and generate a larger solution space
- To Understand creativity and blocks to creativity
- To Arrive at objective, well-reasoned decisions in a reasonable time

UNIT-I (6 Hours)

Logical reasoning Introduction- Number Series

UNIT-II (6 Hours)

Statement and assumptions – Statement and conclusion

UNIT-III (6 Hours)

Verbal reasoning – Coding and Decoding (with alpha numeric characters) - Reasoning Blood Relationship

UNIT-IV (6 Hours)

Direction Sense Test – Data Interpretation from bar chart, pie chart.

UNIT-V (6 Hours)

Venn Diagrams – Image Series

PRESCRIBED BOOKS

1. Logical and Analytical Reasoning – A.K. Gupta – Ramesh publishing house – 2016 Paper Back edition

REFERENCE BOOKS

1. A Modern Approach to verbal and non-verbal reasoning – Revised edition by R.S.Agarwal – Publisher – S.Chand and Company Pvt. Ltd.

Web References:

1. http://www.careerguide.co.in/search/label/Reasoning
2. http://www.indiabix.com/logical-reasoning

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	Multiple choice Questions	1-50	1	**50**
TOTAL MARKS				**50**

Distribution of Questions:

Sections	Units	No. of Problems
Section A	Unit – 1	10
	Unit – 2	10
	Unit – 3	10
	Unit – 4	10
	Unit – 5	10

CORE III

BUSINESS AND CORPORATE LAWS

SUBJECT CODE: 19UBBA304	**THEORY**	**100 MARKS**
SEMESTER: II	**CREDITS: 4**	**NO. OF HOURS PER WEEK : 5**

(Common to BBA.,B.Com (A&F,MM,BM)

COURSE OBJECTIVES:

- Inherit the knowledge about the legal methodology involved in business by the students

UNIT I (12 Hours)

Law of Contract –Essential elements of a valid contract- Classification of Contracts - Offer and Acceptance – Capacity of parties to Contract – Free Consent – Consideration – Legality of Object –Agreements Declared Void –Contingent Contracts.

UNIT II (21 Hours)

Performance of Contract – Discharge of Contract – Remedies for breach of contract – Quasi Contracts (General Contract – Sections 1 to 75) - Contract of Indemnity & Guarantee -Bailment: Meaning, Essential features of Bailment - Duties and Rights of bailor and bailee - Termination of bailment- Pledge - Meaning, Essentials of a valid pledge - Rights and Duties of pawnor and pawnee.

UNIT III (18 Hours)

Contract of Agency - Definition of Agent and Principal - Essentials and legal rules of a valid agency - Creation of Agency - Termination of AgencySale of Goods Act - Definition of Sale and Agreement to Sell – Distinction between Sale and Agreement to Sell ,Condition and Warranties - Distinction between Conditions and Warranties - Rights and Duties of an unpaid seller.

UNIT IV (12 Hours)

Company – Meaning-Characteristics - Kinds of Companies - Memorandum of Association – Contents - Articles of Association - Contents – Distinction between Memorandum and Articles - Prospectus-Meaning- Contents-Types-Misstatements in prospectus.

UNIT V (12 Hours)

Shares –Meaning- Kinds- Debentures –Meaning-Kinds- Distinction between Shares and Debentures- Annual General Meeting-Meaning-Extra-ordinary General Meeting- Meaning- Board Meeting- Meaning- Procedure for the conduct of the meetings (Meaning of Notice, Agenda, Quorum, Voting, Proxy, Minutes- Resolution- Meaning and Types

PRESCRIBED BOOKS:

1. Business Laws – N.D. Kapoor, Sultan Chand Publications, 15th Edition
2. Legal Systems in Business – P. Saravanavel, S. Sumathi, Himalaya Publishing House, 2011.

REFERENCE BOOKS:

1. P.C.Tulsian, Business Laws, Tata McGraw Hill, 2nd Edition.
2. M.R. Sreenivasan, Business Laws – Margham Publications , Chennai
3. S.S. Gulshan and G.K. Kapoor, Business Law including Company Law, 12th Edition, New Age International (P) Ltd. Publishers.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
				100

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	3	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	2	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE IV

MANAGEMENT ACCOUNTING

SUBJECT CODE : 19UBBA305	**THEORY**	**MARKS : 100**
SEMESTER : II	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common to BBA.,B.Com (ISM), B.Com(BM), B.Com(MM) and B.Com (A & F))

COURSE OBJECTIVES:

- To understand and analyze financial statement to help in managerial decision-making.
- To prepare statements like Cash Flow, Fund Flow, Budgets etc., so as to assist the managements to take meaningful and correct decisions.

UNIT I (10 Hours)

Management accounting – Meaning, nature, scope, functions, need, importance and limitations–Management Accounting vs. Cost Accounting, Management Accounting vs. Financial Accounting.

UNIT II: (15 Hours)

Analysis and Interpretation of financial statements – Nature, objectives, essentials and tools, Methods – Comparative Statements, Common Size statement and Trend analysis.

UNIT III: (15 Hours)

Ratio Analysis – Interpretation, benefits and limitations. Classification of ratios-Liquidity, Profitability, Turnover Ratios, and Construction of Balance sheet (simple problems only).

UNIT IV: (15 Hours)

Funds flow Analysis – Meaning of Funds, Importance and uses of Funds Flow Statement – Preparation of Working capital Statement – Funds from operations – Fund Flow Statement (simple problems only).

UNIT V: (20 Hours)

Cash Flow Analysis – Meaning of Cash and Cash Equivalents – Preparation of Cash flow Statement as per AS-3, Fund Flow Analysis vs. Cash Flow Analysis. Budgets and Budgetary Control – Meaning, Importance, Merits and Demerits, Types of Budget – Production, Cash and Flexible Budget (simple problems only)

PRESCRIBED BOOKS

1. Reddy T.S and Hari Prasad Reddy, Management Accounting, 2014-MarghamPulication.
2. SN Maheswari, Management Accounting - Sultan Chand &Sons.

REFERENCE BOOKS

1. RSN Pillai&Bagavati, Management Accounting - S Chand & Co Ltd – New Delhi.
2. HorngrenSunderu Stratton, Introduction to Management Accounting – Pearson Education
3. DalstonL. Cecil and Jenitra L. Merwin, Management Accounting, Learn Tech press, Trichy, 3rd Edition2015

Web References:

1. http://pakaccountants.com/courses/managementaccounting/
2. http://www.elearnuk.co.uk/course/management-accounting

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions	13-19	6	**30**
C	**Essay** Answer any 2 out of 4 questions	20-23	20	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	1	1
	Unit – 3	1	2
	Unit – 4	1	1
	Unit – 5	1	2
Section B	Unit – 1	1	
	Unit – 2	1	1
	Unit – 3		1
	Unit – 4		1
	Unit – 5		2
Section C	Unit – 1		
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit –5		1

ALLIED I
MANAGERIAL ECONOMICS

SUBJECT CODE : 19UBBA306	**THEORY**	**MARKS : 100**
SEMESTER : II	**CREDITS : 5**	**No. OF HOURS PER WEEK : 5**

COURSE OBJECTIVES:

- To enable the students with the knowledge of micro and macroeconomics.
- To acquaint the students with the basic knowledge of demand, production and cost analysis.

UNIT- I (20 Hours)

Nature and scope of managerial economics – definition of economics – important concepts of economics – relationship between micro, macro and managerial economics – nature and scope – objectives of firm

UNIT –II (18 Hours)

Demand analysis – Theory of consumer behavior – Marginal utility analysis – indifference curve analysis Meaning of demand – Law of demand – Types of demand – Determinants of demand – Elasticity of demand – Demand forecasting.

UNIT – III (20 Hours)

Production and cost analysis – Production – Factors of production – production function – Concept – Law of variable proportion – Law of return to scale and economics of scale - cost analysis – Different cost concepts – Cost output relationship – Short run and long run – Revenue curves of firms – Supply analysis

UNIT – IV (17 Hours)

Pricing methods and strategies – Objectives – Factors – General consideration of pricing – methods of pricing – Dual pricing – Price discrimination

UNIT – V (15 Hours)

Market classification – Perfect competition – Monopoly – Monopolisticcompetition- Duopoly – Oligopoly.

PRESCRIBED BOOKS:

1. Dr. S.Shankaran, Managerial Economics –5th Edition,2013,Margram Publication - Chennai
2. P.L Metha, Managerial Economics,2014 - Sultan Chand Publications - New Delhi
3. RL Varsheny and K L Maheshwari, Managerial Economics –22nd Edition,2014Sultan Chand Publications - New Delhi.

REFERENCE BOOKS:

1. Joel Dean, Managerial Economics –December 1951, Prentice Hall of India Pvt. Ltd.,New Delhi.
2. Spencer M H, Contemporary Economics ,8th Edition, 1993,Worth publishers ,New York.
3. VI Mote Samuel Paul G.S Gupta, Managerial Economics, conceptcases,1st Edition, 2004, Tata McGraw Hill - New Delhi.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**20**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**40**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
				100

Distribution of Questions :

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

NON MAJOR ELECTIVE – II

IMPORTANCE OF EMOTIONAL INTELLIGENCE

SUBJECT CODE : 19UNME402K	**THEORY**	**MARKS : 100 (50 IA + 50 ES)**
SEMESTER : II	**CREDITS : 2**	**No. OF HOURS PER WEEK : 2**

Common to BBA., B.Com (MM), B.Com (ISM), B.Com (BM) and B.Com(A &F)

COURSE OBJECTIVES:

- To evoke knowledge amongst students on Emotional Intelligence
- To make students understand the importance of self-awareness and self-development

UNIT – I (6 Hours)

Introduction -Emotional Intelligence –Meaning, Benefits, Importance of emotions - Self-awareness and Competencies Psychological Needs. EQ vs IQ.

UNIT – II (6 Hours)

Personality Analysis -Distinct Personality Type-Hand writing Analysis, Colour preference, listening, Profile, Self Esteem, Will power, Confidence

UNIT – III (6 Hours)

Negative Traits - Anger Management -Negative Syndrome and Attitude-Negative thinking-Guilt Quotient Stress and Emotion, Adapting to Loneliness

UNIT – IV (6 Hours)

Positive Traits-Humor and Happiness- Empathetic ability-Sensitivity profile-Empowered personality, Self- Empowerment

UNIT – V (6 Hours)

Self-analysis: Psychological growth and adjustment- Personal Development plan-Successful negotiator Personal SWOT Analysis, Celebrating Life

PRESCRIBED BOOKS:

1. What's Your Emotional IQ, Dr.AparnaChattopadhyay, PustakMahal, May 2004.
2. Emotional Intelligence ina Week, JillDann, Hodder& Stoughton, 10Editions, 2007.

REFERENCE BOOKS

1. Emotional Intelligence: Why It Can Matter More Than IQ Paperback – September 27, 2005by Daniel Goleman

Web Reference:

1. www.psychology.ccsu.edu/engwall/Emotional%20Intelligence.ppt
2. www.personality_project.org
3. www.donblake.com/module5/resources/emotionalintelligence.doc
4. www.visionrealization.com/Resources/.../Emotional_intelligence_handout.pdf

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	Descriptive Questions Answer any 5 out of 8	1-8	10	**50**
TOTAL MARKS				**50**

Distribution of Questions:

Sections	Units	No. of Theory
Section A	Unit – 1	1
	Unit – 2	2
	Unit – 3	2
	Unit – 4	2
	Unit – 5	1

CORE V
MARKETING MANAGEMENT

SUBJECT CODE : 19UBBA307	**THEORY**	**MARKS : 100**
SEMESTER : III	**CREDITS : 4**	**No. OF HOURS PER WEEK : 5**

(Common to BBA., B.Com (ISM), B.Com (MM), B.Com (A&F))

COURSE OBJECTIVES:

- To understand the role and importance of marketing.
- Identify the factors influencing consumer behavior and purchase decision
- To understand the facets of 4 P's in marketing
- To understand the modalities of sales distribution and control

UNIT I (10 Hours)

Fundamentals of Marketing - Role of Marketing - Relationship of Marketing with other functional areas - concept of marketing mix-Marketing approaches - Various Environmental factors affecting the marketing functions.

UNIT II (10 Hours)

Buyer Behavior - Consumer goods and Industrial goods - Buying motives - Factors influencing buyer Behavior, Market segmentation - Need and basis of Segmentation -Targeting - positioning.

UNIT III (20 Hours)

The Product - Characteristics - benefits - classifications - consumer goods - industrial goods - New Product Development process - Product Life Cycle - Branding –Packaging& Labeling – Pricing- Meaning, Objectives and Types of Pricing.

UNIT IV (20 Hours)

Promotion –Meaning, Objectives – Types - A brief overview of: Advertising - Publicity - Public Relations - personal Selling - Direct selling and Sales promotion.

UNIT V (15 Hours)

Physical Distribution: Importance – Channels of Distribution: Distribution of consumer goods, Distribution of industrial goods and Distribution of Agriculture goods– Levels of channels: Zero level, one level, two levels and three level channel - Distribution issues.

PRESCRIBED BOOKS:

1. Marketing Management by Sontakki C.N; Kalyani Publishers; 2009
2. R.S.N. Pillai and Bagavathi, Modern Marketing, S.Chand& Co, New Delhi.
3. Jayasankar, Marketing, Margham publications, Chennai.

REFERENCE BOOKS:

1. Philip Kotler, 2003, Marketing Management, 11th edition, Pearson Education (Singapore) Pvt. Ltd, New Delhi.
2. Crrain field, Marketing Management, Palgrave Macmillan

Web Reference:

1. http://www.marketing91.com/marketing-management/
2. https://www.managementstudyguide.com/marketing-management-articles.htm

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	3	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

CORE – VI
FINANCIAL MANAGEMENT

SUBJECT CODE : 19UBBA308	**THEORY**	**MARKS : 100**
SEMESTER : III	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common to BBA., B.COM(ISM) and B.COM (BM))

COURSE OBJECTIVES:

- To appreciate the role of the finance in an organization.
- To identify sources from where funds can be raised keeping in mind the cost andrisk involved.
- To familiarize the students the techniques to be employed for investing the funds, taking into consideration the risk and the return

UNIT- I (10 Hours)

Meaning, objectives and Importance of Finance – Sources of finance – Functions of financial management – Role of financial manager in Financial Management.

UNIT- II (20 Hours)

Capital structures planning - Factors affecting capital structures – Determining Debt and equity proportion – Theories of capital structures – Leverage concept.

UNIT- III (20 Hours)

Cost of capital – Cost of equity – cost of preference capital – Cost of debt – Cost of retained earnings – weighted Average (or) composite cost of capital (WACC)

UNIT- IV (15 Hours)

Dividend policies – Factors affecting dividend payment - Company Law provision on dividend payment –Various Dividend Models (Walter's Gordon's) .

UNIT – V (10 Hours)

Capital budgeting- Definition– Importance and objectives– Payback Period – ARR and NPV method (Theory and simple problems) - Working capital – components of working capital – working capital operating cycle - Factors influencing working capital – Determining (or) Forecasting of working capital requirements.

PRESCRIBED BOOKS:

1. Murthy Dr. A., Financial Management, Margaham Publications, Chennai
2. Maheswari S.N., Financial Management, Sultan Chand & Sons, New Delhi.

REFERENCE BOOKS:

1. Pandey I. M., Financial Management, Vikas Publishing. House Pvt. Ltd.
2. Dalston L. Cecil, Financial Management, Learn Tech press, Trichy, 2nd Edition 2015

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 2 out of 4 questions (each in 600 words)	20-23	20	**40**
				100

Distribution of Questions :

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	1	1
	Unit – 3	1	2
	Unit – 4	1	1
	Unit – 5	1	2
Section B	Unit – 1	1	
	Unit – 2		2
	Unit – 3		2
	Unit – 4		1
	Unit – 5		1
Section C	Unit – 1	1	
	Unit – 2		1
	Unit – 3		
	Unit – 4		1
	Unit - 5		1

CORE VII

E- BUSINESS

SUBJECT CODE : 19UBBA309	**THEORY**	**MARKS : 100**
SEMESTER : III	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

COMMON TO BBA., B.COM (MM) AND B.COM(ISM)

COURSE OBJECTIVES:

- This course provides a foundation to prepare students, to play leading roles in the application and management of e-business system construction.

UNIT I (10 Hours)

Definition of E-Business, Origin of E- Business, History of the Internet, E- Business Opportunities for Businesses, Working of E- Business, E- Business Vs the Traditional Business Mechanism, Advantages of E- Business, Disadvantages of E- Business, Main Goals of E- Business. Network Infrastructure for E- Business -Local Area Network (LAN), Metropolitan Area Network (MAN) Protocols, Wide Area Network (WAN).

UNIT II (17 Hours)

The Internet – Intranet and Extranet – Common Gateway Interface – Need for intelligent website – Types of Security Threats: Hacking, e-mail impersonation, denial of service attack, phishing, virus and worms. Types of protection mechanisms: data and message security and firewalls, cryptography -encryption, decryption, digital signature and virtual private network.

UNIT III (17 Hours)

Internet payment systems: Features of payment methods, electronic money, payment gateway, SET protocol for credit card payment, electronic payment media: e-cash, e-wallet, e- check, credit card, debit card, smart card, EFT and ACH

UNIT IV (18 Hours)

Business to Business e-commerce: Meaning, benefits and opportunities in B2B, B2B building blocks and their relationship to supply chain management, key B2B models and their main functions Consumer oriented e-commerce: traditional retailing and e-retailing, benefits and key success factors for e-retailing, models for e-retailing like specialized and generalized e- stores, e- mall, direct selling by manufacturer, matchmaking services, information selling on the web, entertainment services and e-auction services.

UNIT V (13 Hours)

Overview of M-Commerce – Definition and working of Wireless Application Protocol (WAP), Generations of Mobile Wireless Technology, Components of Mobile Commerce, Networking Standards for Mobiles

PRESCRIBED BOOKS:

1. Joseph PT , E-Commerce– A Managerial Perspective, Prentice Hall.
2. Rob Smith, Thompson Mark, The Complete Idiot's Guide to E-Commerce ,2000

REFERENCE BOOKS

1. Kosivr, David , Understanding E-Commerce
2. Garry P Schneider and James T Perry , Electronic Commerce, Course technology, Thomson Learning, 2000
3. Diwan, Prag and Sunil Sharma , E-Commerce - Managers guide to E-Business

Web Reference:

1. www.tutorialspoint.com/e_commerce/
2. www.ecommercetutorial.net

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE – VIII
ENTREPRENEURIAL DEVELOPMENT

SUBJECT CODE : 19UBBA310	**THEORY**	**MARKS : 100**
SEMESTER : III	**CREDITS : 4**	**No. OF HOURS PER WEEK : 5**

(Common to BBA., B.Com (A&F), B.Com (ISM), B.COM(BM) and B.COM (MM))

COURSE OBJECTIVE:

- To create awareness among students about entrepreneurship and its importance.
- To keep the students informed about various financial institutions that promoteED.
- To encourage students to become entrepreneurs.

UNIT I (13 Hours)

Concept of Entrepreneurship - Entrepreneurship – Meaning – Types – Qualities of an Entrepreneur – Classification of Entrepreneurs – Factors influencing Entrepreneurship – Functions of Entrepreneurs.

UNIT II (20 Hours)

Entrepreneurial Development Agencies. - Commercial Banks – District Industries Centre – National Small Industries Corporation – Small Industries Development Organization – Small Industries Service Institute. All India Financial Institutions – IDBI – IFCI – ICICI – IRDBI

UNIT III (15 Hours)

Project Management - Business idea generation techniques – Identification of Business opportunities – Feasibility study – Marketing, Finance, and Technology& Legal Formalities - Preparation of Project Report – Tools of Appraisal.

UNIT IV (12 Hours)

Entrepreneurial Development Programmes (EDP) – Role, relevance and achievements – Role of Government in organizing EDPs – Critical evaluation.

UNIT V (15 Hours)

Economic development and entrepreneurial growth - Role of entrepreneur in economic growth – Strategic approaches in the changing Economic scenario for small scale Entrepreneurs – Networking, Niche play, Geographic Concentration, Franchising / Dealership – Development of Women Entrepreneurship.

PRESCRIBED BOOKS:

1. Jayashree Suresh – Entrepreneurial development, Margam Publication.
2. Dr. C.B. Gupta & Dr. S.S. Khanka – Entrepreneurship and Small Business.

REFERENCE BOOKS:

1. Srinivasan N.P. – Entrepreneurial Development
2. Saravanavel – Entrepreneurial Development
3. Vasant Desai – Project management
4. Holt – Entrepreneurship – New Venture Creation
5. J.S. Saini& S.I. Dhameja – Entrepreneurship and small business.
6. P.C. Jain – Handbook for New Entrepreneurs

Web Reference:

1. www.inderscience.com/jibed
2. http://www.slideshare.net/balajisetty/entrepreneurship-development-8886110

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	3	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit –5	1	

ALLIED: III
BUSINESS STATISTICS AND O.R.-I

SUBJECT CODE: 19UMAT339	**THEORY & PROBLEMS**	**MARKS : 100**
SEMESTER: III	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 6**

(COMMON TO BBA, B.COM(MM), B.COM (BM) AND B.COM (ISM))

COURSE OBJECTIVE:

- To introduce basic concepts of statistics and understand the statistical techniques used for business data analysis.
- To give an insight into operation research techniques used in business for critical decision making.

UNIT –I (15 Hours)

Introduction to statistics: Definition, Scope and limitation of statistics – Collection of Data: Meaning, types of data – Classification of data: Types of classification-Frequency Distribution-Tabulation of data: Components of table – Formation of frequency table-Diagrammatic and graphical representation of data: Simple bar diagram, Multiple bar diagram, subdivided bar diagram, Deviation bar diagram, Histogram, Pie diagram - Measures of Central tendency: Mean, median and mode.

UNIT – II (20 Hours)

Measures of Dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation – Measures of Skewness.

UNIT – III (20 Hours)

Correlation – Karl Pearson's Coefficient of Correlation – Spearman's Rank Correlation – Regression Lines and Coefficients.

UNIT – IV (17 Hours)

Introduction to OR: Definition, Applications of OR, Techniques or tools of OR –LPP model formulation– Graphical and Algebraic Solution. **(Simple Problems only)**

UNIT – V (18 Hours)

Network Analysis - PERT and CPM (no crashing) **(Simple Problems only)**

PRESCRIBED BOOKS:

1. Gupta S.P, Statistical Methods, 2000 Sultan Chands.
2. Vittal Dr. P.R, Introduction to Operations Research, Margham Publications

REFERENCE BOOKS:

1. Elhance, Statistics , Himalaya publications.
2. Gupta and Hira, Operations Research , S. Chand.

3. Handy and A. Taha, Operations Research , Macmillan Publishers

Web Reference

1. https://www.easycalculation.com/tutorial.php
2. http://people.brunel.ac.uk/~mastjjb/jeb/or/contents.html

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer ANY 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	1	2
	Unit – 2	1	2
	Unit – 3	1	1
	Unit – 4	1	1
	Unit – 5	1	1
Section B	Unit – 1	1	1
	Unit – 2		1
	Unit – 3		2
	Unit – 4	1	
	Unit – 5		1
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		
	Unit - 5		1

CORE – IX
INTERNATIONAL ECONOMICS

SUBJECT CODE : 19UBBA313	**THEORY**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 4**	**No. OF HOURS PER WEEK : 5**

Common to BBA, B.Com (BM)

COURSE OBJECTIVES:

- To impart the knowledge about international trade, export management and to create awareness about the different international economic organizations and its functions

UNIT- I (20 Hours)

International Trade – Importance of International Trade, Theories of Foreign Trade:- Theories of Adam Smith, Ricardo, Haberler's, Hechsher-Ohlin

UNIT – II (18 Hours)

Balance of Trade, Balance of Payment – Concepts – Causes of Disequilibrium, Methods to Correct Disequilibrium – Fixed and Floating Exchange Rates – Euro – Dollar Marketing (An Over View)

UNIT – III (12 Hours)

Export Management – Export Procedure and Documents – Export Finance – Export Promotion – Export Pricing

UNIT – IV (15 Hours)

International Economic Organizations and its Functions IMF, IDA, IFA, IBRD, ADB, UNCTAD, UNIDO

UNIT –V (10 Hours)

WTO and Trade Liberalization – Liberalization of Trade in Manufacturing and in Agricultural Trade – TRIPS, TRIMS – Indian Patent Law

PRESCRIBED BOOKS:

1. Francis Cherunilam, International Trade and Export Management, 5th Edition, 2006, Himalaya Publishing House - Mumbai – 04.
2. Paul.R.Krugman and Maurice Obstfeld, International Economics (Theory and Policy), 1997, Pearson Education Asia - Addison Wesley Longman (P) Ltd, Delhi -92.

REFERENCE BOOKS:

1. Robert J. Carbaugh, International Economics , Thomson Information Publishing Group, 15th Edition, 2014, Wadsworth Publishing Company, California.
2. H.G. Mannur, International Economics, 2009, Vikas Publishing House (P) Ltd, New Delhi

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions :

Sections	Units	No. of Questions	
		Theory	**Problems**
A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	3	
B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE – X
MANAGEMENT INFORMATION SYSTEM

SUBJECT CODE : 19UBBA314	**THEORY**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 4**	**No. OF HOURS PER WEEK : 5**

Common to BBA,B.Com (ISM)

COURSE OBJECTIVES

- To facilitate the importance of information systems in business.
- To familiarize the concepts of system and databases.

UNIT- I - (15 Hours)
Definition of Management Information System - MIS support for planning, organizing and controlling - Structure of MIS - Information for decision - making.

UNIT- II - (15 Hours)
Concept of System - Characteristics of System - Systems classification - Categories of Information Systems - Strategic information system and competitive advantage

UNIT- III - (15 Hours)
Computers and Information Processing - Classification of computer - Input Devices - Output devices - Storage devices, - Batch and online processing. Hardware - Software.Database management Systems.

UNIT-IV - (15 Hours)
System Analysis and design - SDLC - Role of System Analyst - Functional Information system - Personnel, production, material, marketing.

UNIT-V - (15 Hours)
Decision Support Systems - Definition. Group Decision Support Systems - Business Process Outsourcing - Definition and function

PRESCRIBED BOOKS:

1. Mudrick & Ross , Management Information Systems, 3rd Edition, Prentice - Hall of India
2. Sadagopan , Management Information Systems, Prentice- Hall of India
3. Murthy CSV, Management Information Systems, 2nd Edition, Himalaya publishing House

REFERENCE BOOKS:

1. Rajagopalan Dr.S.P, Management Information Systems and EDP",3rd Edition, Margham Publications, Chennai.

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**20**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**40**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
				100

Distribution of Questions :

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	3	
	Unit – 4	2	
	Unit – 5	3	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE XI

FINANCIAL SERVICES

SUBJECT CODE: 19UCAF311	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

(Common to BBA, B.Com (BM), B.Com (MM) & B.Com (A&F))

COURSE OBJECTIVES:

- To impart knowledge about the various financial services.
- To have a knowledge of venture capital and mutual funds.

UNIT – I (15 Hours)

Meaning and importance of **Financial Services** – Types of financial services – Financial services and economic environment – Players in Financial Services Sector.

UNIT- II (20 Hours)

Merchant Banking: Meaning, Functions – **Issue management:** Pre Issue management and Post issue activities – Managing of new issues – **Underwriting:** meaning, types of underwriting – **Capital market:** Meaning, Definition, Capital market instruments: equity shares, Preference shares and Debentures. Types of capital market: Primary market and Secondary market – **Stock Exchange:** Meaning and definition, Characteristics of stock exchange, Operators at stock exchange, BSE, NSE and OTCEI – Listing: Meaning, objectives and advantages – Types of speculators - Role of SEBI.

UNIT-III (10 Hours)

Leasing: Meaning, types of lease, features of lease agreement - **Hire purchase -** Concepts and features – Distinguishing features between hire purchase and leasing. **Factoring -** Definition and meaning, Functions of Factor, types of factoring.

UNIT-IV (15 Hours)

Venture Capital: Meaning, Features, Functions, Modes or Forms of venture capital – **Credit Rating:** Meaning, Advantages and disadvantages, CRISIL, ICRA, and and CARE Consumer Finance: Meaning and types of consumer finance.

UNIT – V (15 Hours)

Mutual Funds: Meaning – Types: Based on Ownership, Operation, Objectives and Location – Advantages and Disadvantages of mutual fund – Institutions Involved – UTI.

PRESCRIBED BOOKS:

1. Financial Services – M.Y.Khan, 3rd Edition, 2004, Tata McGraw Hill Publications.
2. Financial Services – B.Santhanam, Margham Publications.
3. Financial services – K.S. Dinesh Kumar, ShriSai Publishers' Distributors, 2014.

REFERENCE BOOKS:

1. Law of Insurance – Dr.M.N. Mishra, 2014, Sultan Chand Publications.
2. Indian Financial System – H.r.Machiraju, 4thEdition, 2010, Vikas Publications.
3. A Review of current Banking Theory and Practice – S.K. Basu., 2nd Edition, MacMillan Publications, London.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Definition/Principle Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**	**20**
Short Answer Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**	**40**
Essay Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**	**40**
	TOTAL			**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	3	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	2	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE – XVI
BUSINESS TAXATION

SUBJECT CODE : 19UCAF312	**THEORY**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 4**	**NO. OF HOURS PER WEEK : 5**

(Common to B.Com (A&F), BBA, B.Com (BM))

COURSE OBJECTIVES:

- To familiarize students with the basic concepts of Indirect taxes & Customs Act
- To enable the students to understand the concept and procedure for computation of GST

UNIT- I: TAXATION AND TAX SYSTEM IN INDIA (10 Hours)

History of Taxation – Elements of Tax – Objectives of Taxation – Canons of Taxation – Tax System in India – Classification of Taxes.

UNIT- II: CUSTOMS ACT 1962 (15 Hours)

Customs Act – Definition, Concepts and Scopes – Levy and Collection of Customs Duty – Classification of Goods – Assessment of Duty – Valuation of Goods under Customs Act – Prohibition on Importation & Exportation of Goods – Demand and Recovery of Customs Duty – Clearance of Goods – Baggage.

UNIT- III: INTRODUCTION TO GST (15 Hours)

Introduction - Meaning – Need – Benefit – Types – GST Council – Applicability Exclusions. Exemptions Good exempted from GST – Services exempted from GST – Powers to grant Exemption from tax

UNIT- IV: TAXABLE EVENTS UNDER GST (15 Hours)

Introduction – Concepts of Supply – Types of Supply – Composite Supply – Mixed Supply – Composite Levy-value and time of supply-Introduction – Time of Supply of Goods – Time of Supply of Service – Value of Supply and its Provisions

UNIT- V: REGISTRATION AND REFUND PROCEDURES UNDER GST (20 Hours)

Introduction –Time limit – Persons liable for Registration – Persons not liable for Registration – Compulsory Registration – Procedure – Cancellation and Revocation GST Returns – Refunds under GST- Assessment and Tax Payment under GST - An overview of tax audit (GST Assessment)

PRESCRIBED BOOKS:

1. Business Taxation – T.S.Reddy&Y.Hariprasad Reddy, Margham Publications, 2018.
2. ICAI – Indirect Tax Study Material, 2018.

REFERENCE BOOKS

1. Dr.Vinod K Singhania, Monica Singhania, Students Guide to Income Tax, TaxmannPublicationsPvt Ltd., New Delhi.
2. GirishAhiya, Dr. Ravi Gupta, Systematic Approach to Income Tax and CST, Bharat Law HousePvt. Ltd. New Delhi.
3. Dr.Sanjeev Kumar, Systematic Approach to Indirect Taxes with Practical problems and solutions,Bharat Law House Pvt. Ltd., New Delhi.

Web References:

1. http://www.idtc.icai.org/gst.html
2. http://idtc.icai.org/gst-topic-wise-study-material-list.html

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
	TOTAL			100

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	2	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

ALLIED IV

BUSINESS STATISTICS AND OPERATIONS RESEARCH -II

SUBJECT CODE : 19UMAT343	THEORY& PROBLEMS	MARKS : 100
SEMESTER: IV	CREDITS: 5	NO. OF HOURS PER WEEK : 6

(COMMON TO BBA, B.COM (ISM), B.COM (BM),B.COM (MM))

COURSE OBJECTIVE:

- To introduce basic concepts of statistics and understand the statistical techniques used for business data analysis.
- To give an insight into operation research techniques used in business for critical decision making.

UNIT - I: (18 Hours)

Time Series Analysis – Secular trend: Graphic or free hand method, Method of semi average, Moving average and Method of least squares to fit a straight line-Seasonal variation: Method of simple average only.

UNIT - II: (18 Hours)

Index Numbers: Simple aggregative, simple average of price relative method, weighted average of price relative method and weighted aggregative method – Fixed and Chain base Index – Cost of Living Index. Chapter 9

UNIT - III: (18 Hours)

Sampling Techniques – Types of Sample and Sampling procedures – Tests of Significance – t, Chi – square test only**.** Chapter 16 and 17

UNIT - IV: (18 Hours)

Assignment Problems: Minimisation, Maximisation case in assignment problem. unbalanced assignment problem. Chapter 8 -Section-8.1 to 8.7

UNIT - V: (18 Hours)

Transportation Problems: North West Corner Method (NWCM) – Lowest Cost Entry Method (LCM), Vogel's Approximation Method (VAM) and MODI Method. Chapter 7 Section - 7.1,7.2,7.4,7.5.

PRESCRIBED BOOKS

1. Business Statistics – S.P.Gupta and M.P.Gupta,Sultan Chand &Sons, Sixteenth Edition[Units I,II and III]
2. Resource Management Techniques-Prof V.Sundaresan ,K.S.Ganapathy Subramanian, K.Ganesan,A.R Publications,Ninth Edition. [Units IV and V]

REFERENCE BOOKS:

1. Elementary Statistical Methods-Dr.S.P.Gupta, Sultan Chand &Sons,Eighteenth Edition
2. Operations Research – Hira and Gupta, S. Chand.
3. Operations Research – Handy and A. Taha, Macmillan Publishers

Web Reference:

1. https://www.easycalculation.com/tutorial.php

2. http://people.brunel.ac.uk/~mastjjb/jeb/or/contents.html

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any **10** out of 12questions	1 – 12	3	**30**
Section B	**Short Answer** Answer any **5** out of 7 questions	13–19	6	**30**
Section C	**Essay** Answer any 2 out of 4 questions	20– 23	20	**40**
TOTAL MARKS				**100**

Distribution of Questions :

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	1
	Unit – 2	1	2
	Unit – 3	2	
	Unit – 4	1	1
	Unit – 5	1	1
Section B	Unit – 1		1
	Unit – 2		2
	Unit – 3		1
	Unit – 4		2
	Unit – 5		1
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit - 5		1

CORE – XIII
BUSINESS ENVIRONMENT

SUBJECT CODE : 19UBBA315	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

COURSE OBJECTIVES:

- To enable the students with the knowledge of internal and external environment sustaining in today's business scenario.

UNIT- I (15 Hours)

The concept of Business Environment - Its nature and significance - Brief overview of political - Cultural - Legal - Economic and social environments and their impact on business and strategic decisions.

UNIT- II - (15 Hours)

Political Environment - Government and Business relationship in India – Corporate Governance.

UNIT – III - (15 Hours)

Social environment - Cultural heritage - Social attitudes - Castes and communities - Joint family systems -linguistic and religious groups - Types of social organization

UNIT- IV - (15 Hours)

Economic Environment - Economic systems and their impact of business - Fiscal deficit - Plan investment -Five Year Planning.

UNIT – V - (15 Hours)

Financial Environment - Financial system - Commercial bank Financial Institutions - RBI Stock Exchange - Non Banking Financial Companies NBFCs

PRESCRIBED BOOKS:

1. Cherunilam Francis, 2000, Business environment, Himalaya Publishing House, 11th Revised Edition, India.
2. Sankaran Dr.S., Business Environment, Margham Publications.

Reference books:

1. Aswathappa K, 1997, Essentials of Business Environment, Himalaya Publishing House, 6th Edition, India.
2. Sangam Joshi Rosy Kapoor, Business Environment, Kalyani Publishers, Ludhiana

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	3	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE XIV
ORGANISATIONAL BEHAVIOUR

SUBJECT CODE : 19UBBA316	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**No. OF HOURS PER WEEK :5**

COURSE OBJECTIVES:

- To understand the significance of behavior in an organization
- To familiarize the students with group dynamics and organizational culture.

UNIT- I (10 Hours)

Need and scope of organization- Approaches to organizational behavior-Individual difference Vs Group intelligence tests –Measurement of intelligence - Personality Tests – Nature, types and uses of perception.

UNIT – II (20 Hours)

Motivation: techniques -- Theories of Motivation: Maslow's needs theory, Alderfer's ERG theory, McGregor X and Y theory, Herzberg's hygiene theory - Job satisfaction: Factors related to job satisfaction, job enlargement and enrichment-Morale: Importance, factors affecting Morale, causes of low Morale, Factors Improving Morale-Employee attitude and Behavior: Significance to employee productivity.

UNIT - III (20 Hours)

Leadership: Types, Theories (Great Man Theory, Trait Theory, Behavioural Theory, Contingency Theory, Transactional Theory and Transformational Theory)--Work environment: Good housekeeping practices - Design of work place - Fatigue – types, Causes and prevention and importance

UNIT- IV (15 Hours)

Group Dynamics: Types-Formal and Informal, Group Norms, Performance—Cohesiveness: Factors influencing and Consequences – Conflict: Types of Conflict, resolution of conflict— Role position status: Importance

UNIT – V (10 Hours)

Organizational culture: Characteristic Feature and dimensions- Organizational Climate: Factors influencing organizational climate—Organizational Development: Nature of Organizational Development, Steps involves in Organizational Development Process-**Organizationa Effectiveness:** Importance

PRESCRIBED BOOKS:

1. Sekaran Uma, Organisational Behaviour Text & cases, 2nd edition,Tata McGraw Hill Publishing CO.Ltd.
2. Rao Gangadhar, Narayana ,V.S.P Rao, Organisational Behaviour 1987, Reprint 2000, Konark Publishers Pvt.Ltd , 1 st edition

REFERENCE BOOKS

1. Khanka S.S., Organisational Behaviour , S.Chand & Co , New Delhi .
2. Jayasankar J., Organisational Behaviour , Margham Publications , Chennai . 3.

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer ALL questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
				100

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

CORE – XV
BUSINESS RESEARCH

SUBJECT CODE : 19UBBA317	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

COURSE OBJECTIVES:

- To provide an exposure to the students pertaining to the nature and extent of research orientation, which they are expected to possess when they enter the industry as practitioners.
- To give them an understanding of the basic techniques and tools of business marketing research.

UNIT – I - (20 Hours)

Introduction to Business Research- Need for Research in Business; The Research Process- Steps in the research process; the research proposal. Planning and operational problems of research in business.

UNIT- II - (20 Hours)

Research Design: Exploratory, Descriptive, Causal. Secondary Data Research: Advantages & Disadvantages of Secondary data, Criteria for evaluating Secondary sources, Secondary sources of data in Indian Context.

UNIT- III - (10 Hours)

Primary Data Collection; Survey Vs. Observation. Comparison of self-Administered,telephone,mail, email techniques. QualitativeResearch tolls:Depth Interviews focus groups andProjective techniques: Questionnaire-form & design .

UNIT- IV - (15 Hours)

Sampling: Sampling techniques- probability and Non-Probability methods-Determination of Sample Size: Data Analysis: Hypothesis Testing-Statistical Significance.-Simple Correlation- Regression (Theoretical Explanation only)

UNIT- V - (10 Hours)

Presenting results and writing the report – The Written Research Report .

PRESCRIBED BOOKS:

1. Sharma D D, Marketing Research -Principles, Application and Cases , Sultan Chand Publications ,New Delhi
2. Beri G. C. -1993-Marketing Research-Second Edition- Tata Mc-Graw Hill Publication- New Delhi.
3. Ravilochan P., Marketing Research, Margham Publications, Chennai, 2012.

REFERENCE BOOKS:

1. David J. Loudon and Albert J Della Bitta – Consumer Behavior, Tata McGraw Hill,2002
2. Zikmund, Babin & Carr, Business Research Methods, South-Western.
3. Cooper & Schindler, Busienss Research Methods, Mc Graw Hill Education
4. Aaker, Kumar, Day, Marketing Research, Wiley
5. Naresh Malhotra, Marketing Research, Pearson.

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**

Distribution of Questions :

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	3	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	

CORE – XII

ADVERTISING MANAGEMENT AND SALES PROMOTION

SUBJECT CODE : 19UBBA318	**THEORY:**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common to BBA.,B.Com (MM)

COURSE OBJECTIVES:

- To equip the students with the nature, purpose & complex construction in the planning and execution of a successful advertising program and the ways to improve the sales through various promotions

UNIT – I (20 Hours)

Advertising: Definition, objectives, need & importance, growth of modern advertising – types & classification of advertisement, advertising spiral – market segmentation, promotional mix and target audience.

UNIT – II - (15 Hours)

Media: Mass Media-Selection, planning and scheduling – web advertising – integrated programme and budget planning –percentage of sales method, objective to task method, competitive parity, market share method, unit sales method, affordable method.

UNIT – III (20 Hours)

Message and copy development – different types of copy; Art & layout of an advertisement: Principles of design, layout stages, difference in designing of television, audio & print advertisement – Advertising agencies – Organization and operation.

UNIT – IV (10 Hours)

Management of sales promotion: Importance & need for sales promotion, planning for consumer schemes & contests, different types of consumer schemes.

UNIT – V (10 Hours)

Control: Measurement of effectiveness – ethics, economics and social relevance.

PRESCRIBED BOOKS

1. Bhatia, T.K., Advertising and Marketing in Rural India, 2nd Edition, Macmillan India Ltd., 2007.
2. Hackley, C., Advertising and Promotion: An integrated communication approach, 2nd Edition, sage Publications, 2010.
3. Aaker, Myers & Batra: Advertising Management, Prentice Hall.

REFERENCE BOOKS:

1. Wells, Moriarity & Burnett: Advertising Priniciples & Practices, Prentice Hall.
2. Jefkins, F., Advertising, 4th Edition, Pearson, 2002.
3. Wells, W.D., Burnett, J. and Moriarty, S., Advertising: Principles and Practices, 7th Edition, Pearson, 2007

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

ELECTIVE – I
MANAGERIAL SKILL DEVELOPMENT

SUBJECT CODE : 19UIDE310	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 5**	**No. OF HOURS PER WEEK : 6**

COURSE OBJECTIVES:

- This course is offered to the students of the other departments of the college as an IDE paper
- It enables the students to develop their public speaking skills and get themselves prepared for the competitive examinations.

UNIT : I (20 Hours)

Verbal & Non-Verbal Communication – Body Language – Purpose of Interviews and Group Discussions – Types of Interviews – Facing the Interview.

UNIT: II (20 Hours)

Effective Public Speaking – Organizing Effective Meeting – Seminars – Conferences – Audience Analysis – Types of Speeches – Organising & Delivering the Speeches – Informing & Persuading – Problem Solving – Decision Making.

Unit:III (20 Hours)

Skill Development – Aptitude Tests – Communication Skill Exercises – Body Language Exercises – Personality Development Exercises (Self Awareness) – Attitude Tests .

Unit:IV (15 Hours)

Practical Sessions on: Event Management-Trade Fairs – Group Consultancy – Product and Concept Awareness Campaigns - Situation Analysis.

UNIT: V (15 Hours)

Communication related to course: How to make oral presentations, conducting meetings, reporting of projects, reporting of case analysis, answering in Viva Voce, Assignment writing.

PRESCRIBED BOOKS

1. Adler, Ronald B and Jeanne M. Elm Horst. 1995. Communicating at Work: Principles and Practices for Business and the Professions, New York: McGraw Hill.
2. Poe, Roy W. Fruehling, Rosemary T, 2000. Business Communication, New Delhi: AITBS Publishers

REFERENCE BOOKS

1. Krishnamohan & Meera Banerjee, 1998. Developing Communication Skills, New Delhi: McMillan India Ltd.
2. Ragendra Pal & Korlahali J.S. 1996. Essentials of Business Communication, New Delhi: 1996: Sultan Chand & Sons.

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**

Distribution of Questions :

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	3	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

PART- IV

VALUE EDUCATION

SUBJECT CODE: 19UVED401	**THEORY**	**MARKS : 100**
SEMESTER: V	**CREDITS: 2**	**HOURS PER WEEK: 02**

COURSE OBJECTIVES:

- Values are socially accepted norms to evaluate objects, persons, and situations that form part and parcel of sociality.
- A value system is a set of consistent values and measures.
- Knowledge of the values are inculcated through education.
- It contributes in forming true human being, who is able to face life and make it meaningful.

UNIT I (6 Hours)

Value education-its purpose and significance in the present world – Value system – The role of culture and civilization-Holistic living – Balancing the outer and inner –Body, Mind and Intellectual level- Duties and responsibilities.

UNIT II (6 Hours)

Salient values for life- Truth, commitment, honesty and integrity, forgiveness and love, empathy and ability to sacrifice, care, unity , and inclusiveness, Self-esteem and self-confidence, punctuality – Time, task and resource management– Problem solving and decision making skills- Interpersonal and Intra personal relationship – Team work – Positive and creative thinking

UNIT III: (6 Hours)

Human Rights – Universal Declaration of Human Rights – Human Rights violations – National Integration – Peace and non-violence – Dr. A P J Kalam's ten points for enlightened citizenship – Social Values and Welfare of the citizen – The role of media in value building

UNIT IV (6 Hours)

Environment and Ecological balance –interdependence of all beings – living and non-living. The binding of man and nature – Environment conservation and enrichment

UNIT V (6 Hours)

Social Evils – Corruption, Cyber-crime, Terrorism –Alcoholism, Drug addiction – Dowry – Domestic violence –untouchability – female infanticide – atrocities against women-How to tackle

PRESCRIBED BOOKS

1. M.G.Chitakra: Education and Human Values, A.P.H.Publishing Corporation, New Delhi, 2003.
2. Chakravarthy, S.K.: Values and ethics for Organizations: Theory and Practice, Oxford University Press, New Delhi, 1999.
3. Satchidananda, M.K.: Ethics, Education, Indian Unity and Culture, Ajantha Publications, Delhi, 1991
4. Das, M.S. & Gupta, V.K. : Social Values among Young adults: A changing Scenario, M.D. Publications, New Delhi, 1995

REFERENCE BOOKS

1. Bandiste, D.D.: Humanist Values: A Source Book, B.R.Publishing Corporation, Delhi, 1999
2. Ruhela, S.P. : Human Values and education, Sterling Publications, New Delhi, 1986
3. Kaul, G.N.: Values and Education in Independent Indian, Associated Publishers, Mumbai, 1975
4. NCERT, Education in Values, New Delhi, 1992
5. Swami Budhananda (1983) How to Build Character Primer : Ramakrishna Mission, New Delhi
6. A Cultural Heritage of India (4 Vols.), BharatiyaVidya Bhawan, Bombay. (Selected Chapters only)
7. For Life, For the future : Reserves and Remains –UNESCO Publication
8. Values, A Vedanta Kesari Presentation, Sri Ramakrishna Math, Chennai, 1996
9. Swami Vivekananda, Youth and Modern India, Ramakrishna Mission, Chennai

   Swami Vivekananda, Call to the Youth for Nation Building, AdvaitaAshrama, Calcutta

   Awakening Indians to India, Chinmayananda Mission, 2003

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	Descriptive Questions Answer any 5 out of 8	1-8	10	**50**
TOTAL MARKS				**50**

Distribution of Questions:

Sections	Units	No. of Theory
Section A	Unit – 1	1
	Unit – 2	2
	Unit – 3	2
	Unit – 4	2
	Unit – 5	1

CORE XVII

OPERATIONS

MANAGEMENT

SUBJECT CODE : 19UBBA319	**THEORY**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

COURSE OBJECTIVE:

- To enable the students with basic knowledge about operations, layout and location.
- To impart the importance of work study, work sampling and services operation management.

UNIT I (15 Hours)

Introduction: Nature and Scope of Operations Management. Production design & Process planning: Plant location: Factors to be considered in Plant Location – Plant Location Trends.

UNIT II (15 Hours)

Layout of manufacturing facilities: Principles of a Good Layout – Layout Factors –Basic Types of Layout – Service Facilities.

UNIT III (15 Hours)

Production and Inventory Control: Basic types of production – Basic Inventory Models – Economic Order Quantity, Economic Batch Quantity – Reorder point – Safety stock – Classification and Codification of stock – ABC classification – Procedure for Stock Control, Materials Requirement Planning (MRP). JIT.

UNIT IV (15 Hours)

Methods Analysis and Work Measurement: Methods Study Procedures – The Purposeof Time Study – Stop Watch Time Study – Performance Rating – Allowance Factors – Standard Time – Work Sampling Technique. Quality Control: Purposes of Inspection and Quality Control – Acceptance Sampling by Variables and Attributes – Control Charts.

UNIT V (15 Hours)

Service Operations Management: Introduction – Types of Service – ServiceEncounter – Service Facility Location – Service Processes and Service Delivery.

PRESCRIBED BOOKS

1. Buffa, E.S. and Sarin, R., Modern Productions / Operations Management, 8th Edition, Wiley, 2007.
2. Chary, S.N., Production and Operations Management, 5th Edition, TataMcGraw-Hill, 2012.
3. B.Mahadevan, Operations Management,2nd Edition,Pearson,2010.
4. Lee Krajewski,Larry P Ritzman.,Manoj K Malhotra& Samir K Srivastava,Operations Management,9th Edition,Pearson,2011.

REFERENCEBOOKS

1. Heizer, J., Render, B. and Rajashekhar, J., Operations Management, 9th Edition,Pearson, 2009.
2. Panneerselvam, R., Production and Operations Management, 3rd Edition, PHILearning, 2012.
3. Srinivasan,G., Quantitative Models in Operations and Supply Chain Management, PHI Learning Pvt. Ltd

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
				100

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	3	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

CORE - XVIII

HUMAN RESOURCE MANAGEMENT

SUBJECT CODE : 19UBBA320	**THEORY**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common to BBA., B.Com (ISM) and B.Com(MM))

COURSE OBJECTIVES:

- To understand the nature of human resources and its significance to the organization.
- To familiarize students with the various techniques in HRM that contributes to the overall effectiveness of an Organization.
- To bring to the attention of the students the latest trends in managing human resources in an organization.

UNIT I (20 Hours)

Nature and scope of Human Resources Management – Differences between personnel management and HRM – Environment of HRM – Human resource planning – Recruitment – Sources of Recruitment – Selection – Methods of Selection – Process of Selection - Uses of various tests – Interview techniques in selection and placement.

UNIT II (15 Hours)

Induction – Training – Methods – Techniques – Identification of the training needs – Training and Development – Performance appraisal – Transfer – Promotion and termination of services – Career Development.

UNIT III (20 Hours)

Remuneration – Components of remuneration – Incentives – Benefits – Motivation –Abraham Maslow's theory, Mc Gregor's "X" , "Y", William Ouchi's "Z" Theory - Herzberg's two factor theory and Vroom's valence expectancy theory – Mcclelland's Need Achievement theory

UNIT IV (10 Hours)

Labour Relation – Functions of Trade Unions – Forms of collective bargaining-Workers' participation in management – Types and effectiveness.

UNIT V (10 Hours)

Industrial Disputes and Settlements (Laws Excluded) – Settling Industrial Disputes in India – Arbitration – Adjudication – Settlement.

PRESCRIBED BOOKS:

1. Essentials of Human Resource Management and Industrial Relations- P.Subba Rao – Himalaya Publishing House- 2010
2. Human Resource Management – L M Prasad- Third Edition Reprint 2014 – Sultan Chand & Sons.
3. Human Resource Management – Ashwathappa -5th Edition – McGraw Hill

REFERENCE BOOKS

1. Human Resource Management – Garry Deseler -11th Edition – Pearson International
2. Human Resource Management- By DrCharmine E.J. Härtel , Dr Yuka Fujimoto – 2nd Edition

Web References:

1. https://www.wiziq.com/tutorials/human-resource-management
2. https://www.sophia.org/tutorials/introductory-human-resource-concepts

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer:** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theor	**Problems**
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	3	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE – XIX
SERVICES MARKETING

SUBJECT CODE : 19UBBA321	**THEORY**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common to BBA, B. COM(MM)

COURSE OBJECTIVES:

- To impart the knowledge of the elements in services marketing and their effectiveness in the business scenario.
- To understand the basic concepts in service quality.

UNIT-I - (15 Hours)

Marketing Services: Introduction growth of the service sector. The concept of service. Characteristics of service - classification of service designing of the service, blueprinting using technology, developing human resources, building service aspirations.

UNIT-II - (15 Hours)

Marketing Mix In Service Marketing: The seven Ps: product decision, pricing strategies and tactics, promotion of service and distribution methods for services. Additional dimension in services marketing- people, physical evidence and process.

UNIT-III - (10 Hours)

Effective Management of Service Marketing: Marketing demand and supply through capacity planning and segmentation - interna1 marketing of services - external versus internal Orientation of service strategy.

UNIT-IV - (20 Hours)

Delivering Quality Service: Causes of service - quality gaps. The customer expectations versus perceived service gap.Factors and techniques to resolve this gap.Customer relationship management.Gaps in services - quality standards, factors and solutions - the service performance gap - key factors and strategies for closing the gap.External communication to the customers- the promise versus delivery gap - developing appropriate and effective communication about service quality.

UNIT-V - (15 Hours)

Marketing of Service With Special Reference To:1.Financial services, 2.Health services, 3.Hospitality services including travel, hotels and tourism, 4.Professional service, 5.Public utility service, 6.Educational services.

PRESCRIBED BOOKS:

1. S.M. Jha, Services marketing, Himalaya Publishers, India
2. Sinha.P.K and Sahoo.S.C., 1994,Services Marketing Text and Reading, Himalaya Publishers House,lndia.

REFERENCE BOOKS:

1. Natarajan Dr. L, Services Marketing, Margham Publications, Chennai.
2. Thakur .G.S. Sandhusupreet & Dogra Babzan , Services marketing , kalyani Publishers, Ludhianna .
3. Balaji Dr. B., Services Marketing and Management, S. Chand & Co , New Delhi .

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
				100

Distribution of Questions :

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

ELECTIVE – II

CUSTOMER RELATIONSHIP MANAGEMENT

SUBJECT CODE : 19UBBA322	**THEORY**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 5**	**No. OF HOURS PER WEEK : 6**

COURSE OBJECTIVES:

- To understand the concept of Customer Relationships and its effectiveness in developing the business.
- To have an insight into the banking sector CRM.

UNIT-I (15 Hours)

Communication - need/ Mode of communication – barriers, channels of communication - oral - written -listening skill – Verbal skill- interpersonal communication and intra personal communication , Essentials of business letter.

UNIT-II - (15 Hours)

CRM - concept and approach - CR in competitive environment public relation and image building.

UNIT-III (20 Hours)

Banker - customer relationship -retaining and enlarging customer base - customer services - quality circle.

UNIT-IV - (20 Hours)

Nature and types of customer - complaint redressal methods Talwar and Goiporia committee report, customer service committee, customer day - Copra Forum - ombudsman.

UNIT-V (20 Hours)

Market Segment - Customer Data Base - Market Research. Review and Evaluation of Customer Satisfaction.

PRESCRIBED BOOKS:

1. Peeru H. Mohamed & A. Sangadevan , Customers Relationship Management - A Step – by – step approach , 8th Edition (2007), Vikas Publishing House Private Limited , Noida

REFERENCE BOOKS:

1. Chaturvedi Mukesh, Abhinav Chaturvedi , Customers Relationship Management – An Indian Perspective ,1st Edition (2005) Excel Books , New Delhi .

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
A	**Definition/Principle** Answer any 10 out of 12 questions (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	20-25	10	**40**
				100

Distribution of Questions :

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	3	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

ELECTIVE –III

PROJECT WORK

SUBJECT CODE : 19UBBA323	**THEORY**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 5**	**No. OF HOURS PER WEEK : 6**

COURSE OBJECTIVES:

- To give a practical experience to the students in the fields of marketing or finance or human resources and thus give an insight into the business world.

- A group of 3 students will be assigned a project in the beginning of the final year. The project work shall be submitted to the college 20 days before the end of the final year and the college has to certify the same and submit during the viva-voce examination.

- The project shall be evaluated externally. The external examiner shall be from the panel of examiners suggested by the board of studies from time to time.

- Those who fail in the project work will have to redo the project work and submit to the college for external examination

GURU NANAK COLLEGE
(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A- Grade' by NAAC
(Affiliated to the University of Madras)

MASTER OF ARTS
MA - ECONOMICS

GURU NANAK COLLEGE
M.A. ECONOMICS - COURSE STRUCTURE

(For the Candidates admitted in 2019 -2020 and thereafter)

Vision

- ❖ To uphold high standards of academic excellence in teaching and research.
- ❖ To grow to gain wide-spread recognition for Post-Graduate and Ph.D. programmes.
- ❖ To promote academic activities like research, internships, training, etc.
- ❖ To organize International/National Seminar/Workshop programmes to facilitate interaction with academicians and experts.
- ❖ To focus on a set of skills relevant to strengthening students' competency to gain employment.

Mission

- To provide students with a strong theoretical foundation in Economics.
- To train and equip students with the requisite skills to carry out Applied Economics Research.
- To promote experiential learning through the application of knowledge to new challenges.
- To provide the social capital necessary for establishing a healthy society by instilling values, ethics and confidence in young minds.
- 5. To provide students with a strong foundation in economic theory, strengthened by critical thinking and sharp analytical skills required for policy analysts.

Programme Outcomes

PO1: To analyse different economic and environmental problems and provide solutions to improve our Green Growth

PO2: To critically analyse Keynesian and modern economic approach to solve all macroeconomic problems.

PO3: To develop employability and research skills identify more socio-economic problems and provide solutions through several research activities

PO4: To find out different ways by which improve the contribution of women in economic development

PO5: To maintain stability in exchange rate, examine different international trade policies.

Programme Specific Outcome

PSO1: To evaluate macroeconomic policies including fiscal, monetary and international trade to maintain stability and analyse different environmental policies to reduce global warming, improve sustainable development and Green GDP.

PSO2: Analyse central and state budget and plans to maintain strong and healthy fiscal federalism in India.

M.A. ECONOMICS
COURSE STRUCTURE- 2019-2021 Batch

Semester	Part	Course Component	Subject Name	Credits	Hours	Internal	External	Total
Semester - I	I	Core – I	Micro Economics – I	4	6	50	50	100
	I	Core – II	Indian Economic Development - I	4	6	50	50	100
	I	Core – III	Research Methodology	4	6	50	50	100
	II	Elective – I	Energy Economics	3	6	50	50	100
	II	Elective – II	Mathematics for Economists - I	3	6	50	50	100
	IV	Soft Skills – I	Personality Enrichment	2			100	100
Total Credits -20, Total Hours/ week-30								
Semester - II	I	Core – IV	Micro Economics - II	4	6	50	50	100
	I	Core – V	Indian Economic Development - II	4	6	50	50	100
	I	Core – VI	Statistics for Economists	4	6	50	50	100
	II	Elective – III	Mathematics for Economists - II	3	6	50	50	100
	III	Extra Disciplinary – I	Environmental Economics	3	6	50	50	100
	IV	Soft Skills – II	Work Place Communication Skills	2			100	100
Total Credits -20, Total Hours/ week-30								
Semester - III	I	Core – VII	Macro Economics - I	4	6	50	50	100
	I	Core – VIII	Public Economics – I	4	6	50	50	100
	I	Core – IX	International Economics - I	4	6	50	50	100
	II	Elective – IV	Economics of Development	4	6	50	50	100
	III	Extra Disciplinary – II	Gender Economics	3	6	50	50	100
	IV	Soft Skills – III	Soft Skills – III	2			100	100
	IV	Internship	Internship	2			100	100
Total Credits -23, Total Hours/ week-30								
Semester - IV	I	Core – X	Macro Economics - II	4	6	50	50	100
	I	Core – XI	Public Economics - II	4	6	50	50	100
	I	Core – XII	International Economics - II	4	6	50	50	100
	I	Core – XIII	Monetary Economics	4	6	50	50	100
	II	Core-XIV & XV	**Project Work**	6	2		100	100
	II	Elective – V	Computer Application for Economics	4	4	50	50	100
	II	Soft Skills – IV	Soft Skills – IV	2			100	100
Total Credits -28, Total Hours/ week-30								
Grand Total Credits -91, Total Hours/ week-120								

SEMESTER – I

CORE-I

MICRO ECONOMICS – I

SUBJECT CODE: 19PECO301	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives:

1. To understand and evaluate modern utility demand theories.

Unit I: Advances in Demand Theory (18 Hrs.)

Modern utility analysis of choices involving risk or uncertainty – Bernoulli ,Neumann Morgenstern, Friedman Savage and Markowitz Hypotheses-Revealed preference theory and derivation of demand-indifference curve-Hicks revision of demand theory-Logical ordering-Recent developments in demand theory.

Unit II: Theory of Production (18 Hrs.)

The production Function – Production Function – short and long run – Relation between returns to scale and returns to factor – Cobb-Douglas and CES Production Functions –Single and Multi-product Firms.

Unit III: Theory of Costs (18 Hrs.)

Total Revenue, Marginal Revenue. Cost Functions – The Traditional Theory of Cost: Short-Run Costs; Long-Run Costs-'The Envelope Curve' – Modern Theory of Costs: Short- Run Costs; Long-Run Costs-'The L-Shaped' Scale Curve – The Relevance of the Shape of Cost Curves in Decision-making.

Unit IV: Theory of The Firm: Perfect Competition/ Monopoly (18 Hrs.)

Market Structure – Perfect Competition – Assumptions – Short-Run Equilibrium – Long-Run Equilibrium – Dynamic Changes and Industry Equilibrium. Definition – Demand and Revenue – Equilibrium of the Monopolists: Short-Run Equilibrium – Long-Run Equilibrium – Comparison of Pure Competition and Monopoly – the Multi-plant Firm – Bilateral Monopoly – Price Discrimination.

Unit V: Theory of The Firm: Monopolistic Competition and Oligopoly (18 Hrs.)

Monopolistic Competition – Equilibrium of the Firm – Excess Capacity – Selling Cost – Comparison with Pure Competition. Oligopoly: Non-Collusive Oligopoly – Cournot; The Kinked-Demand and Stackelberg Models. Collusive Oligopoly – Cartels – Price leadership.

PRESCRIBED TEXT BOOKS:

1. Koutsoyiannis. A. : Modern Microeconomics 2nd edition, Macmillan
2. Hal. R. Varian :Intermediate Micro Economics- Modern Approach, 4thedn, W.W. Narton& Company.
3. Salvatore – Micro Economics, 4/e, Oxford University Press, New Delhi, 2002.
4. Dewett.K.K – Micro Economics.
5. Jhingan M.L. and C.Murthy Micro Economics, Vrindha Publication, New Delhi, 2016.
6. W.J.Baumol and Alan Blinder – Micro Economics, Newyork University.

Reference Books

1. Jehle, G. and P. Reny (2001): Advanced Microeconomic Theory, Addison Wesley
2. Mas-Collel, A., M. Whinston and J. Green (1995): Microeconomic Theory, 2nd ed. Oxford University Press
3. Karl E. Case and Ray C. Fair, Principles of Economics, Pearson Education, Inc., 8th
4. edition, 2007.
5. N. Gregory Mankiw, Economics: Principles and Applications, India edition by South
6. Western, a part of Cengage Learning, Cengage Learning India Private Limited, 4th
7. edition, 2007.
8. Joseph E. Stiglitz and Carl E. Walsh, Economics, W.W. Norton & Company, Inc., New York, International Student Edition, 4th edition, 2007.

WEB REFERENCES:

1. https://www.khanacademy.org/economics-finance-domain/ap-microeconomics/basic-economic-concepts
2. https://www.cliffsnotes.com/study-guides/economics/introduction/economic-policy

3. **Question Paper Pattern:**

4.

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

5.

6. **Distribution of Questions:**

7.

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	

	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

CORE- II - INDIAN ECONOMIC DEVELOPMENT AND POLICY – I

SUBJECT CODE: 19PECO302	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives:

1. To understand economic development environmental degradation in India.

Unit I: Resource Development in India (18 Hrs.)

Resource profile of India – Policies relating to the development of land, forest, water, fisheries and mineral resources – Economic development and Environmental degradation – Land degradation and Soil erosion – deforestation – faulty utilization of water resources

Unit II: Planning (18 Hrs.)

Plan Concepts-Indian Planning-concept of mixed economy, objectives of planning, perspective planning - Decentralised planning – indicative Planning – District Planning – Local Planning - Indian plan models: Mahalanobis, and Input – Output, Multi – sectoral models, minimum needs - evaluation and appraisal of five years plans

Unit III: National Income (18 Hrs.)

Concept and measurement of National Income-Trend in National Income - Sectoral contribution to GDP since Independence-Real Vs. Nominal-Measurement of Inflation-Inflationary Trend in India Concepts of Money suppy-M1, M2, M3, and M4; L1,L2 and L3.

Unit IV: Poverty and Unemployment (18 Hrs.)

Poverty - Measurement of poverty Line – Poverty Trend in India Regional disparities in incidence of poverty-Planning for Poverty Eradication-Public Policies Relating to Income and Asset Distribution – Concept and measurement employment and unemployment; Rural Vs urban employment-non farm employment-migration issues

Unit V: Trade Policies (18 Hrs.)

Trade policies: import substitution and export promotion – Recent Policies Changes - Technology Transfer – Reforms in Exchange Rates - role of foreign capital – Foreign Direct Investment (FDI) and Its Implications on Indian Economy.

BOOKS FOR REFERENCE

1. Indian Economy: performance and policies - UMA KAPILA

2. India Economy since Independence - UMA KAPILA

3. RuddarDutt and KPM. Sundharam: Indian Economy

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	

	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

Core-III. RESEARCH METHODOLOGY

SUBJECT CODE: 19PECO303	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives:

- To familiarize the students in nature and scope and methods in research.

UNIT I: Introduction to Research Methodology (18 Hrs.)

Meaning and Objectives of Research - importance, applications and limitations of social science research - An overview of the different steps in research process - Selection of the topic and formulation of the research problem in Economics - Research Design: Pure, Applied, Action and Evaluation Research - Meaning of methodology.

UNIT II: Research Method (18 Hrs.)

Sampling Design: Probability and non-Probability Sampling - **Sources of Data:** Primary and Secondary Sources - Methods of Data Collection: Census and Sample Survey - Data Collection Instruments: Observation, Interview, Schedules and Questionnaires.

UNIT III: Analysis of Data (18 Hrs.)

Analysis of data: Meaning, elements and types of Analysis - Editing, Processing, Consolidation and Tabulation Application of Techniques – **Measurement Scales and Scaling Techniques:** Meaning, classification and importance of scaling technique

UNIT IV: Testing of Hypothesis (18 Hrs.)

Testing of hypothesis – Procedure for testing hypothesis - one tailed and two tailed tests – Basics of the important parametric and non-parametric tests (Z test, t-test, F-test, Chi Square (χ^2) test and ANOVA) - Basic awareness of SPSS

UNIT V: - Interpretation and preparation of the report (18 Hrs.)

Interpretation and Research presentation: Objectives of presentation of report and Methods of Report Writing and Presentation of report - Essential of a Good Report – Problems – Guidelines - Style and Mechanics of Writing Research Reports – Types of Research Reports - Structure of Research Report –Appendices – Footnote - Bibliography.

Recommended Text

1. Goode, W.J. (1952) and Hatt, P.K. :Method in social Research, McGraw-Hill.
2. Kothari. C.R.(2005) :Research Methodology: Methods and Techniques, Wiley Eastern limited, New Delhi.
3. C. Murthy (2010) : Research Methodology , Vrindha Publication, New Delhi

Books for Reference

1. Cochran W.G (1963) : Sampling Techniques (Second Edition) JohnWiley & sons.
2. Donald R.Cooper; : Business-Research Methods, Tata McGraw Hill New Delhi
3. Forces and Bircher (1973) : Social Research Methods. Prentice Hall Inc.

4. Hicks, J.R. (1979) : Casualty in Economics.
5.Basil Blackwell. Kiplinger, : Foundations of Behavioral Research.
6. kurien, C.T. (ed) (1973) : A guide to Research in Economics, Sangam Publishing
7. Murthy, M.N (1967) : Sampling Theory and Methods. Statistical Publishing Society.
8. Young, P (1966) : Scientific Social Surveys and Research, Prentice hall.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

ELECTIVE – I: ENERGY ECONOMCIS

SUBJECT CODE: 19PECO304	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 3**	**TOTAL HOURS: 90**

Objectives:

This paper enables the students to understand the basics of energy economics and to solve the problems of energy and environmental issues.

Unit – I: Introduction to Energy Economics (18 Hrs.)

Natural Resources – classification – importance – Role of Natural Resources in Economic Development – Energy Resources – Types and classification – Properties of Energy – Forms of Energy – Emergence of Energy Economics – Its nature and scope – Energy indicators – Energy Economics relation with other branches.

Unit – II: Energy and Development (18 Hrs.)

Role of Energy in Economic Development – Energy Intensity and Energy Elasticity – National and International comparison –Low, Middle and High Income Economies – Role of International Institutions – OPEC, OAPEC, IEA, and World Bank.

Unit – III: Energy and Environment (18 Hrs.)

Energy Crisis causes, consequences – Remedial measures – Environmental Crisis – causes, consequences, remedial measures – Impact of Energy Consumption and Production on Environment with illustrations – Role of Energy and Environmental Economists in solving Energy and Environmental Crisis.

Unit – IV: Energy Conservation and Energy Management (18 Hrs.)

Energy Planning and Energy Conservation: Meaning, objectives and importance – Energy Management – Meaning, Objectives and Importance – Recent Developments – Energy Auditing – Energy Accounting – Energy Pricing and Taxes – Role of Economists in Promoting Sustainable Energy Management. M.A. Economics: Syllabus (CBCS)

Unit – V: India's Energy Profile (18 Hrs.)

Indian Energy Sector – Organizational Structure – Energy Supply (Coal, Lignite, Oil, Gas and Powers – Hydro, Nuclear, Thermal) – Energy Demand (Agriculture, Industry, Transport, Domestic, etc) Renewable Energy Sources and Technology (Solar, Wind, Biogas, Biomass, Geothermal, OTEC, Tidal, Wave Hydrogen, Fuel Cell, Bio-diesel) – Renewable Energy Programs – Energy under Five Year plans – Energy issues and policy options for India.

Text Books

1. Agarwal, M.C. and Monga, J.R. – Economic and Commercial Geography, (National Publishing House, New Delhi, 1992).
2. Agarwal, S.K. – Environment and Natural Resources Economics (Scott Foresman & Co., London, 1985).
3. Common, M. – Environmental and Resource Economics (Longman, London, 1996).
4. David Pearct et al – Sustainable Development – Economics and Environment in the Third World (Earths Can Publications, London, 1990).

BOOKS FOR REFERENCES

1. Charles D. Kolstad (2003),Environmental Economics, Oxford University Press, New York.
2. Nick Hanley, Jason F. Shogren and Ben White (1999), Environmental Economics: In Theory and Practice, Macmillan India Limited, New Delhi.
3. Barry C. Field (1997), Environmental Economics: An Introduction, McGraw-Hill Companies, Singapore.
4. UlaganathanSankar (2008), Environmental Economics, Oxford University Press, New Delhi.
5. Rabindra N. Bhattacharya (2005), Environmental Economics: An Indian Perspective, Oxford University Press, New Delhi.
6. Katar Singh and Anil Shishodia (2007), Environmental Economics: Theory and Applications, Sage Publications,New Delhi.
7. Subhashini Muthukrishnan (2010), Economics of Environment, PHI Learning Private Limited, New Delhi.
8. Jhingan, M.L. and Chandar K. Sharma (2007), Environmental Economics: Theory, Management and Policy, Vrinda Publications (P) Ltd., Delhi.
9. A. Jonathan Lesser, Daniel E. Dodds and Richard O. Zerbe Jr. (1997), Environmental Economics and Policy, Addison-Wesley Ltd., New York.
10. Anil Markandya and Julie Richardson (eds.) (1992), the Earthscan Reader in Environmental Economics, Earthscan Publications Ltd., London.
11. M.V. Joshi (2001), Theories and Approaches of Environmental Economics, Atlantic Publishers and Distributors, New Delhi.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**

Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

ELECTIVE – II: MATHEMATICS FOR ECONOMISTS – I

SUBJECT CODE: 19PECO305	THEORY	MARKS: 100
SEMESTER: I	CREDITS: 3	TOTAL HOURS: 90

Objectives

- To familiarize the students in mathematical models with solved application

UNIT I: Set Theory and Economics (18 Hrs.)

Set Theory**:** Concept of Sets and notation for Sets – Relations between Sets - Operation on sets and Laws of set Operations - The real-number system - Properties of real numbers - solutions of Quadratic equations - Solutions of Linear Equations in two variables.

UNIT II: Relations and Functions (18 Hrs.)

Relations and Functions: Functions of one variable - straight line, parabola, rectangular hyperbola Exponential and logarithmic functions. Concave and Convex functions - Indifference, Iso-quant and Transformation Curves - Application in business Economics.

UNIT III: Introduction to Simple Derivatives (18 Hrs.)

Derivatives and their interpretation - Concept of Limit - techniques of derivatives – Derivative and slope of a curve – Continuity and differentiability of a function - Relationships among Total, Average and Marginal Revenue and Cost - Elasticity of Functions - Conditions for Extremum of Functions of one variable and Functions of two variable.

UNIT IV: Applications of differential calculus (18 Hrs.)

Applications of differential calculus - Rules of differentiation for a function of one variable – Differentiation involving two functions of the same variable and different variable - Partial differentiation: First and Second-order partial derivatives - Total differentials and total derivatives - Derivatives of implicit function and explicit functions

UNIT V: Differentiation and its applications in Economics (18 Hrs.)

Unconstrained optimization: functions with two variables - Economic objectives of optimization – maxima and minima: identifying maxima and minima turning points – Maximum Total Revenue – Maximum Profit - Minimum Average Cost – Average and Marginal product of Labour - Properties of Homogenous Functions – Uses of Homogenous Functions in Economics.

Recommended Text

1. Edward. T. Dowling: Mathematics for Economists, McGraw – Hill Book Company.
2. Mehta V.L. & Madnani : Mathematics for Economists, Sultan Chand and Sons.

Books for References:

1. Allen R.G.D. :Mathematical Analysis for Economists, Macmillan andCompany Limited, London.
2. Chiang A.C. : Fundamental Methods of Mathematical Economics, Mcgraw – Hill Book Company.
3. Stafford.L.W.T. :Mathematics for Economist, The English Language Book Society and Macdonald and Evans Limited, London.
4. Mabett. A.J. :Mathematics for Economists, Macmillan Master Series.
5. Weber : Mathematics for Economists.
6. K. Sydsaeter and P. Hammond, Mathematics for Economic Analysis, Pearson Educational Asia: Delhi, 2002
7. Monga, G.S. Mathematics and Statistics for Economists, Vikas Publishing House, New Delhi, 1972.

Journals:

1. Journal of Applied Mathematics
2. Journal of Mathematical Economics

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50	1-12	10*3	**30**

	words)			
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	**Units**	**No. of Questions**	
		Theory	**Problems**
Section A	Unit – 1	1	1
	Unit – 2	2	1
	Unit – 3	1	1
	Unit – 4	2	1
	Unit – 5	1	1
Section B	Unit – 1	1	
	Unit – 2	1	1
	Unit – 3	1	1
	Unit – 4	1	1
	Unit – 5	1	
Section C	Unit – 1	0	
	Unit – 2	0	1
	Unit – 3	1	1
	Unit – 4	0	1
	Unit - 5	1	1

SEMESTER - II

CORE –IV: MICRO ECONOMICS – II

SUBJECT CODE: 19PECO306	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives:

To understand the students to analyze different modern theories of firm.

Unit I: Modern Theories of the Firm (18 Hrs.)

Baumol's Theory of Sales Revenue Maximisation – Marris 's Model of the Managerial Enterprise – O. Williamsons's Model of Managerial Discretion – the Behavioural model of Cyert and March.

Unit II: Distribution Theories (18 Hrs.)

Macro theories of distribution – Ricardian, Marxian, Kalecki and Kaldor's – Marginal productivity theory – Product Exhaustion theorem – Elasticity of Technical Substitution – Theory of distribution in imperfect product and factors markets – Determination of wages, interest and profit

Unit III: Economics of Information (18 Hrs.)

Economics of Information- Moral hazard problem, adverse selection, principal agent problem, implications of asymmetric information, market signaling, hidden information modeling, efficiency wage model, information and insurance.

Unit IV: General Equilibrium Theory (18 Hrs.)

Two Sector Model of General Equilibrium: Assumptions – Static Properties of a General Equilibrium State – General Equilibrium and the Allocation of Resources and Money.

Unit V: Welfare Economics (18 Hrs.)

Criteria of Social Welfare: The Pareto-Optimality Criterion – The Kaldor-Hicks 'Compensation Criterion' – the Bergson Criterion 'Social Welfare Function' – Maximisation of Social Welfare.

Recommended Text:

1. Koutsoyiannis. A. : Modern Microeconomics 2nd edition, Macmillan
2. Hal. R. Varian : Intermediate Micro Economics- Modern Approach, 4th edn, W.W. Narton & Company.
3. Dwivedi : Micro Economic theory and applications, Pearson.

Reference Books:

1. Baumol.W.J., (1978),Economic Theory and Operations Analysis, Prentice Hall of India.
2. Cohen. K.J. and Cyert. R.M. (1976),Theory of the Firm, Prentice Hall of India.
3. Ferguson, C.E., (1968),Micro Economic Theory, Cambridge, University Press, London.
4. Green, H.A.J (1974),Consumer Theory, 2nd Edition, Macmillan.
5. Jack Hirschleifer (1980) : Price Theory and Applications, 2nd Edition, Macmillan
6. Richard, H. Leftwich : The Price System and Resource Allocation.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

CORE-V: INDIAN ECONOMIC DEVELOPMENT AND POLICY - II

SUBJECT CODE: 19PECO307	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives

- To familiarize the students in agricultural price policy, agricultural credit, food security and PDS.

Unit I: Agriculture (18 Hrs.)

Agriculture growth at National and State levels – Institutional and technological policy – green revolution – agricultural price policy, agricultural credit – Food Security – Public Distribution System(PDS) – Agricultural Finance – Agricultural Marketing – inter-sectoral terms of trade – WTO and its implications.

Unit II: Industry (18 Hrs.)

Industry growth at National and State levels – Over view of earlier Industrial policies (1948 - 1990) - Industrial policy since 1990 – pattern of industrial growth – productivity trends, modernization, small Vs large industry – Special Economic Zones – Industrial Finance.

.

Unit III: Population and Human Development (18 Hrs.)

Population and Development – National Population Policy (2000) – Demographic Dividend - Human development indicators: review of change since early fifties –wide regional variations – demographic trend in India and dividend –health services, Health policy; Education Policy; Financing of Health and Education.

Unit IV: Infrastructure Development in India (18 Hrs.)

Infrastructure and economic development – Economic Infrastructure – Energy, Power, Transport, Communication, Science and Technology – Policies pertaining to Economic Infrastructure development – Financing of Infrastructure development – PPP Model – Financing institutions – International collaborations.

Unit V: Indian Public Finance: (18 Hrs.)

Finances of Central and State governments – an overview of Central budgets – trends – public debt of India – deficit financing in India – Fiscal reforms – Fiscal Responsibility Act – recommendations of tax and expenditure commissions – Centre – State financial relations – Constitutional provisions relating to fiscal and financial powers of the states – financial aspects of Sarkaria Commission – The Finance Commission awards – Centre- State conflict of finance.

Recommended Text:

1 Dutt and Sundaram(2007) :Indian Economy, S.Chand & Company
2. Dhingra. I.C.(2006) : Indian Economy, S.Chand & Company.
3. Chakravarty, S. (1987) :Development Planning: The Indian Experience, OUP, New Delhi.

Reference Books

1. J. Bhagwati andS. Chakravarthy : Indian Economic Analysis: A. Survey.
2. A. K. Das Gupta : Planning and Economic Growth.
3. Bhagwati and Desai : Planning for Industrialization.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
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Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	

	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

Core-VI. STATISTICS FOR ECONOMISTS

SUBJECT CODE: 19PECO308	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives:

- To understand the students how to apply probability theory in economics.

UNIT I: Introduction to Probability Distribution (18 Hrs.)

Meaning and definitions of **probability** (sample space-events) - Laws of addition and multiplication - Conditional probability - Bay's theorem (statement) - Binomial, Poisson and Normal distribution;

UNIT II: Sampling Technique (18 Hrs.)

Basic concepts of **Sampling**, Different types of sampling-Sampling and Non-sampling errors - Sampling Distributions-Standard error - point estimation - properties of estimators (Unbiasedness, consistency and efficiency)

UNIT III: Hypothesis Testing and Data Analysis (18 Hrs.)

Hypothesis testing - Null and alternative hypothesis - type I and type II errors-level of Significance - p-value - concept of confidence intervals (CI) - Hypothesis Testing procedure based on Z test (large sample test), - t test and F-test (Small sample tests) - test for independence of attributes (χ^2 test) and one-way ANOVA.

UNIT IV: Bi-variate Analysis (18 Hrs.)

Correlation and regression: simple correlation, Pearson, spearman's correlation coefficients, multiple and partial correlation analysis, specification of a simple linear

regression model, least square estimation of linear regression coefficients, interpretation of correlation and regression coefficients and their properties.

UNIT V: Multi-variate Analysis Techniques (18 Hrs.)

Multivariate analysis of Variance (ANOVA) and Covariance – Multiple correlation and regression – Conjoint Analysis - Factor analysis – Cluster analysis - test of multinomial experiment – Multidimensional Scaling

Recommended Text:

1. Gupta .S.P. Statistical Methods, Sultan Chand and Sons,New Delhi, 2005

2. Sancheti. DC and Kapoor .VK Statistical Theory-Method and Application, Sultan Chand and Sons, New Delhi, 2005.

3. Shukla .MC &Gulshan.SS, Statistical Theory and Practice. Sultan Chand and Sons, New Delhi, 2000.2. S.P. Gupta (1983): Statistical Methods, 19th ed. Sultan Chand and sons, New Delhi.

Books for Reference:

1. D.N. Elhance (2004) : Practical problems in statistics, Kit Mahal, Allahabad.
2. J. Devore: Probability and Statistics for Engineers, 8th ed., Cengage Learning (2012)

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	1	1
	Unit – 2	2	1
	Unit – 3	1	1

	Unit – 4	2	1
	Unit – 5	1	1
Section B	Unit – 1	1	
	Unit – 2	1	1
	Unit – 3	1	1
	Unit – 4	1	1
	Unit – 5	1	
Section C	Unit – 1	0	
	Unit – 2	0	1
	Unit – 3	1	1
	Unit – 4	0	1
	Unit - 5	1	1

ELECTIVE – III: MATHEMATICS FOR ECONOMISTS – II

SUBJECT CODE: 19PECO309	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 3**	**TOTAL HOURS: 90**

Objectives:

- To understand the students to analyse Lagrange multiplier method in utility, cost and profit maximization.

UNIT I: Calculus of multivariable functions (18 Hrs.)

Calculus of multivariable functions, higher order derivatives, constrained optimization with upto two variable - equality constraints - Constrained Maxima and Minima – Use of Lagrange Multiplier Method – Application to Utility Maximisation: consumer demand – Micro (two goods, one period) and consumer demand - Macro (one goods, two periods)

UNIT II: Matrix (18 Hrs.)

Matrices – Properties and types of matrices Matrix operations – Commutative Associative and Distributive Laws – Determinants – Rank of a matrix – Matrix Inverse – Solutions for simultaneous equations upto 3 equations - Cramer's Rule.

UNIT III: Input - Output Analysis and Linear programming (18 Hrs.)

Input - Output Analysis: Static open model – Closed model - Economic implications - Transport and Assignment model - Leontieff Model - **Linear programming:** Basic concept, Nature of feasible, basic and optimal solution; Solution of linear programming problem through graphical and simplex method - Primal and Dual.

UNIT IV: Game Theory (18 Hrs.)

Basic Concept of a game theory – Classification and Description of Games - Two person Zero sum game - value of a game; strategies - simple and mixed - Dominance rule - Solution of a game by linear programming.

UNIT V: Integration Techniques (18 Hrs.)

Definition of integration – Basics rules of Integration Techniques – Indefinite Intergrals – methods of indefinite intergrals - Definite Intergrals – Economic Applications of Integrals – Consumer's Surplus – Producer's Surplus.

Recommended Text

1. Edward. T. Dowling: Mathematics for Economists, McGraw – Hill Book Company.
2. Mehta V.L. & Madnani : Mathematics for Economists, Sultan Chand and Sons.

Books for References:

1. Allen R.G.D. :Mathematical Analysis for Economists, Macmillan andCompany Limited, London.
2. Chiang A.C. : Fundamental Methods of Mathematical Economics, Mcgraw – Hill Book Company.
3. Stafford.L.W.T. :Mathematics for Economist, The English Language Book Society and Macdonald and Evans Limited, London.
4. Mabett. A.J. :Mathematics for Economists, Macmillan Master Series.
5. Weber : Mathematics for Economists.
6. K. Sydsaeter and P. Hammond, Mathematics for Economic Analysis, Pearson Educational Asia: Delhi, 2002
7. Monga, G.S. Mathematics and Statistics for Economists, Vikas Publishing House, New Delhi, 1972.

Journals:

1. Journal of Applied Mathematics
2. Journal of Mathematical Economics

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**

Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	1	1
	Unit – 2	2	1
	Unit – 3	1	1
	Unit – 4	2	1
	Unit – 5	1	1
Section B	Unit – 1	1	
	Unit – 2	1	1
	Unit – 3	1	1
	Unit – 4	1	1
	Unit – 5	1	
Section C	Unit – 1	0	
	Unit – 2	0	1
	Unit – 3	1	1
	Unit – 4	0	1
	Unit - 5	1	1

EXTRA DISCIPLINARY – I - ENVIRONMENTAL ECONOMICS

SUBJECT CODE: 19PECO310	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 3**	**TOTAL HOURS: 90**

Objectives:

To know the impact of Economics on the Environment. To understand the use of Economic Tools in the analysis of environmental issues and policy making.

Unit – I: Definition and Scope of Environmental Economics (18 Hrs.)

Introduction – Economics and Environment – Definition of Environmental Economics – Scope and Significance of Environmental Economics: Environment Inter-linkages – Market failure and Externality – Accounting for the Environment – Pareto Optimality – Individual Choice Vs Social Choice.

Unit – II: Resource Economics (18 Hrs.)

Natural Resources: Types and Classification – Economics of Natural Resources Exploitation – Market Structure and the exploitation of Non-Renewable Resources – Conservation of Resources: Definition and Meaning– Methods of Conservation – Material Substitution – Product Life Extension – Recycling – Optimum Recycling – Waste Management.

Unit – III: Environment and Sustainable Development (18 Hrs.)

The Environmental Costs of Economic Growth – Limits to Growth – Sustainable Development – Brundtland Commission - Sustainable Industrialization – Pollution abatement and Control.

Unit – IV: Cost Benefit Analysis (18 Hrs.)

Cost Benefit Analysis: Definition – Advantages & Limitations of Cost Benefit Analysis – Methods for Valuing Environmental Costs and Benefits: Environmental Impact Assessment: Meaning & Measurement.

Unit – V: Policy Measures (18 Hrs.)

Basic Approach to Environmental Policy – Problem of Pollution Control – Moralsuasion – Direct Control – Regulation – Prohibition – Fiscal techniques – Effluent Charges and Subsidies – Common Effluent Treatment Plant.

Reference Books:

1. Charles D. Kolstad (2003),Environmental Economics, Oxford University Press, New York.
2. Nick Hanley, Jason F. Shogren and Ben White (1999), Environmental Economics: In Theory and Practice, Macmillan India Limited, New Delhi.
3. Barry C. Field (1997), Environmental Economics: An Introduction, McGraw-Hill Companies, Singapore.
4. Ulaganathan Sankar (2008), Environmental Economics, Oxford University Press, New Delhi.
5. Rabindra N. Bhattacharya (2005), Environmental Economics: An Indian Perspective, Oxford University Press, New Delhi.
6. Katar Singh and Anil Shishodia (2007), Environmental Economics: Theory and Applications, Sage Publications,New Delhi.
7. Subhashini Muthukrishnan (2010), Economics of Environment, PHI Learning Private Limited, New Delhi.
8. Jhingan, M.L. and Chandar K. Sharma (2007),Environmental Economics: Theory, Management and Policy, Vrinda Publications (P) Ltd., Delhi.
9. A. Jonathan Lesser, Daniel E. Dodds and Richard O. Zerbe Jr. (1997), Environmental Economics and Policy, Addison-Wesley Ltd., New York.
10. Anil Markandya and Julie Richardson (eds.) (1992), the Earthscan Reader in Environmental Economics, Earthscan Publications Ltd., London.
11. M.V. Joshi (2001), Theories and Approaches of Environmental Economics, Atlantic

Publishers and Distributors, New Delhi.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

SEMESTER – III

CORE-VII - MACRO ECONOMICS – I

SUBJECT CODE: 19PECO311	**THEORY**	**MARKS: 100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives:

- To provide an analytical skill on the theories of consumption function, income and employment, understand the students on how the money is being circulated in an economy. Demand and supply of money.

Unit I: Key Macro Economic Variables (18 Hrs.)

Aggregate Income- Expenditure and circular flow- computation of GDP – Real Vs – Nominal GDP – Measurement of Cost of Living (CPI and WPI) – Measurement of Unemployment rate

Unit II: Theories of Consumption and Investment (18 Hrs.)

The Consumption function and its determinants – Hypotheses of Absolute, Relative and Permanent Incomes and Life Cycle. The Investment function and its determinants. The Saving function and Marginal Efficiency of Capital. Investment Function – Marginal Efficiency of Investment, Multiplier Analysis, Accelerator and Investment behavior concepts of super multiplier.

Unit III: Theory of Income and Employment (18 Hrs.)

Basic assumptions of the classists, Says Law of Market, Classical theory of Employment saving and Investment theory wage and price flexibility criticisms of classical theory- Keynesian theory of employment and income , The concept of under employment – Aggregate demand – Effective Demand

Unit IV: Theory of Demand for money (18 Hrs.)

Theory of Money : Quantity theory money Fischer's and Cambridge equation, Keynesian theory of money – Modern Quantity theory of money – Milton Friedman – Patinkin's Real Balance Effect – Tobin's Portfolio analysis, Crisis in Keynesian economics and the revival of monetarism.

Unit V: Theory of Supply of Money (18 Hrs.)

Supply of Money - A Behavioural Model of Money Supply Determination, RBI Approach to money supply, High powered money and money multiplier, Money Supply in open economy, Control of money supply.

Recommended Text:

1. Branson, W.A. (1989): Macroeconomic Theory and Policy, (3rd Edition), Harper and Row, New York.

2. Shapiro, E. (1996): Macroeconomic Analysis, Galgotia Publications, New Delhi.
3. M. L. Jhingan and C. Murthy (2017): Macro Economics, Vrindha Publications, New Delhi
4. R.and A. Salansi (2000) - Macroeconomics and the Real World (2 Vols.) Oxford University Press, London.
5. Dornbusch, R.andF. Stanley (1997) - Macroeconomics, McGraw Hill, Inc., New York.
6. Heijdra, B.J. and V.P. Fredericck (2001) - Foundations of Modern Macroeconomics, Oxford University Press, New Delhi.

Reference Books

1. Ackley, G. (1978) : Macroeconomics: Theory and Policy, Macmillan, New York.
2. Blackhouse, R.and A. Salansi (2000) Macroeconomics and the Real World (2 Vols.) Oxford University Press, London.
3. Dornbusch, R.andF. Stanley (1997): Macroeconomics, McGraw Hill, Inc., New York.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	

	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

CORE-VIII - PUBLIC ECONOMICS -I

SUBJECT CODE: 19PECO312	**THEORY**	**MARKS: 100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives:

- To understand the role of public enterprises in India and analyse different pricing policies followed in public enterprises.

Unit I: Public Finance: Introduction (15 Hrs.)

Meaning and Definition of Public finance- Scope of Public Finance - Similarities and dissimilarities of Public and private finance- Market failure-imperfection - indivisibility- spill over benefit and spill over cost –Externalities - Role of government in Economic Activity

Unit II: Inter- sector al Allocation and Public Choices (15 Hrs.)

Private & public mechanism for allocating resources; types of goods and their characteristics -Private, Public and Merit goods – Principle of maximum social advantage - Public choice-Unanimity-Relative Unanimity-the medium voter theorem-Arrow's impossibility theorem

Unit III: Theories of public expenditure: (15 Hrs.)

Meaning of Public Expenditure- Classification of Public - Expenditure-Causes of Increase in Public Expenditure- Importance of Public Expenditure – Canons of Public Expenditure-Effects of Public Expenditure-Wagner's law of Public Expenditure-Wiseman - Peacock Hypothesis on Public Expenditure-Prof. Samuelson's Pure Theory of Public Expenditure - Trends of Public Expenditure in India

Unit IV: Public Revenue and Theories of taxation (15 Hrs.)

Meaning and Definition of Public Revenue- Sources of Public Revenue-classification of Public Revenue - Meaning and definition of Tax-Characteristics of Tax-Objectives of tax-canons of Taxation- Classification of Taxes- Direct and Indirect Tax, its meaning and merits and demerits of direct and indirect tax – Laffer Curve- Characteristics of Good tax system-Tax Incidence- effects of Taxes. Theories of Taxation – Erik Lindhall's Theory of Voluntary Exchange-Howard Bowen's Theory

Unit V: Public Debt (15 Hrs.)

Meaning and Definition Public debt- Objectives of Public debt- Difference between Public debt and private debt -Classification of Public debt –Sources of Public debt – Redemption of Public debt –Effects of Public debt - Principles of Public debt - Burden of Public debt – Trends of Public debt in India.

Reference Books

1. Atkinson, A.B. and J.E. Siglitz (1980) : Lectures on Public Economics, Tata McGraw Hill, New York.
2. Auerbach, A.J. and M. Feldstern (Eds.) (1985): Handbook of Public Economics, Vol. I, North Holland, Amsterdam.
3. Buchanan, J.M. (1970): The Public Finances, Richard D. Irwin, Homewood.

4. Goode, R. (1986)Government Finance in Developing Countries, Tata McGraw Hill, New Delhi.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

CORE - IX: INTERNATIONAL ECONOMICS – I

SUBJECT CODE: 19PECO313	**THEORY**	**MARKS: 100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives:

- To understand and analyse the different international trade theories.

Unit I: International Economics: Introduction (18 Hrs.)

Concept of Inter-regional and International Trade - Theory of Comparative Advantage, Hecksher-Ohlin Theory of trade - Factor Endowment and Factor Price - Leontief Paradox - Empirical verification and relevance of Theories - International Trade under Imperfect Competition

Unit II: Terms of Trade and Economic Growth (18 Hrs.)

Terms of Trade and Economic Growth - Secular determination of terms of trade hypothesis: a critical review - International trade as an engine of growth - Gains from Trade and LDCs - Foreign Trade Multiplier: Trade and Labour Skills Theory by Donald Kessing - Research and Development factor and Structure of Commodity Trade (By Gruber, Mehta and Vernon)

Unit III: Measurement of Gains from Trade (18 Hrs.)

Measurement of Gains from Trade; Concepts of Terms of trade - their uses and limitation - Factors affecting Terms of Trade - Impact of Tariffs - Political economy of Non-tariff Barriers - Trade and Development - Trade as engine of growth - Two Gap analysis: views of Prebisch, Singer and Myrdal.

Unit IV: Balance of Trade and Balance of Payment (18 Hrs.)

Meaning and concepts of Balance of Trade and Balance of Payment - Equilibrium and Disequilibrium in Balance of Payment - The process of adjustment under systems of Gold Standard - Steps to Correct imbalance of payments - traditional and monetary approaches for adjustment in the Balance of Payment - Theory of international reserves - Theory of Foreign Exchange Rate - Purchasing Power Parity Theory – fixed versus flexible exchange rate system

Unit V: Theory of Interventions (18 Hrs.)

Tariffs and development-Impact of tariffs –partial and general equilibrium analysis-Political economy of non-tariff barriers-quotas types-dumping and the economic rationale of dumping.

Recommended Text

1. M.C.Vaish & Sudama Singh : International Economics, Oxford & IBH.
2. K.C.Rana and K.N.Verma(2004-05) :International Economics, Vishal Publishing Co. Jalandhar.

3. Francis Cherunilam (1998) : International Economics, 3rd Edition, TataMcGraw Hill Publishing company.
4. International trade theory and policy – Giancarlo Gandolfo
5. International Economics: Miltiades Chacholiades
6. International Economics – K.C.Rana and K.C.Verma
7. International Economics Francis cherunilam
8. Krugman, P.R. and M. Obstfeld (1994), International Economics: Theory and Policy, Glenview, Foresman.
9. Sodirston, Bo. (1991), International Economics, The Macmillan Press Ltd. London.
10. Dana, M.S. (2000), International Economics: Study, Guide and Work Book, (5th Edition), Routledge Publishers, London.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	

	Unit - 5	2	

ELECTIVE – IV - ECONOMICS OF DEVELOPMENT

SUBJECT CODE: 19PECO314	**THEORY**	**MARKS: 100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives:

- To familiarize the students to analyse kuznet's invented U- hypothesis and welfare of Index.

Unit I (18 Hrs.)

Poverty, inequality, and Development – measuring inequality and poverty – poverty, inequality, and social welfare – Kuznets'inverted-U Hypothesis – Growth and inequality – Rural poverty – women and poverty – Ahluwalia – Chenery Welfare Index.

Unit II (18 Hrs.)

Population Growth and Economic Development: Causes, consequences – and controversies – population growth and the quality of life – the causes of high fertility in developing countries – the consequences of High fertility – goals and objectives.

Unit III (18 Hrs.)

Roles of Education and Health – Investing in education and health: the human capital approach – child labour – the gender gap: women and education – educational systems and development – health systems and development.

Unit IV (18 Hrs.)

Agricultural Transformation and rural development – agricultural progress and rural development – the structure of agrian system in the developing world – the economics of agricultural development: transition – subsistence farming: Risk Aversion – improving small scale agriculture – conditions of rural development – macroeconomic instability, IMF stabilization policies and their critics.

Unit V (18 Hrs.)

The nature of development planning and the role of the state – planning in mixed developing economics – the rationale for development planning – fiscal policy for development – macrostability and resource mobilization – state owned enterprises. Military expenditures and economic development.

Recommended Text

1. Adelman, I (1961) : Theories of Economic Growth and Development, Stanford University Press, Stanford.

2. Michael P. Todaro and Stephen C. Smith (2003): Economic Development, Pearson Education Pte. Ltd., Singapore.
3. Thirillwall, A.P. (1978) : Growth and Development, 2ed. Macmillan

Reference Books:

1. Chakravarthy, S. (1982): Alternative Approaches to a theory of Economic Growth, Oxford UniversityPress.
2. Chakravarthy, S. (1989): Development Planning: The Indian Experience, Clarendon Press.
3. Chatak, S. (1986) An Introduction to Development Economics, Allen and Unwin.
4. Kindleberger, C.P. (1977) : Economic Development 3ed McGraw Hill.
5. Basu, Kaushik (2003): Analytical development economics: The less developed economy revisited, MIT Press Cambridge.
6. Meier, G.M. and J.E.Rauch (2005), Leading Issues in Economic Development, (8th Edition), Oxford University Press, New Delhi.
7. Sen, A.K. (Ed.) (1990), Growth Economics, Penguin, Harmondsworth.
8. Todaro, M.P. and S.C. Smith (2003), (8th Edition), Economic Development, Pearson Education, Delhi.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	

	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

EXTRA DISCIPLINARY – II: GENDER ECONOMICS

SUBJECT CODE: 19PECO315	THEORY	MARKS: 100
SEMESTER: III	CREDITS: 3	TOTAL HOURS: 90

Objectives:

- To understand the students to demonstrate the significance of women studies in socio-Economic development.

Unit - I: Introduction of Gender Economics (20 Hrs.)

Meaning and scope of Gender Economics – Nature and Significance of Women Studies – Distinction between economic and Non-economic Dimensions of Women Studies – Some key Concepts – Exploitation, Deprivation, oppression, Gender Display index and HDI, HPI and GEM

Unit - II: Theories of Woman Exploitation (25 Hrs.)

Need for theories of women exploitation – Marx and Engel's Theory of Exploitation – Exchange theory and Exploitation – Perspectives of Gary. S Becker and Amartya Sen on Women Exploitation

Unit - III: International Concern for Women Development (20 Hrs.)

Role of UNO and World bank in Women's Development – Significance of International Women's Year and Decade – International Conferences on Women

Unit - IV: Women and Economic development (25 Hrs.)

Women contributions to economic development – Women in Agriculture and industry and in Services – development programmes for Empowering Women under India's Five Year Plans Unit - V : Women and Entrepreneurship Emergence and Growth of Women Entrepreneurship – Motivating factors – Role of State – progress and Performance of Women Entrepreneur Schemes – problems and prospects of Women Entrepreneurship.

Reference Books:

1. Maithreyi Krishnaraj, Gender Population and Development
2. R.K.Sen and Anita Banaerji, Women and Economic Development
3. Boserup E. (1970), Women's Role in Economic Development, George Allen and Unwin, London.
4. Desai, N. and M.K. Raj (Eds.) (1979), Women and Society in India, Research Center for
5. Women Studies, SNDT Unviersity, Bombay
6. Government of India (1974), Towards Equality – Report of the Committee on the Status of
7. Women in India, Department of Social Welfare, Ministry of Education and Social Welfare,
New Delhi.
8 Krishnaraj, M., R.M. Sudarshan and A. Shariff (1999), Gender, Population and Development, Oxford University Press, New Delhi.
9. Seth, M. (2000), Women and Development: The Indian Experience, Sage Publications, New
Delhi.
10 Wazir, R. (2000), The Gender Gap in Basic Education: NGOs as Change Agents, Sage Publications, New Delhi.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	

Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

SEMESTER – IV

CORE-X: MACRO ECONOMICS – II

SUBJECT CODE: 19PECO316	**THEORY**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 90**

Objectives:

- To analyse the usage of IS-LM in determining equilibrium of on economy and evaluate the applicability of IS-LM in international trade

Unit I: The IS –LM Model (18 Hrs.)

The neo-classical and Keynesian version of IS-LM models – Interaction of Real and Monetary Sector- Fiscal and Monetary Policy analysis in IS – LM model – Pigou effect and Real balance effect in IS-LM model – Trade policy in IS-LM models.

Unit II: Theory of Inflation and Unemployment (18 Hrs.)

Theory of Inflation: Concept – Types – Categories, Excess demand Inflation Keynesian Income Expenditure approach, Inflationary gap –Phillips curve Controversy, Tobins modified Phillips Curve, Policies to control inflation- Natural Rate of Hypothesis and its implication of Monetary Policy.

Unit III: Business Cycle (18 Hrs.)

Business Cycle: Theories of Schumpeter, Kaldor, Samuelson, Hicks and Goodwin model, Control of Business Cycles, relative Efficiency of Monetary and Fiscal Policies

Unit IV: Post – Keynesian Macro Economics (18 Hrs.)

Walrasian and Keynesian Adjustment mechanism – Reinterpretation of Keynes – Dual Decision hypothesis - Neo-Keynesian quantity constraint models – micro theoretic foundation for wage and price rigidity – small menu cost – Efficient wage theory – staggered wage setting – insider – outsider model – models of coordination failure.

Unit V: Macro Economics in an Open Economy (18 Hrs.)

Macro Economics is an open Economy, Mundell-Flemming Model – New Classical Macro Economics –Policy Implications of New Classical Approach. Macro-Economic Policy Goals - Full Employment – Price Stability – Economic Growth – Monetary and Fiscal Mechanism in the Indian Context

Recommended Text:

1. Branson, W.A. (1989): Macroeconomic Theory and Policy, (3rd Edition), Harper and Row, New York.
2. Shapiro, E. (1996): Macroeconomic Analysis, Galgotia Publications, New Delhi.
3. M. L. Jhingan and C. Murthy (2017): Macro Economics, Vrindha Publications, New Delhi

Reference Books

1. Ackley, G. (1978) : Macroeconomics: Theory and Policy, Macmillan, New York.
2. Blackhouse, R.and A. Salansi (2000) Macroeconomics and the Real World (2 Vols.) Oxford University Press, London.
3. Dornbusch, R.and F. Stanley (1997): Macroeconomics, McGraw Hill, Inc., New York.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
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Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	

	Unit – 4	1	
	Unit - 5	2	

CORE – XI: PUBLIC ECONOMICS-II

SUBJECT CODE: 19PECO317	THEORY	MARKS: 100
SEMESTER: IV	CREDITS: 4	TOTAL HOURS: 90

Objectives

- To understand and evaluate demand revealing schemes of public goods find out applicability of Keynesian case for stabilization.

Unit I: Budget (18 Hrs.)

Budgeting-type of budgeting-public budget, kinds of budgets, zero based budgeting-programme and performance budgeting-Union and State government Budgets-Neutral and compensatory and functional finance-balanced budget multiplier.

UNIT II: Fiscal Policy (18 Hrs.)

Fiscal Policy: Meaning and definition of Fiscal policy- Objectives of Fiscal policy – Instruments of Fiscal policy – role of fiscal policy in controlling inflation - fiscal policy for full employment – limitations of fiscal policy – fiscal reforms in India.

Unit III: Theories of Fiscal Federalism (18 Hrs.)

Meaning of Federal Finance- Principles of Federal Finance - Theories of Fiscal Federalism-Concepts of Deficits – Deficit Financing – Budget Deficit – Issues of Equity and Efficiency – Designing Equalisation transfers – Conditional and Unconditional grands

Unit IV: Indian Federalism System (18 Hrs.)

Indian federalism system - Problems of Centre-State Financial relations in India-Imbalance between fiscal Needs and Capacity- Indian federal finance - Finance commission and recommendation of latest Finance commission.

Unit V: Goods and Service Tax (GST) (18 Hrs.)

Introduction to GST – Meaning, evolution of GST – Salient features of GST - Structures and functions of GST Council - Stages of GST – Issues and Challenges of GST in India – Pro and Cons of GST

Recommended Text:

1. Bhargava (2004) : Public finance, Its Theory and working in India, Chaitanya Publishing House.
2. Musgrave, R.A. (1959): The Theory of Public Finance, McGraw Hill, Kogakhusa, Tokyo
3. Musgrave, R.A. and P.B. Musgrave (1976) : Public Finance in Theory and Practice, McGraw Hill, Kogakusha, Tokyo.

Reference Books

1. Atkinson, A.B. and J.E. Siglitz (1980) : Lectures on Public Economics, Tata McGraw Hill, New York.
2. Auerbach, A.J. and M. Feldstern (Eds.) (1985): Handbook of Public Economics, Vol. I, North Holland, Amsterdam.
3. Buchanan, J.M. (1970): The Public Finances, Richard D. Irwin, Homewood.
4. Goode, R. (1986)Government Finance in Developing Coutnries, Tata McGraw Hill, New Delhi.

CORE - XII: INTERNATIONAL ECONOMICS – II

SUBJECT CODE: 19PECO318	THEORY	MARKS: 100
SEMESTER: IV	CREDITS: 4	TOTAL HOURS: 90

Objectives

- To demonstrate the developments in International monetary system.

Unit I: Foreign Capital (18 Hrs.)

Role of foreign capital in economic development – issues in foreign capital in economic development – theory of direct investment – issues in foreign direct investment – Multinational Corporations – Transfers and Capital movements – interest rate and capital movements – foreign aid.

Unit II: Foreign Exchange Market (18 Hrs.)

Introduction: structure and functions of foreign exchange market- methods of foreign payments - concepts of Spot and Forward exchange Rate - Determinants of Exchange Rate under Fixed and Flexible Exchange rate - Regime and Role of hedging in the determination of exchange rate - Theory of Interest Rate parity

Unit III: The Theory of Regional Blocks (18 Hrs.)

Forms of economic cooperation - Reforms for the emergence of trading blocks at the global level – Static and dynamic effects of a customs union and free trade areas – Rationale and economic progress of SAARC/SAPTA and ASEAN regions – Problems and prospects of forming a customs union in the Asian Region – European Union – Functions of GATT/WTO (TRIPs/TRIMs) – UNCTAD – IMF – World Bank and Asian Development Bank – Their achievements and failures.

Unit IV: International Monetary System: (18 Hrs.)

International Monetary System: Problems in International Monetary System – International debt - International Liquidity – I.M.F. and Special Drawing Rights – Euro-dollar market. – Recent developments and issues in regional common currencies.

Unit V: Alternative Theories of Trade (18 Hrs.)

Alternative theories of Trade – Economies of Scale, Imperfect competition and International trade. Monopolistic competition –Technology imitation gaps and Product cycles

Recommended Text

1. M.C.Vaish & Sudama Singh : International Economics, Oxford & IBH.
2. K.C.Rana and K.N.Verma(2004-05) :International Economics, Vishal Publishing Co. Jalandhar,.
3. Francis Cherunilam (1998): International Economics, 3rd Edition, TataMcGraw Hill Publishing company.

Reference Books:

1. Bo Sodersten. (1980): International Economics.
2. Kindleberger, C.P.: International Economics, 5th Edition.
3. Paul R. Krugman and Maurice Obstfed (2005) : International Economics Theory and Policy, 6th Edition, Pearson Education.
4. Bhagawati. J, : International Economics.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	

	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

CORE –XIII: MONETARY ECONOMICS

SUBJECT CODE: 19PECO319	THEORY	MARKS: 100
SEMESTER: IV	CREDITS: 4	TOTAL HOURS: 90

Objectives:

- To demonstrate the role of money in Keynesian and Post-Keynesian approach

Unit I : Money in Macro Economy (18 Hrs.)

Major issues in Monetary theory - The Classical Approach; Fishers Equation - The Keynesian Approach: Keynes Reformulated Quantity Theory of Money – Critical Evaluation of Keynes Theory of Money and Price - Post – Keynesian Developments: Friedman theory – Empirical Evidence.

Unit II: The Demand for Money (18 Hrs.)

Classical and Neo-Classical Theories of Money: Early Versions. Pigou and Cambridge School, etc., The Dichotomy between the Monetary Theory and Value Theory; Patinkin's Critique of Neo-Classical Theory. - Money in Keynesian Framework: Liquidity Preference (L-P) Theory and Further Developments in L-P Approach; Tobin, Boumal Models- Friedman, New Monetarism and its Critique

Unit III: The Supply of Money (18 Hrs.)

Monetary Aggregates, Liquidity Aggregates and Divisia Index - H-Theory of Money Supply - Money Multiplier Process and Factors Affecting H - Exogeneity of Money Supply - Money Supply in India: its Components and Trends

Unit IV: Development Financial Institutions (18 Hrs.)

Role, Growth and Structure of Development Financial Institutions in India - Types and Control of Non - Banking Financial Companies (NBFCs) by RBI- International Monetary

System: IMF and International Liquidity. European Monetary System – Features of the Maastricht Treaty and Post Maastricht Treaty Developments.

Unit V: Monetary Management and Monetary Policy (18 Hrs.)

Monetary Management – Rules vs. Discretion - Price Targeting vs inflation Targeting vs Exchange Rate Targeting - Monetary Policy – Challenges before Reserve Bank of India - Difficulties of Controlling Money Supply in an open Economy - Further Issues of Monetary Policy and Monetary Management in India

Recommended Text:

1. Jadhav N., Monetary Economics for India, Macmillan India Ltd., 1994
2. Gupta S.B., Monetary Economics: Institutions, Theory and Policy, 1982

Reference Books:

1. Laidler, D.E.W.: The Demand for Money: Theories and Evidence, Allied publisher (Pvt) Ltd.
2. Pierce, D.G. and Shaw, D.M.: Monetary Economics: Theories, Evidence and Policy. Butter Worths, London.
3. R.B.I.: Working of the Monetary System in India; Report of Sukumoy Chakravarthy Committee, 1985.
4. Aschiem, J. and Hsich, Ching Yao: Macro Economics, Income and Monetary Theory, Charles Merrill & Co, Ohio.
5. Report of the Committee on the Financial System 1991 – Narasimhan Committee.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Q.no. 1 to 12, Answer any 10 Questions out of 12 (Each in 50 words)	1-12	10*3	**30**
Section B	**Short Answer** Q.no 13-19 Answer any 5 out of 8 questions (each in 300 words)	13-19	5*6	**30**
Section C	**Essay** Q.no. 20 to 25 Answer any 4 (each in 1200 words)	20-25	10*4	**40**

Distribution of Questions:

Sections	Units	No. of Questions

		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

Introduced Project work in lieu of two papers

(Paper –XIV and Paper – XV)

ELECTIVE-V: COMPUTER APPLICATION IN ECONOMIC ANALYSIS

SUBJECT CODE: 19PECO321	THEORY	MARKS: 100
SEMESTER: IV	CREDITS: 3	TOTAL HOURS: 60

Objectives:

To know the economics application in computer. To understand the use of computer tools in the analysis of statistical and mathematical methods in economics.

Unit – I **(12 Hrs.)**

Brief History of Computer – Application of Computer in Business – Parts of Computer – Steps in Programming – Algorithms – Flow Charts – Overview of Operating Systems – Computer Languages.

Unit – II **(12 Hrs.)**

MS Office – MS Word – MS Excel – MS Powerpoint – MS Outlook – MS Access

Unit – III **(12 Hrs.)**

Introduction of E-Commerce – Electronic data Interchange B to C transaction – B to B transaction – Electronic Payment – Protocol – SET Secured Electronic Transaction – Certification of Authentication – Electronic cash payment.

Unit – IV **(12 Hrs.)**

Introduction – Internet – Intranet – Security issues and solutions – Antivirus programmes – E-mail – Chat – Secured mails.

Unit – V **(12 Hrs.)**

Business related packages like Tally, SPSS, Video Conferencing – Tele meeting, Tele fax, Net meeting, Voice mail.

Recommended Text

1. Sanders, D.H. (1988): Computers Today, McGraw Hill (3 rd Edition), New York.
2. Sinha, P.K. (1992) : Computer Fundamentals, BPB Publications, New Delhi.
3. Handbook of Statistical
4. Trasa Bradley, Mathematical Economics

Books for Reference

1. Rajasekaran, S. (1986): Numerical Methods in Science and Engineering, A.H. Wheeler, Allahabad.
2. Rajasekaran, S. (1986): Numerical Methods in Science and Engineering, A.H. Wheeler, Allahabad.
3. Sanders, D.H. (1988): Computers Today, McGraw Hill (3 rd Edition), New York.
4. Sinha, P.K. (1992): Computer Fundamentals, BPB Publications, New Delhi.

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	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	2	

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A- Grade' by NAAC
(Affiliated to the University of Madras)

MASTER OF BUSINESS ADMINISTRATION
(MBA)

Regulations and Syllabus

(For the Candidates admitted in 2019 -2020 and thereafter)

SEMESTER SYSTEM WITH CREDITS

(Effective from the Academic year 2019-2020 and thereafter)

RULES AND REGULATIONS

I. CHOICE BASED CREDIT SYSTEM (CBCS) WITH GRADING

The College follows the CBCS with grades under the semester pattern. Every course paper is provided with a credit point based on the quantum of subject matter, complexity of the content and the hours of teaching allotment. This is done after a thorough analysis of the content of each subject paper by the members of the Board of studies and with the approval of the Academic Council. Students are also offered a variety of Job-oriented courses, Elective courses and courses involving Soft-skills as the part of curriculum. Students can earn extra credits by opting for Massive Open Online Courses (MOOCs) and Certificate Courses.

The evaluation method under CBCS involves a more acceptable grading system that reflects the personality of the student. This is represented as Cumulative Grade Point Average (CGPA) and Grade Point Average (GPA) which are indicators of Academic Performance of the student. It provides students scope for horizontal mobility and empowers them with the flexibility of learning at their convenience.

II. ELIGIBILITY FOR ADMISSION

Candidates admitted to the first year of the UG programme should have passed the higher secondary examinations (Academic or Vocational Stream) conducted by the Government of Tamil Nadu or an examination accepted as equivalent thereof by the Syndicate of the University of Madras. Students applying for the PG programme should have taken the UG degree in the concerned subject from a recognized university as per the norms of the University of Madras.

III. DURATION OF THE COURSE

The UG course is of three-year duration with six semesters and the PG course is of two-year duration with four semesters excluding MCA – three-year duration with six semesters. The odd semester includes the period from June to November and the even semester from December to April. There shall not be less than 90 working days for each semester.

IV. COURSE OF STUDY

The main subject of study for Bachelor's Degree shall consist of the following:

1. FOUNDATION COURSES

a) PART - I : Tamil or Classical Language (Hindi / Sanskrit/French)

b) PART - II : English

2. CORE COURSES

a) PART - III : Consisting of (a) Main subjects, (b) Allied Subjects, (c) Elective subjects related to the main subject of study and project work.

b) PART - IV

i. Those who have not studied Tamil / Hindi up to XII standard and have taken a non- Tamil / non – Hindi language under Part – I shall opt for Basic Tamil / Basic Hindi in the first two semesters.

ii. Those who have studied Tamil up to XII standard, and taken a non -Tamil language under Part – I shall opt for Advanced Tamil in the first two semesters.

iii. Others, who do not come under either of the clauses mentioned above, can choose a Non-Major Elective (NME) in the first two semesters.

iv. Soft Skills. (I, II, III&IV Semesters)

v. Environmental Studies (IV Semester)

vi. Value Education (V Semester)

c) PART - V : Compulsory Extension Service

A candidate shall be awarded one credit for compulsory extension service.

All the students shall enroll for NSS / NCC /Sports & Games/ Rotaract/ Youth Red Cross / Citizen Consumer Club / Enviro Club or any other service organization in the College and shall have to put in compulsory minimum attendance of 40 hours which shall be duly certified by the Principal of the College. If a student lacks 40 hours attendance in any Semester, he/she shall have to compensate the same during the subsequent Semesters. Literacy and population, educational field work shall be compulsory components in the above extension service activities.

V. COURSE STRUCTURE

The UG course consists of 15-18 Core papers, 3 Elective papers and 4 Allied papers. The Credit for each core paper shall be 3-4, while the elective and allied papers shall carry a credit of 5. The B.Com (Hons) course has 32 core papers of 4 credits each.

The PG course has 14-17 core papers with 4 credits, elective papers with 3-4 credits and a project work.

The MBA course has 13 core papers of 4 credits each, 8 elective and interdisciplinary papers of 3 credits each and a project work.

The MCA Regular (3 Years) course has 26 core papers of 2-4 credits, 4 Elective papers of 3-4 credits, 1 Non – Major Elective of 4 credits, 1 Extra-disciplinary paper of 4 credits and a project work of 18 credits.

The MCA Lateral Entry (2 Years) course has 14 core papers of 2-4 credits, 4 Elective papers of 3-4 credits, 1 Non – Major Elective of 4 credits, 1 Extra-disciplinary paper of 4 credits and a project work of 18 credits.

The MSW course has 17 core papers with 3 credits for theory papers, 6 credits for field work, 2 credits for summer placement, 1 credit for study tour, 6 credits for research projects and 2 credits for block placement.

Internship training is a compulsory component for all the PG courses.

❖ **The details of the course structure are given in the following table:**

CHOICE BASED CREDIT SYSTEM WITH GRADING

POST GRADUATE DEGREE

COMPONENTS	M.Sc. Chemistry M.Sc. Mathematics M.Sc. Zoology M.A. Economics M.A. Defence & Strategic Studies			M. COM			M. S.W		
	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits
CORE COURSES INCLUDING PRACTICAL	14-17	4	60-70	16	4	64	17	3-6	65
PROJECT	0-1	6	0 - 6	0	0	0	1	6	6
ELECTIVES INCLUDING EXTRA DISCIPLINARY COURSES	3-5	3 - 4	10-20	4	4	16	7	2	14
SKILL	4	2	8	4	2	8	4	2	8
INTERNSHIP	0-1	2	0-2	1	2	2	0	0	0
TOTAL			**90**			**90**			**93**

COMPONENTS	M.C.A. REGULAR (3 YEARS)			M.C.A. LATERAL ENTRY (2 YEARS)			M.B.A.		
	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits
CORE COURSES INCLUDING PRACTICAL	26	2-4	81	14	2-4	41	13	4	52
PROJECT	1	18	18	1	18	18	1	8	8
ELECTIVES INCLUDING EXTRA DISCIPLINARY COURSES	6	3-4	21	6	3- 4	21	8	3	24
SKILL	6	2	12	4	2	8	4	2	8
INTERNSHIP	1	3	3	1	3	3	1	2	2
TOTAL			**135**			**91**			**94**

UNDER GRADUATE DEGREE

PART	COMPONENTS	B.Com(Gen.) B.Com(A&F) B.Com(B.M.) B.Com(M.M.) B.Com(ISM) B.B.A. B.C.A B.Sc (IT)			B.Com (C.S) B.Sc.(Mat.) B.Sc.(Phy.) B.Sc.(Chem.) B.Sc.(Plant Bio.) B.Sc.(Adv.Zoo) B.Sc.(C.S.) B.Sc.(Viscom) B.Sc (Biotech) B.A.(Eco.) B.A.(Defence), B.A. (English).			B.Com (Honours)		
		No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits
Part I Foundation Course	**Language (Tamil/ Hindi/ Sanskrit/ French)**	2	3	6	4	3	12	2	3	6
Part II Foundation Course	**English**	2	3	6	4	3	12	2	3	6
Part III	**Core Papers**	18	4	72	15-18	3-4	60	32	4	132
	Allied Papers	4	5	20	4	5	20	-	-	-
	Elective Papers	3	5	15	3	5	15	-	-	-
Part IV	**Non Major Electives/ Basic Tamil/ Advanced Tamil***	2	2	4	2	2	4	2	2	4
	Skill Based Elective	4	3	12	4	3	12	5	2-4	14
	Environmental Studies	1	2	2	1	2	2	1	2	2
	Value Education	1	2	2	1	2	2	1	2	2
Part-V	**Extension Service**	1	1	1	1	1	1	1	1	1
Total				**140**			**140**			**167**

Under Part IV of the Course, students should register separately for two Non-Major Elective papers, during the First and Second semester. The marks obtained under Part IV would not be included for classification of the candidate although a pass is mandatory. Students should have obtained the minimum credit under Part V to be eligible to receive the degree.

VI. EXAMINATIONS

Continuous Internal Assessment (CIA) will be for 50percentage and End Semester Examination (ESE) will be for 50percentage.

➢ CONTINUOUS INTERNALASSESSMENT (CIA)

Every semester has two centralized CIA examinations and one model examination for each paper. Each of the Continuous Assessment Tests (CAT) of one-and-a-half-hour duration will be conducted on completion of 30 and 60 working days respectively in each semester.A Model exam of three hours' duration will be conducted on completion of 80 working days in each semester.

The schedules for these tests are as follows:

C.I.A.Test	Schedule	Syllabus Coverage
I	After 30 working days from the commencement of the Semester	40%
II	After 60 working days of the Semester	80%
III (Model Examination)	After 80 working days of the Semester	95%

The components for the CIA are as follows:

Internal Components			
Assessment Type	**Nature**	**Maximum Marks**	**% of Weightage**
CIA	Written Test - 1	50	5
	Written Test – 2	50	5
Model	Model Examination	100	10
	Assignment		10
	Class activity		15
	Attendance		5
	Total		**50**

The class activity relates to a programme of accepted innovative techniques such as seminars, quiz, portfolio creation, MCQ, power point presentation, objective tests, role play etc. The mode of evaluation of the class activity will be fixed before the commencement of the semester and an approval will be obtained from the HOD. Once the classes begin, the student would be informed.

A record of all such assessment procedures will be maintained by the department and is open for clarification. Students will have the right to appeal to the Principal in case of glaring disparities in marking.

CIA marks for practical subjects will be awarded by the respective faculty based on the performance of the student in the model practical examination, observation notebook, submission of record books, regularity and attendance for the practical classes. The attendance particulars for practical classes will be maintained by the concerned faculty.

Marks for attendance will be awarded as per the following:

Percentage of General Attendance	Marks Awarded
90-100	5
75-89	4
60-74	3
<60	0

- **END SEMESTER EXAMINATIONS (ESE)**

Examinations will be conducted during each semester after the completion of a minimum of 90 working days. Examinations will be held for all papers of the course in Nov/Dec and April/May for all UG and PG courses.

Practical examinations will be conducted only during the end of the odd / even semester either before, during or after the commencement of the theory exam. The schedule for ESE Practicalswill be notified by the Controller of Examinations in consultation with the Dean (Academics).

A candidate will be permitted to appear for the End of Semester examinations for any semester if:

a) He / She secures not less than 75% of attendance in the working days during the semester.
b) His / Her conduct has been satisfactory
c) He / She should have applied for the examination
d) He / She should have paid the requisite examination fee

The attendance requirements to appear for the ESE are as follows:

i. Students must have 75% of attendance in each part of the course of study to appear for the examination.

ii. Students who have 65% to 74.9% of attendance shall apply for condonationin the prescribed form along with the prescribed fee after obtaining permission from the Principal. Students cannot claim condonation as a matter of right. Submission of Medical Certificate is normally not accepted to condone shortage of attendance.

iii. Students who have 50% to 64.9% of attendance will fall under the - **Withheld category**. Such students cannot take up the ESE exams. They should apply to the Principal for permission to write the next supplementary examination and pay the requisite fee for this purpose. However, they can appear for previous semester supplementary paper.

iv. Students who have less than 50% of attendance fall under the - **Detained category would not be permitted to appear for the examination. They shall redo the semesters after completion of the course and appear for the examination after securing the required percentage of attendance. The decision of the Principal remains final and binding in all respects.**

v. Students who do not get the minimum marks to pass in the ESE shall compulsorily re-appear for the paper in the subsequent semester after paying the required fee.

A Student who for whatever reasons is not able to complete the program within the normal period (N) or the minimum duration prescribed for the programme, may be allowed two years period beyond the normal period to clear the backlog to be qualified for the degree. (Time Span = N +2 +1 years for the completion of programme).

In exceptional cases like Major accidents and child birth an extension of one year be considered beyond maximum span of time (Time Span = N + 2 + 1 years for the completion of programme).

If they fail to do so, they shall re-register their names and take the examination in the revised regulations/syllabus of the paper in force at the time of their reappearance. In the event of removal of that paper consequent to the change of regulation and/or curriculum after 5-year period, the candidate shall have to take up an equivalent paper in the revised syllabus as suggested by the Chairman of the concerned Board of Studies. Students qualifying during the extended period, shall not be eligible for **RANKING.**

➢ INSTANT EXAMINATIONS (SPECIAL SUPPLEMENTARY EXAMINATION)

In order to provide an opportunity to the final UG and PG students to obtain the degree in the same year and also to facilitate vertical mobility, special supplementary End Semester Examinations will be conducted in about 30 days from the date of publication of results every year for the final semester theory papers and also for the candidates who had failed in **ONLY ONE** theory paper of the previous semesters. Students, who wish to apply for special supplementary End Semester Examinations, can do so within 7 days from the date of publication of results.

Students involved in Malpractice will not be permitted to appear for Supplementary Examination.

The details of the ESE are as follows:

External Component			
Assessment type	**Comprehensive Test**	**Maximum mark**	**% of Weightage**
External Exam	3 Hours Examination	100	50
	Grand Total (CIA+ESE)		100

VII. CONDUCT OF EXAMINATION

Chief Superintendent of Examinations will be the Principal or a person appointed by the Principal. The conduct of End Semester Examinations lies with the team led by the Chief Superintendent.

The time-table for examinations will be finalized by the office of the Controller of Examinations and will be displayed well in advance i.e., 20 days prior to the commencement of examinations.

The Hall tickets for eligible students will be issued 3 days prior to the commencement of examinations. For Subjects like Environmental Studies / Value Education, End Semester Examinations may be conducted on-line or along with the regular ESE.

VIII. VALUATION

Valuation of the answer scripts are undertaken at the central valuation camp led by the Controller of Examinations or the Camp Officer appointed by the Controller of Examinations. Single valuation of answer scripts by external examiners isadopted for both UG and PG Courses.

IX. PUBLICATION OF RESULTS

The Examination results will be published on the web portal during the third / fourth week of May for the II, IV and VI semester examinations and during the third / fourth week of December for the I, III and V semester examinations

A. GUIDELINES FOR OBTAINING PHOTOCOPY OF THE ANSWER SCRIPT

Candidates seeking photocopy of the answer scripts are advised to go through these rules and regulations before they apply

i. Photocopy is allowed only for Regular theory papers in PART I, II and III. **(Supplementary excluded).**

ii. Select the papers carefully in which you wish to get the photocopy. No second application for additional papers would be accepted.

B. GUIDELINES FOR APPLYING REVALUATION OF THE ANSWER SCRIPT

Candidates seeking revaluation are advised to go through these rules and regulations before they apply

i. Revaluation is allowed only for Regular theory papers in PART I, II and III. **(Supplementary excluded).**

ii. Select the papers carefully in which you wish to get the revaluation. No second application for additional papers would be allowed.

iii. The application is to be filled in by the candidate in his/her own hand-writing and not by anyone else on his/her behalf.

iv. Entries made by the candidate are to be verified by the HOD and forwarded to the Principal for endorsement.

v. Prescribed Fee payment receipt or challan to be attached with the Application Form and submitted to the Principal's Office. The candidate will be given an acknowledgement for submission mentioning date and time.

vi. Candidate to be aware that when applying for revaluation, He / She SURRENDERS the original performance and will now accept the revised performance in which

(a) There can be NO CHANGE in the marks (or)

(b) There can be INCREASE in the marks

X. CLASSIFICATION OF PERFORMANCE – GRADING SYSTEM FOR THE SEMESTER

A candidate shall be declared to have qualified for the award of the Degree provided the candidate has successfully completed the Programme requirements and has passed all prescribed subjects of study in all the semesters.

Passing Minimum :

UG CIA 40% AGGREGATE 40%

B.Com(Hons.) and PG CIA 50% ESE 50% AGGREGATE 50% OF THE MAXIMUM OF THE COMPONENT IN THAT PAPER / COURSE

P: Pass, U: Re-Appear, WH: Withheld, AAA: Absent, CIA: Continuous Internal Assessment, ESE: End Semester Examination, GPA: Grade Point Average. CGPA: Cumulative Grade Point Average

UNDER GRADUATE DEGREE

PART – I	**:**	**TAMIL / OTHER LANGUAGES**
PART – II	**:**	**ENGLISH**
PART – III	**:**	**CORE, ALLIED AND ELECTIVE**
PART – IV	**:**	**TAMIL / NON MAJOR ELECTIVE, SKILL BASED ELECTIVES, ENVIORNMENTAL STUDIES AND VALUE EDUCATION**
PART – V	**:**	**EXTENSION ACTIVITIES**

POST GRADUATE DEGREE

PART – A	**:**	**CORE, ELECTIVE, MAJOR PROJECT**
PART – B	**:**	**SOFT SKILL COURSE, INTERNSHIP**

RANGE OF MARKS FOR GRADES UG Also for Certificate / Diploma				RANGE OF MARKS FOR GRADES UG[B.Com.(Hons.)], PG and also for PG Diploma			
Range of Marks	**Grade Points**	**Letter Grade**	**Description**	**Range of Marks**	**Grade Points**	**Letter Grade**	**Description**
90 - 100	9.0 - 10.0	O	Outstanding	90 - 100	9.0 - 10.0	O	Outstanding
80 - 89	8.0 - 8.9	D+	Excellent	80 - 89	8.0 - 8.9	D+	Excellent
75 - 79	7.5 - 7.9	D	Distinction	75 - 79	7.5 - 7.9	D	Distinction
70 - 74	7.0 - 7.4	A+	Very Good	70 - 74	7.0 - 7.4	A+	Very Good
60 - 69	6.0 - 6.9	A	Good	60 - 69	6.0 - 6.9	A	Good
50 - 59	5.0 - 5.9	B	Average	50 - 59	5.0 - 5.9	B	Average
40 - 49	4.0 - 4.9	C	Satisfactory	00 - 49	0.0 - 4.9	U	Re-appear
00 - 39	0.0 - 3.9	U	Re-appear	ABSENT	0	AAA	Absent
ABSENT	0	AAA	Absent				

Ci= Credits earned for course *i* in any semester

Gi= Grade Point obtained for course*i* in any semester

n refers to the semester in which such courses were credited.

- **CGPA Grades:**

CGPA	GRADE	CLASSIFICATION OF FINAL RESULT
9.5-10.0	O+	First Class - Exemplary*
9.0 and above but below 9.5	O	
8.5 and above but below 9.0	D++	First Class with Distinction*
8.0 and above but below 8.5	D+	
7.5 and above but below 8.0	D	
7.0 and above but below 7.5	A++	First Class
6.5 and above but below 7.0	A+	
6.0 and above but below 6.5	A	
5.5 and above but below 6.0	B+	Second Class
5.0 and above but below 5.5	B	

B.Com (Hons.)	UG	B.Com (Hons.)	B.Com (Hons.)	UG	UG
0.0 and above but below 5.0	4.5 and above but below 5.0	U	Re-appear	C+	Third Class
	4.0 and above but below 4.5			C	
	0.0 and above but below 4.0			U	Re-appear

The candidates who have passed in the first appearance and within the prescribed semester of the UG/PG Programme (Core, Allied and Elective) alone are eligible.

GRADING SYSTEM

For aSemester:

GRADE POINT AVERAGE [GPA] = $\sum_i C_i G_i / \sum_i C_i$

$$GPA = \frac{\text{Sum of the multiplication of grade points by the credits of the courses}}{\text{Sum of the credits of the courses (passed) in a semester}}$$

For the entire programme:

CUMULATIVE GRADE POINT AVERAGE [CGPA] =$\sum_n \sum_i C_{ni} G_{ni} / \sum_n \sum_i C_{ni}$

$$CGPA = \frac{\text{Sum of the multiplication of grade points by the credits of the entire programme}}{\text{Sum of the credits of the courses of the entire programme}}$$

(CGPA is calculated only if the candidate has passed in all the courses in the entire programme)

XI. CONCESSIONS FOR DIFFERENTLY-ABLED STUDENTS

A. DYSLEXIA STUDENTS

For students who are mentally disabled, learning disability and mental retardation, who are slow learners, who are mentally impaired having learning disorder and seizure disorder and students who are spastic and cerebral Palsy, the following concessions shall be granted:

i. Part I Foundation course Tamil or any other Language can be exempted.
ii. One-third of the time of paper may be given as extra time in the examination.
iii. Leniency in overlooking spelling mistakes, and
iv. Amanuensis for all courses provided the request is duly certified by the Medical Board of the Government Hospital/ General Hospital/ District headquarters Hospitals and they shall be declared qualified for the degree if they pass the other examinations prescribed for the degree.

B. HEARING, SPEAKING IMPAIRED & MENTALLY RETARDED

For students who are hearing and speaking impaired and who are mentally challenged, the following concessions shall be granted:

i. One Language paper either Part I Foundation course Tamil or any other Language or Part II English or its equivalent can be exempted
ii. Part IV Non-Major Elective (NME) or Basic Tamil or Advanced Tamil can be exempted.

C. VISUALLY CHALLENGED STUDENTS:

i. Exempted from paying examination fees.
ii. A scribe shall be arranged by the College and the scribe be paid as per the College decision.

XII. INTERDISCIPLINARY ELECTIVE (IDE)

It has been proposed that the UG students admitted from the academic year 2019 – 2020 onwards would take up an Interdisciplinary Elective (IDE) Paper in their Fifth Semester for the students admitted in the year 2019 onwards.

❖ **The following Departments functioning in Shift I will be offering IDE Papers to students only from Shift I:**

S.NO	DEPARTMENT	IDE(TITLE OF THE PAPER)
1	Mathematics	Business Mathematics
2	Physics	Integrated Electronics
3	Chemistry	Chemistry in Everyday Life
4	Plant Biology and Plant Biotechnology	Horticulture and Mushroom Cultivation
5	Advanced Zoology and Biotechnology	Wildlife Conservation
6	Commerce (General)	Entrepreneurial Development
7	Corporate Secretaryship	Entrepreneurial Development
8	Economics	Principles of Insurance and Risk Management
9	Defence and Strategic Studies	An Introduction to Defence Journalism
10	Department of Hindi	Communication Hindi : Oral and Written

❖ **The following Departments functioning in Shift II will be offering IDE Papers to students only from Shift II:**

S.NO	DEPARTMENT	IDE (TITLE OF THE PAPER)
1	Commerce (General)	Entrepreneurial Development
2	Commerce (A&F)	Indian Constitution and Human Rights
3	Commerce (BM)	Personal Investment Planning
4	Commerce (MM)	Tourism Management
5	Commerce (Hons)	Business Venture
6	Corporate Secretaryship	Entrepreneurial Development
7	BBA	Managerial Skill Development
8	BCA	Introduction to Web Designing(HTML & CSS) - Practical
9	Computer Science	Internet And Its Applications
10	Visual Communication	Film Appreciation

❖ **The following Departments from Shift II, functioning in Shift I timings can only offer IDE Papers to the students functioning within the same Shift I timings:**

S.NO	DEPARTMENT	IDE (TITLE OF THE PAPER)
1	Commerce (ISM)	Essentials of office Automation Tools and E-Mail Etiquette
2	B.Sc.(IT)	Web Designing
3	B.Sc. (Biotechnology)	Intellectual Property Rights
4	B.A. (English)	Travel Writing

XIII. OPTION TO EARN ADDITIONAL CREDITS

A. MOOCs (Massive Open Online Courses)

- UG students can opt for a minimum of one Course and earn 2 credits, while a maximum of 6 Credits can be earned by opting three courses during their three-year period of study.
- PG students can opt for a minimum of one Course and earn 2 credits, while a maximum of 4 Credits can be earned by opting two courses during their two-year period of study.
- This is completely optional.

B. CERTIFICATE COURSES

The Certificate courses are offered by the departments for a duration of 30 hours which will enable the students to earn 2 additional credits.

C. ADDITIONAL CREDIT FOR EXTENSION SERVICES

All the students who have put in additional 40 hours or more apart from the compulsory minimum hours in NSS / NCC /Sports & Games/ Rotaract/ Youth Red Cross / Citizen Consumer Club / Enviro Club or any other service organization in the College and which shall be duly certified by the Principal of the College, will be eligible to earn an additional credit at the time of completion of their Course.

XIV. REQUIREMENT FOR PROCEEDING TO SUBSEQUENT SEMESTER

i. Candidates shall register their names for the first semester examination after admission in the UG / PG courses.

ii. Candidates shall be permitted to proceed from the first semester up to final semester irrespective of their failure in any of the semester examinations subject to the condition that the candidate had registered for all the arrear subjects of earlier semesters along with current semester subjects.

XV. ISSUE OF CERTIFICATES

A Statement of Marks will be issued to every student who has written the examination.

❖ **Consolidated Mark Sheet**

Consolidated mark sheets will be given to final year students along with total credits earned only to those who have passed in all the papers prescribed for the respective degree.

❖ **Transcript**

Students who wish to obtain any Transcript certificate for joining courses of study in other Universities in India or abroad or for obtaining scholarships, can obtain these certificates from the office of the Controller of Examinations. A requisition letter duly signed by the Student and forwarded by the Principal along with fee challanis to be submitted to the office of the Controller of Examinations. The Certificate will be provided within 15 working days in a sealed envelope.

❖ **Provisional Certificate**

A copy of the results of the successful final year students will be sent to the University of Madras in the prescribed format in July/August and the University will issue a Provisional Certificate through the College. A soft copy can be downloaded from the University of Madras website and a hard copy will be provided by them within 90 days of the issue of soft copy.

❖ **Corrections in the Certificates**

Any corrections like name, date of birth etc., can also be made in the certificate. A letter of request duly signed by the student, HOD and Principal along with the prescribed fee paid challan is to be forwarded to the office of the Controller of Examinations. The time line to update will be 15 working days. The amount once paid will not be refunded under any circumstances.

❖ **Duplicate Mark Sheet**

In case of loss of mark sheet / certificate, a duplicate will be provided after submitting a non-traceable certificate issued from the Police station duly signed by an Inspector or Sub Inspector. A letter of request duly signed by the student, HOD and Principal along with the prescribed fee paid challan is to be forwarded to the office of the Controller of Examinations.

❖ **Duplicate Provisional Certificate / Degree Certificate:**

Students have to apply directly to the University of Madras for duplicate provisional certificate and degree certificate.

❖ **Verification of Qualification**

Agencies which request for verification of educational qualification of students under autonomous mode of this college and students who opt for higher studies / employment and who require verification of educational qualification, shall verify online through the QR code in the consolidated mark sheet through online payment. They can also apply to the Principal to this effect along with the prescribed fees which has to be forwarded to the OCOE. The relevant certificate will be issued within 15 working days from the receipt of the forwarded request of the Principal and the same office.

XVI. CONVOCATION AND NOTICE

❖ **Convocation**

Every year after the Convocation is conducted by the University of Madras, the College will hold a Graduation day / Convocation in which the Degree Certificates will be distributed to the students who are present. For others it will be issued by the College Office. Students should collect the same within 30 days of convocation after which a search fee will be charged. **Students are responsible to collect their Certificates and the College shall not be liable for the same.**

❖ **Notice**

Candidates, who have completed the duration of the course and left the College, can get information regarding Supplementary Examinations, issue of examination application forms, certificates and application for Graduation day through the college web site and general notice board. Regular students will however be informed of the examinations by circulation, in addition to the modes mentioned above.

No candidate will be communicated individually.

XVII. MODUS OPERANDI FOR THE SYLLABUS

i. The department will finalize the syllabus.

ii. Finalization implies a change in the existing syllabus or a revamp of entire syllabus

iii. They will place it on the BOS meeting. After approval of the syllabus in the BOS, the concerned department will submit the minutes along with the modified syllabus book / sheet (five copies) to the Dean's office within ten days of the BOS meeting

iv. A Soft copy of the batch-wise syllabus approved by the BOS in PDF format is to be sent to the Dean's mail ID within ten days of the BOS meeting.

COURSE STRUCTURE

Sem	Part	Course Component	Subject Name	Credits	Hours	CIA	ESE	Total
I	III	Core Paper-1	Management principles and Business Ethics	4	5	50	50	100
	III	Core Paper-2	Statistics and Quantitative methods for Business	4	5	50	50	100
	III	Core Paper-3	Organizational behavior	4	5	50	50	100
	III	Core Paper-4	Accounting for Managers	4	5	50	50	100
	III	Core Paper-5	Managerial Economics	4	5	50	50	100
	III	Elective - Interdisciplinary	Innovation and Entrepreneurship	3	3	50	50	100
	IV	Soft skills -I	Language and communication skills	2	2	40	60	100
II	III	Core Paper-1	Legal aspects of business	4	5	50	50	100
	III	Core Paper-2	Applied operations Research	4	4	50	50	100
	III	Core Paper-3	Human Resource Management	4	4	50	50	100
	III	Core Paper-4	Marketing management	4	4	50	50	100
	III	Core Paper-5	Operations Management	4	4	50	50	100
	III	Core Paper-6	Financial Management	4	4	50	50	100
	III	Elective - Interdisciplinary	Business Research Methods	3	3	50	50	100
	IV	Soft skills -II	Spoken and Presentation Skills	2	2	40	60	100
III	III	Core Paper-1	Strategic Management	4	4	50	50	100
	III	Core Paper-2	Management Information System	4	4	50	50	100
	III	Elective-1		3	3	50	50	100
	III	Elective-2		3	3	50	50	100
	III	Elective-3		3	3	50	50	100
	III	Elective-4		3	3	50	50	100
	IV	Soft skills -III	Personality Development	2	2	40	60	100
		Internship *		2			100	100
IV	III	Elective-5		3	3	50	50	100
	III	Elective-6		3	3	50	50	100
	III	Core Paper-1	Project work and viva voce**	8		50	150	200
	IV	Soft skills -IV	Persuasion Skills	2	2	40	60	100
			Total	**94**				

SEMESTER - I

CORE 1
PAPER TITLE: MANAGEMENT PRINCIPLES AND BUSINESS ETHICS

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: I	**CREDITS: 4**	**No. OF HOURS PER WEEK: 5**

COURSE OBJECTIVES:

1. To familarise the students to the basic concepts of management in order to aid in understanding how an organization functions, and in understanding the complexity and wide variety of issues managers face in today's business firms.

UNIT I: INTRODUCTION TO MANAGEMENT **15 Hours**

Definition and meaning of Management- Role of professional managers- Evolution of management thought- Environmental factors affecting Management-Levels of Management.

UNIT II: PLANNING **15 Hours**

Nature and purpose of planning- Planning process- Types of plans- Objectives- Managing by Objective (MBO) strategies- Types of strategies – Policies – Decision Making- Types of decision-Decision making process- Rational decision making process- Decision making under different conditions.

UNIT III: ORGANISING **15 Hours**

Nature and purpose of organizing- Organization structure- Formal and informal groups/ organization - Line and staff authority- Departmentalization- Span of control- Centralization and decentralization- Delegation of authority- Staffing- Selection and Recruitment- Orientation- Career development- Career stages- Training- Performance appraisal

UNIT IV: DIRECTING **15 Hours**

Importance of Directing function- Role of Supervisor- Functions of Supervisor- Leader Vs Maneger- Managing people- Communication in Organisation -hurdles in communication- Types of Communication.

UNIT V: CONTROLLING **15 Hours**

Process of controlling- Types of control- Budgetary and non-budgetary control techniques- Co-ordination –Need for co-ordination – Techniques of securing coordination – MBE. Business Ethics: Importance of Business Ethics – Corporate Social Responsibility – Ethical Decision Making and Ethical Leadership – Ethics Audit —Sustainable Business Practices.

Total: 75 Hours

PRESCRIBED BOOKS:

1. Andrew J. Dubrin, Essentials of Management, Thomson Southwestern, 9th edition,2012.
2. Samuel C. Certo and Tervis Certo, Modern management: concepts and skills, Pearson education, 12th edition, 2012.
3. Harold Koontz and Heinz Weihrich, Essentials of management: An International & Leadership Perspective, 9th edition, Tata McGraw-Hill Education, 2012.
4. Charles W.L Hill and Steven L McShane, „Principles of Management, McGraw Hill Education, Special Indian Edition, 2007.

REFERENCE BOOKS :

1. Don Hellriegel, Susan E. Jackson and John W. Slocum, Management- A competency based approach, Thompson South Western,11th edition, 2008.
2. Heinz Weihrich, Mark V Cannice and Harold Koontz, Management- A global entrepreneurial perspective, Tata McGraw Hill, 12th edition, 2008.
3. Stephen P. Robbins, David A.De Cenzo and Mary Coulter, Fundamentals of management, Prentice Hall of India, 2012.

WEBSITES :

1. http://www.mindtools.com/pages/article/henri-fayol.htm
2. http://faculty.mercer.edu/jackson_r/Ownership/chap02.pdf
3. http://global.kyocera.com/inamori/management/twelve.html

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13-19	6	**30**
Section C	**Essay** Q.No. 20 is Compulsory (Case Study) and Answer any 3 from Q.No. 21 to 25	20-25	10	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

CORE 2

PAPER TITLE: STATISTICS AND QUANTITATIVE METHODS FOR BUSINESS

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: I	**CREDITS: 4**	**No. OF HOURS PER WEEK: 5**

COURSE OBJECTIVES:

- To learn the applications of statistics and various quantitative methods in business decision making

UNIT I: Introduction **15 Hours**

Statistics – concept, scope and limitations – measures of central tendency and dispersion – mean, median, mode, range, mean deviation, standard deviation – coefficient of variation – skewness, kurtosis.

UNIT II: Probability **15 Hours**

Basic definition and rules of probability – conditional probability independence of events – Baye's theorem and its application – Probability distribution: Binomial, Poisson and Normal distribution.

UNIT III: Hypothesis testing **15 Hours**

Hypothesis testing: one tailed and two tailed tests for means of small sample (t-test)- F-test – one way and two way analysis of variance (ANOVA) – chi-square test for simple sample standard deviation, independence of attributes and goodness of fit.

UNIT IV: Correlation, Regression & Time Series Analysis **15 Hours**

Correlation analysis, estimation of regression line, Spearman‟s Rank Correlation and Method of Least square in Time Series Analysis.

UNIT V: Decision theory **15 Hours**

Risk and uncertainty in decision-making – minimax, maximin and regret criterion – Hurwitz and Laplace criteria in decision making – decision tree analysis.

Total: 75 Hours

PRESCRIBED BOOKS :

1. Richard I. Levin, David S. Rubin, Statistics for Management, Pearson Education, 7th Edition, 2011.
2. Aczel A.D. and Sounderpandian J., "Complete Business Statistics", 6th edition, Tata McGraw Hill Publishing Company Ltd., New Delhi, 2012.

REFERENCE BOOKS :

1. Srivatsava TN and ShailajaRego, Statistics for Management, Tata McGraw Hill, 2008.
2. Ken Black, Applied Business Statistics, 7th Edition, Wiley India Edition, 2012.
3. Anderson D.R., Sweeney D.J. and Williams T.A., Statistics for business and economics, 11th edition, Thomson (South – Western) Asia, Singapore, 2012
4. N. D. Vohra, Business Statistics, Tata McGraw Hill, 2012

WEBSITES:

1. http://www.fhnw.ch/business/msc-bis/course-1/curriculum-nd modules_2011/electives/quantitative-methods-for-business
2. http://www.unimib.it/go/46517/Home/English/Departments-and-Schools/Statistics-and-Quantitative-Methods
3. http://2learn.utoronto.ca/uoft/search/publicCourseSearchDetails.do?method=load&courseId=106753

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		Theory	Problems
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	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	1
	Unit – 3	1	
	Unit – 4	1	1
	Unit – 5	1	
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3	1	
	Unit – 4	1	1
	Unit - 5	1	

CORE 3

PAPER TITLE: ORGANIZATIONAL BEHAVIOUR

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: I	**CREDITS: 4**	**No. OF HOURS PER WEEK: 5**

COURSE OBJECTIVES:

- To provide an overview of theories and practices in organizational behavior in individual, group and organizational level.

UNIT I: FOCUS AND PURPOSE **15 Hours**

Definition, need and importance of organizational behaviour – Nature and scope – Frame work – Organizational behaviour models. Attitudes – Characteristics – Components – Formation – Measurement-Values.

UNIT II: INDIVIDUAL BEHAVIOUR **15 Hours**

Personality – types – Factors influencing personality – Theories – Learning – Types of learners – The learning process – Learning theories – Organizational behaviour modification. Emotions - Emotional Intelligence. Perceptions – Importance – Factors influencing perception – Interpersonal perception-Impression Management. Motivation – Importance – Types – Effects on work behavior.

UNIT III: GROUP BEHAVIOUR **15 Hours**

Groups in organizations – Types – Group dynamics – Group decision making techniques – Interpersonal relations – Teams- Difference between Groups and Teams.

UNIT IV: LEADERSHIP AND POWER **15 Hours**

Meaning – Importance – Leadership styles – Theories. Power – Sources of power – Power centers – Power and Politics. Conflict and Negotiations: Sources and types of conflict-Negotiation strategies and Negotiation process

UNIT V: DYNAMICS OF ORGANIZATIONAL BEHAVIOUR **15 Hours**

Organizational culture and climate – Factors affecting organizational climate – Importance. Job satisfaction – Determinants – Measurements – Influence on behavior. Organizational change – Importance – Resistance to change – Managing change. Stress – Work Stressors – Prevention and Management of stress – Balancing work and Life.

Total: 75 Hours

PRESCRIBED BOOKS :

1. Stephen P. Robins, Organisational Behavior, PHI Learning / Pearson Education, 11th edition, 2008.
2. Fred Luthans, Organisational Behavior, McGraw Hill, 11th Edition, 2001.

REFERENCE BOOKS :

1. Mc Shane & Von Glinov, Organisational Behaviour, 4th Edition, Tata Mc Graw Hill, 2007.
2. Nelson, Quick, Khandelwal. ORGB – An innovative approach to learning and teaching.
3. Cengage learning. 2nd edition. 2012
4. Ivancevich, Konopaske & Maheson, Oranisational Behaviour & Management, 7th edition, Tata McGraw Hill, 2008.

5. Udai Pareek, Understanding Organisational Behaviour, 3rd Edition, Oxford Higher Education, 2011.
6. Jerald Greenberg, Behaviour in Organization, PHI Learning. 10th edition. 2011

WEBSITES :

1. https://www.boundless.com/management/textbooks/boundless-management-textbook/organizational-theory-3/why-study-organizational-theory-28/what-is-organizational-behavior-162-3925/
2. http://www.investopedia.com/terms/o/organizational-behavior.asp
3. http://www.nobelprize.org/nobel_prizes/medicine/laureates/1904/pavlov-bio.html

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	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE 4
PAPER TITLE: ACCOUNTING FOR MANAGERS

SUBJECT CODE :	THEORY	100 MARKS
SEMESTER: I	CREDITS: 4	No. OF HOURS PER WEEK: 5

COURSE OBJECTIVES:

- Acquire a reasonable knowledge in accounts
- Analysis and evaluate financial statements

UNIT I: FINANCIAL ACCOUNTING **15 Hours**

Introduction to Financial, Cost and Management Accounting- Generally accepted accounting principles, Conventions and Concepts-Balance sheet and related concepts- Profit and Loss account and related concepts - Introduction to inflation accounting- Introduction to human resources accounting.

UNIT II: COMPANY ACCOUNTS **15 Hours**

Meaning of Company -Maintenance of Books of Account-Statutory Books- Profit or Loss Prior to incorporation- Final Accounts of Company- Alteration of share capital- Preferential allotment, Employees stock option- Buy back of securities.

UNIT III: ANALYSIS OF FINANCIAL STATEMENTS **15 Hours**

Analysis of financial statements – Financial ratio analysis, cash flow (as per Accounting Standard) and funds flow statement analysis.

UNIT IV: COST ACCOUNTING **15 Hours**

Cost Accounts - Classification of manufacturing costs - Accounting for manufacturing costs. Cost Accounting Systems: Job order costing - Process costing- Activity Based Costing.

UNIT V **15 Hours**

Marginal costing including decision making- Budgetary Control & Variance Analysis - Standard cost system.

Total: 75 Hours

PRESCRIBED BOOKS :

1. M.Y.Khan & P.K.Jain, Management Accounting, Tata McGraw Hill, 2011.
2. R.Narayanaswamy, Financial Accounting – A managerial perspective, PHI Learning, New Delhi, 2011

REFERENCE BOOKS :

1. Jan Williams, Financial and Managerial Accounting – The basis for business Decisions, 15th edition, Tata McGraw Hill Publishers, 2010.
2. Horngren, Surdem, Stratton, Burgstahler, Schatzberg, Introduction to Management Accounting, PHI Learning, 2011.
3. Stice & Stice, Financial Accounting Reporting and Analysis, 8th edition, Cengage Learning, 2010.
4. Singhvi Bodhanwala, Management Accounting -Text and cases, PHI Learning, 2009.
5. Ashish K. Battacharya, Introduction to Financial Statement Analysis, Elsevier, 2009

WEBSITES :

1. http://www.businessdictionary.com/definition/management-accounting.html
2. https://www.cengagebrain.co.nz/content/9781408049044.pdf
3. http://ebooks.narotama.ac.id/files/Accounting%20for%20Managers/Chapter%2012%20%20%20Management%20Accounting.pdf

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	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	1	1
Section B	Unit – 1	1	
	Unit – 2	1	1
	Unit – 3	1	1
	Unit – 4	1	
	Unit – 5		1
Section C	Unit – 1	1	1
	Unit – 2	1	
	Unit – 3		1
	Unit – 4		1
	Unit - 5	1	

CORE 5
PAPER TITLE: MANAGERIAL ECONOMICS

SUBJECT CODE :	THEORY	100 MARKS
SEMESTER: I	CREDITS: 4	No. OF HOURS PER WEEK: 5

COURSE OBJECTIVES:

- To introduce the concepts of scarcity and efficiency;
- To explain principles of micro economics relevant to managing an organization;
- To describe principles of macroeconomics to have the understanding of economic environment of business;

UNIT I: INTRODUCTION **15 Hours**

Introduction: Definition of Managerial Economics. Decision Making and the Fundamental Concepts Affecting Business Decisions – Objectives of the firm.

UNIT II: DEMAND ANALYSIS **15 Hours**

Utility Analysis –Cardinal and Ordinal-Consumer and Producer Surplus- Demand Analysis: Extension and Contraction of Demand- Types of demand -Elasticity of demand – Demand Forecasting– Quantitative and Qualitative techniques- Characteristics of good forecast

UNIT III: PRODUCTION AND COST ANALYSIS **15 Hours**

Supply Analysis- Production –Short-run and long run production function- Returns to scale-economies vs diseconomies of scale-Analysis of cost – Short –run and long – run cost function – Relation between production and cost function.

UNIT IV: MARKET STRUCTURE **15 Hours**

Market Structure – Type of Market – Perfect Competition – Imperfect competition – Monopoly – Monopolistic – Oligopoly – Duopoly. Pricing method – Pricing Strategies.

UNIT V: MACRO ECONOMICS **15 Hours**

National Income –Concepts – Gross Domestic Product - Gross National product – Net National product – Measurement of National Income – Business Cycles– Fiscal policy – Monetary policy.

Total: 75 Hours

PRESCRIBED BOOKS:

1. Damodaran, S., Managerial Economics, 2nd Edition, Oxford University Press, 2011.
2. Dean, J., Managerial Economics, PHI Learning Pvt. Ltd., 2009.
3. Dwivedi, D.N., Managerial Economics, Vikas publishing House, 2011

REFERENCE BOOKS:

1. Paul A. Samuelson, William D.Nordhaus,Sudip Chaudhuri and Anindya Sen, Economics, 19thedition, Tata McGraw Hill, New Delhi, 2010.
2. William Boys and Michael Melvin, Textbook of economics, Biztantra, 2005.
3. N.Gregory Mankiw, principles of Economics, 3rd edition, Thomson learning, New Delhi

WEBSITES :

1. http://www.viauc.com/horsens/Documents/summerschool/courses/Managerial Economics.pdf
2. http://catalog.flatworldknowledge.com/bookhub/reader/5572
3. http://www.managementstudyguide.com/managerial-economics.htm

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	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

ELECTIVE
PAPER TITLE: INNOVATION AND ENTERPRENEURSHIP

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: I	**CREDITS: 3**	**No. OF HOURS PER WEEK: 3**

COURSE OBJECTIVES:

1. To develop and strengthen entrepreneurial quality and motivation in students.
2. To impart basic entrepreneurial skills and understandings to run a business efficiently and effectively.

UNIT I: ENTREPRENEURAL COMPETENCE **9 Hours**

Entrepreneurship concept – Entrepreneurship as a Career – Entrepreneurial Personality - Characteristics of Successful, Entrepreneur – Knowledge and Skills of Entrepreneur.

UNIT II: ENTREPRENEURAL ENVIRONMENT **9 Hours**

Business Environment - Role of Family and Society - Entrepreneurship Development Training and Other Support Organisational Services - Central and State Government Industrial Policies and Regulations - International Business.

UNIT III: INNOVATION AND CREATIVITY **9 Hours**

Concept of innovation and creativity, differences, managing complex innovation, Divergent thinking and critical thinking.

UNIT IV: BUSINESS PLAN PREPARATION **9 Hours**

Sources of Product for Business - Prefeasibility Study - Criteria for Selection of Product - Ownership - Capital - Budgeting Project Profile Preparation - Matching Entrepreneur with the Project - Feasibility Report Preparation and Evaluation Criteria.

UNIT V: LAUNCHING AND MANAGING OF SMALL BUSINESS **9 Hours**

Finance and Human Resource Mobilization Operations Planning - Market and Channel Selection Growth Strategies - Product Launching – Incubation, Venture capital, IT startups. Monitoring and Evaluation of Business - Preventing Sickness and Rehabilitation of Business Units- Effective Management of small Business.

Total: 45 Hours

PRESCRIBED BOOKS :

1. Hisrich, Entrepreneurship, Tata McGraw Hill, New Delhi, 2001.
2. S.S.Khanka, Entrepreneurial Development, S.Chand and Company Limited, New Delhi, 2001.

REFERENCE BOOKS :

1. Mathew Manimala, Entrepreneurship Theory at the Crossroads, Paradigms & Praxis, Biztrantra ,2nd Edition ,2005
2. Prasanna Chandra, Projects – Planning, Analysis, Selection, Implementation and Reviews, Tata McGraw-Hill, 1996.
3. P.Saravanavel, Entrepreneurial Development, Ess Pee kay Publishing House, Chennai -1997.
4. Arya Kumar. Entrepreneurship. Pearson. 2012
5. Donald F Kuratko, T.V Rao. Entrepreneurship: A South Asian perspective. Cengage Learning. 2012

WEBSITES:

1. http://druckersociety.at/repository/scientific/Pearl.pdf
2. https://www.coursera.org/course/innovative

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13-19	6	**30**
Section C	**Essay** Q.No. 20 is Compulsory (Case Study) and Answer any 3 from Q.No. 21 to 25	20-25	10	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	**Unit – 1**	**2**	
	Unit – 2	**3**	
	Unit – 3	**2**	
	Unit – 4	**3**	
	Unit – 5	**2**	
Section B	**Unit – 1**	**1**	
	Unit – 2	**2**	
	Unit – 3	**2**	
	Unit – 4	**1**	
	Unit – 5	**1**	
Section C	**Unit – 1**	**1**	
	Unit – 2	**1**	
	Unit – 3	**1**	
	Unit – 4	**1**	
	Unit - 5	**2**	

SOFTSKILLS
PAPER TITLE: LANGUAGE AND COMMUNICATION SKILLS

SUBJECT CODE :	**PRACTICAL**	**100 MARKS**
SEMESTER: I	**CREDITS: 2**	**No. OF HOURS PER WEEK: 2**

COURSE OBJECTIVES:

- To train them on day to day communication skills like listening, reading and speaking skills

Unit I: Twinning functions of listening and speaking 6 Hours

Unit II: Twinning functions of Reading and writing 6 Hours

Unit III: Individual communication 6 Hours

Unit IV: Intermediary communication 6 Hours

Unit V: Social communication 6 Hours

Total: 30 Hours

PRESCRIBED BOOKS :

1. Windshuttle, Keith & Elizabeth Elliot, 1999. *Writing, Researching and communicating: Communication skills for the Information age*. 3rd Reprint. Tata Mc Graw Hill, Australia

SEMESTER - II

CORE 1
PAPER TITLE: LEGAL ASPECTS OF BUSINESS

SUBJECT CODE :	THEORY	100 MARKS
SEMESTER: II	CREDITS: 4	No. OF HOURS PER WEEK: 5

COURSE OBJECTIVES:

- To create the knowledge of Legal perspective and its practices to improvise the business.

UNIT I: COMMERCIAL LAW **15 Hours**

THE INDIAN CONTRACT ACT 1872

Definition of contract, essentials elements and types of a contract, Formation of a contract, performance of contracts, breach of contract and its remedies, Quasi contracts - Contract Of Agency: Nature of agency, Creation and types of agents, Authority and liability of Agent and principal: Rights and duties of principal and agents, termination of agency.

UNIT II: THE SALE OF GOODS ACT 1930 **15 Hours**

Nature of Sales contract, Documents of title, risk of loss, Guarantees and Warranties, performance of sales contracts, conditional sales and rights of an unpaid seller - Negotiable Instruments Act 1881: Nature and requisites of negotiable instruments. Types of negotiable instruments, liability of parties, holder in due course, special rules for Cheque and drafts, discharge of negotiable instruments.

UNIT III: COMPANY LAW **15 Hours**

Major principles – Nature and types of companies, Formation, Memorandum and Articles of Association, Prospectus, Power, duties and liabilities of Directors, winding up of companies, Corporate Governance.

UNIT IV: INDUSTRIAL LAW **15 Hours**

An Overview of Factories Act - Payment of Wages Act - Payment of Bonus Act - Industrial Disputes Act. Workmen compensation Act 1923

UNIT V: CONSUMER PROTECTION ACT AND INTRODUCTION OF CYBER LAWS
15 Hours

Consumer Protection Act – Consumer rights, Procedures for Consumer greivances redressal, Types of consumer Redressal Machinaries and Forums- Competition Act 2002 - Cyber cvimes, IT Act 2000 and 2002, Cyber Laws, Introduction of IPR – Copy rights, Trade marks, Patent Act.

Total: 75 Hours

PRESCRIBED BOOKS:

1. N. D. Kapoor, Elements of mercantile Law, Sultan Chand and Company, India, 2006.
2. P. K. Goel, Business Law for Managers, Biztantatara Publishers, India, 2008.
3. Akhileshwar Pathack, Legal Aspects of Business, 4th Edition, Tata McGraw Hill, 2009

REFERENCE BOOKS:

1. P. P. S. Gogna, Mercantile Law, S. Chand & Co. Ltd., India, Fourth Edition, 2008.
2. Dr. Vinod, K. Singhania, Direct Taxes Planning and Management, 2008.
3. Richard Stim, Intellectual Property- Copy Rights, Trade Marks, and Patents, Cengage Learning, 2008.

WEBSITES:

1. http://business.gov.in/legal_aspects/index.php
2. http://www.thedailymba.com/2010/03/31/topic-22-legal-aspects-of-business/

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	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

CORE 2
PAPER TITLE: APPLIED OPERATIONS RESEARCH

SUBJECT CODE :	THEORY	100 MARKS
SEMESTER: II	CREDITS: 4	No. OF HOURS PER WEEK: 5

COURSE OBJECTIVES:

1. To learn the concepts of operations research applied in business decision making.

UNIT I: INTRODUCTION **15 Hours**

Origin and Development of Operations Research (OR) – Applications of OR – Concept, Methodology and Scope of Operations Research Linear Programming: Formulation of a Linear Programming Problem – Graphical Method – Simplex Method – Big M Method – Application in Management.

UNIT II: TRANSPORTATION PROBLEM **15 Hours**

North West Corner Solution – Least Cost Method – Vogel's Approximation Method (VAM) – MODI Method for Optimal Solution. Assignment Problem: Hungarian Method of Optimal Assignment

UNIT III: PERT / CPM **15 Hours**

Network Scheduling by PERT / CPM – Network and Basic Components – Rules of Network Construction – CPM Analysis – PERT – Distinction between PERT and CPM.

UNIT IV: QUEUING THEORY **15 Hours**

Techniques - Single Server Model with Poisson Arrivals and Exponential service times with limited and unlimited queues and Single Server Model with Poisson arrivals and Erlang Service distribution – Applications of Queuing models.
Sequencing: Sequencing of „n" jobs and 2 machines – Johnson's Algorithm.

UNIT V: GAME THEORY **15 Hours**

Games and Strategies – Pure and Mixed Game - Principle of Dominance Replacement Theory: Replacement of items that deteriorate gradually – replacement of items that fails suddenly – Individual Replacement vs. Group Replacement.

Total: 75 Hours

PRESCRIBED BOOKS :

1. Gupta, P.K., and Comboj, Introduction to Operations Research, S. Chand, 2012.
2. Panneerselvam, Operations Research, 2nd Edition, PHI Learning Pvt. Ltd., 2009.

REFERENCE BOOKS :

1. Anderson, D.R., Sweeney, D.J., Williams, T.A. and Martin, K., An Introduction to Management Science: Quantitative Approach to Decision Making, 13th Edition, South Western, 2012.
2. Hiller, F., Liebermann, Nag and Basu, Introduction to Operations Research, 9th Edition, Tata McGraw-Hill Publishing Co. Ltd., 2011.
3. Khanna, R.B., Quantitative Techniques for Managerial Decision Making, 2nd Edition, PHI Learning Pvt. Ltd., 2012.
4. Sharma, J. K., Operations Research: Problems and Solutions, MacMillan India Ltd., 4th Edition, 2009.
5. Taha, H.A., Operations Research: An Introduction, 8th Edition, Pearson, 2011.
6. Vohra,N.D., Quantitative Techniques in Management, 4th Edition, Tata McGraw Hill Education Pvt. Ltd., 2010.

WEBSITES:

1. http://www.en.mtech.aau.dk/Research+Groups/Applied+Operations+Research+%26+Operations+Management/
2. http://www.appliedor.com/

Question Paper Pattern:

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		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2		1
	Unit – 3	1	1
	Unit – 4	1	1
	Unit – 5		1
Section C	Unit – 1	1	1
	Unit – 2		1
	Unit – 3		1
	Unit – 4	1	
	Unit - 5		1

CORE 3
PAPER TITLE: HUMAN RESOURCE MANAGEMENT

SUBJECT CODE :	THEORY	100 MARKS
SEMESTER: II	CREDITS: 4	No. OF HOURS PER WEEK: 5

COURSE OBJECTIVES:

1. To provide knowledge about management issues related to staffing, training, performance, compensation, human factors consideration and compliance with human resource requirements.

UNIT I: PERSPECTIVES IN HUMAN RESOURCE MANAGEMENT 15 Hours

Evolution of human resource management – The importance of the human factor – Challenges – Inclusive growth and affirmative action -Role of human resource manager – Human resource policies – Computer applications in human resource management – Human resource accounting and audit.

UNIT II: THE CONCEPT OF BEST FIT EMPLOYEE 15 Hours

Importance of Human Resource Planning – Forecasting human resource requirement –matching supply and demand - Internal and External sources. Recruitment - Selection – induction – Socialization benefits.

UNIT III: TRAINING AND EXECUTIVE DEVELOPMENT 15 Hours

Types of training methods –purpose- benefits- resistance. Executive development programmes – Common practices - Benefits – Self development – Knowledge management.

UNIT IV: SUSTAINING EMPLOYEE INTEREST 15 Hours

Compensation plan – Reward – Motivation – Application of theories of motivation – Career management – Development of mentor – Protégé relationships.

UNIT V: PERFORMANCE EVALUATION AND CONTROL PROCESS 15 Hours

Method of performance evaluation – Feedback – Industry practices. Promotion, Demotion, Transfer and Separation – Implication of job change. The control process – Importance – Methods – Requirement of effective control systems grievances – Causes – Implications – Redressal methods.

Total: 75 Hours

PRESCRIBED BOOKS :

1. Dessler Human Resource Management, Pearson Education Limited, 2007
2. Decenzo and Robbins, Human Resource Management, Wiley, 8th Edition, 2007.

REFERENCE BOOKS :

1. Luis R.Gomez-Mejia, David B.Balkin, Robert L Cardy. Managing Human Resource. PHI Learning. 2012
2. Bernadin , Human Resource Management ,Tata Mcgraw Hill ,8th edition 2012.
3. Wayne Cascio, Managing Human Resource, McGraw Hill, 2007.
4. Ivancevich, Human Resource Management, McGraw Hill 2012.
5. Uday Kumar Haldar, Juthika Sarkar. Human Resource management. Oxford. 2012

WEBSITES:

1. https://go.oracle.com/LP=4262?elqCampaignId=6294&src1=ad:pas:go:dg:tal&src2=wwmk14054343mpp008&SC=sckw=WWMK14054343MPP008
2. http://humanresources.about.com/od/glossaryh/f/hr_management.htm

Question Paper Pattern:

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Section A	**Definition / Principle**	1-12	3	**30**
	Answer any 10 out of 12 Questions			
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	Answer any 5 out of 7 questions			
Section C	**Essay**	20-25	10	**40**
	Q.No. 20 is Compulsory (Case Study) and Answer any 3 from Q.No. 21 to 25			

Distribution of Questions:

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Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE 4
PAPER TITLE: MARKETING MANAGEMENT

SUBJECT CODE :	THEORY	100 MARKS
SEMESTER: II	CREDITS: 4	No. OF HOURS PER WEEK: 5

COURSE OBJECTIVES:

1. To understand the changing business environment
2. To identify the indicators of management thoughts and practices
3. To understand fundamental premise underlying market driven strategies

UNIT I: INTRODUCTION **15 Hours**

Marketing – Definitions - Conceptual frame work — Marketing Process and Functions of Marketing Management-Trends in Marketing: E-marketing, Digital Marketing.

UNIT II: MARKETING STRATEGY **15 Hours**

Strategic Marketing Planning- Marketing environment : Internal and External -Marketing Research as an Aid to Marketing, Marketing Research Process – Sales Forecasting – Techniques

UNIT III: PRODUCT AND PRICING DECISIONS **15 Hours**

Product planning and development – Product life cycle – New product Development and Management –-Pricing Objectives, Policies and methods.

UNIT IV: PROMOTION AND CHANNEL DECISIONS **15 Hours**

Physical Distribution – Importance and role of distribution in marketing – Introduction to the various channels of distribution –Promotion Tools – Sales Promotion, Advertising, Personal Selling, Direct Marketing and Online Marketing as promotion tools

UNIT V: BUYER BEHAVIOUR **15 Hours**

Buyer behaviour: Factors Influencing Consumer Behaviour – Buying Situation – Buying Decision Process – Industrial Buyer Behaviour. Market Segmentation: Targeting and Positioning **1.** Competitive Marketing Strategies.

Total: 75 Hours

PRESCRIBED BOOKS :

1. Philip Kortler and Kevin Lane Keller, Marketing Management, PHI 14th Edition, 2012
2. KS Chandrasekar, "Marketing management-Text and Cases", Tata McGrawHill-Vijaynicole, First edition,2010
3. Paul Baines, Chris Fill and Kelly Page, Marketing, Oxford University Press, 2nd Edition,2011.
4. Lamb, hair, Sharma, Mc Daniel– Marketing – An Innovative approach to learning and teaching- A south Asian perspective, Cengage Learning — 2012

REFERENCE BOOKS :

1. Micheal R.Czinkota & Masaaki Kotabe, Marketing Management, Vikas Thomson Learning, 2000.
2. Duglas, J.Darymple, Marketing Management, John Wiley & Sons, 2008.
3. NAG, Marketing successfully- A Professional Perspective, Macmillan 2008.
4. Boyd Walker, Marketing Management, McGraw Hill, 2002.
5. Paul Baines, Chriss Fill Kelly Pagb, Marketing, II edition, Asian edition.

WEBSITES:

1. http://www.salesandmarketing.com/
2. http://www.tandfonline.com/toc/rjmm20/current#.VNh7ziyz_4Y

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Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

CORE 5
OPERATIONS MANAGEMENT

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: II	**CREDITS: 4**	**No. OF HOURS PER WEEK: 5**

COURSE OBJECTIVES:

1. To provide a broad introduction to the field of operations management and explain the concepts, strategies, tools and techniques for managing the transformation process that can lead to competitive advantage.

UNIT I: INTRODUCTION **15 Hours**

Nature and Scope of Operations Management Production design & Process Planning: Plant Capacity – Capacity Planning – Make or Buy Decisions – Use of Crossover Chart for Selection Processes - Plant location: Factors to be considered in Plant Location – Multiple plant Location Decision

UNIT II: FACILITY LAYOUT **15 Hours**

Principles of a Good Layout – Basic Types of Layout – Service Facilities – Materials Handling – Materials Handling Equipment – Consideration of Man and Machine in job – Design – Adaptation of Machine to Man – Ergonomics – Working Environment – Worker Safety.

UNIT III: PRODUCTION AND INVENTORY CONTROL **15 Hours**

Basic types of production – Intermittent - Batch – Continuous – Routing – Scheduling – Activating and Monitoring – Basic Inventory Models: 2 bin, 3 bin system, Kanban Economic Order Quantity – Economic Batch Quantity – Reorder point – Safety stock – Classification and Codification of stock – ABC classification – MRP – BOM, Procedure for Stock Control – Materials Requirement planning (MRP). JIT.JIT(II)-Product Safety: Raw Material, Work in progress and finished goods.

UNIT IV: PRODUCTION PLANNING AND CONTROL AND MAINTENANCE **15 Hours**

Lean Manufacturing - Agile Manufacturing- Quality Assurance- Quality Control - Six sigma. Need for Maintenance- Types of Maintenance-Value analysis and use of Robots

UNIT V: WAREHOUSE MANAGEMENT **15 Hours**

Hub and Spoke Business model, Functions of stores, Relationship between the stores and productions department, Store location and Layout, Careers in Store management – Inbound and outbound logistics – Supply Chain Management.

Total: 75 Hours

PRESCRIBED BOOKS:

1. O.P. Khanna Industrial Engineering & Management, Dhanpat Rai publications. 2010
2. Chary S.N, Production and Operations Management, Tata McGraw Hill, Third Edition, 2008. 5. Aswathappa K And Shridhara Bhat K, Production and Operations Management, Himalaya publishing House, Revised Second Editions, 2008.

REFERENCE BOOKS:

1. Arnold, Chapman, S.N. and Clive, L.M., Introduction to Materials Management, 6th Edition, Pearson, 2009.
2. Buffa, E.S. and Sarin, R., Modern productions / Operations Management

Websites:

1. http://www.materialsmanagement.info/stores/store-management.htm
2. http://www.leanproduction.com/
3. http://www.economicsdiscussion.net/production/meaning-factors-and-nature-of-production-function/1555

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	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE 6
PAPER TITLE: FINANCIAL MANAGEMENT

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: II	**CREDITS: 4**	**No. OF HOURS PER WEEK: 5**

COURSE OBJECTIVES:

1. To facilitate student to understand the operational nuances of a Finance Manager and comprehend the technique of making decisions related to finance function

UNIT I: FOUNDATIONS OF FINANCE **15 Hours**

Financial management – An overview- Time value of money- Introduction to the concept of risk and return of a single asset and of a portfolio- Valuation of bonds and shares.

UNIT II: FINANCING DECISION **15 Hours**

Financial, Operating and Combined leverage - capital structure - Designing capital structure.– Capital Structure Theories – Net Income Approach, Traditional Approach, Net Operating Approach – M.M Approach- Cost of capital- Types of Cost of Capital Concept and measurement of cost of capital - Specific cost and overall cost of capital and valuation.

UNIT III: INVESTMENT AND DIVIDEND DECISIONS **15 Hours**

Capital Budgeting: Principles and techniques - Nature of capital budgeting- Identifying relevant cash flows - Evaluation Techniques: Payback Method, Accounting rate of return, Net Present Value, Internal Rate of Return, Profitability Index. Dividend policy - Aspects of dividend policy-Dividend Theories.

UNIT IV: LONG TERM SOURCES OF FINANCE **15 Hours**

Indian capital and stock market, New issues market, Long term finance: Shares, debentures and term loans, lease, hire purchase, venture capital financing, Private Equity.

UNIT V: WORKING CAPITAL MANAGEMENT **15 Hours**

Principles of working capital: Concepts, Needs, Determinants, issues and estimation of working capital - Accounts Receivables Management and factoring - Inventory management – Cash management - Working capital finance: Trade credit, Bank finance and Commercial paper.

Total: 75 Hours

PRESCRIBED BOOKS :

1. M.Y. Khan and P.K.Jain Financial management, Text, Problems and cases Tata McGraw Hill, 6th edition, 2011.
2. M. Pandey Financial Management, Vikas Publishing House Pvt. Ltd., 10th edition, 2012.

REFERENCE BOOKS :

1. Aswat Damodaran, Corporate Finance Theory and practice, John Wiley & Sons, 2011.
2. James C. Vanhorne –Fundamentals of Financial Management– PHI Learning, 11th Edition.

WEBSITES :

1. http://financial.thomsonreuters.com/en/markets-industries/wealth-management-solutions.html?gclid=CMTQ9_XE1MMCFYeVvQodKJoAww
2. http://managementhelp.org/businessfinance/

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	Unit – 4	2	
	Unit – 5	2	
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	Unit – 2	1	1
	Unit – 3	1	1
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3		1
	Unit – 4	1	
	Unit - 5	1	1

ELECTIVE

PAPER TITLE: BUSINESS RESEARCH METHODS

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: II	**CREDITS: 3**	**No. OF HOURS PER WEEK: 3**

COURSE OBJECTIVES:

- To familiarise the students to the principles of scientific methodology in business enquiry; to develop analytical skills of business research; to develop the skills for scientific communications

UNIT I: INTRODUCTION **9 Hours**

Research – meaning, objective and significance – types of research – defining the research problem – research process – criteria for a good research – problems encountered by researchers.

UNIT II: RESEARCH DESIGN AND MEASUREMENT **9 Hours**

Research design – concept, need and features of good design – types of research design – variables in research.

Measurement and Scaling: measurement in research – sources of errors in measurement – scaling – meaning and classification – scale construction technique.

UNIT III: METHODS OF DATA COLLECTION **9 Hours**

Data – definition and types – methods of primary data collection – construction of questionnaire – sampling plan – determination of sample size – sampling techniques – central limit theorem – probability vs non-probability sampling.

UNIT IV: DATA PROCESSING AND ANALYSIS **9 Hours**

Data preparation – editing and coding of data – data analysis – univariate, bivariate and multivariate statistical techniques – factor analysis, discriminant analysis, cluster analysis, multiple regression and correlation – application of statistical software for data analysis.

UNIT V: REPORT WRITING **9 Hours**

Research report – different types of reports – contents of reports – need of executive summary – chapterisation – contents – report writing – report format – ethics in research – role of computers in research

Total: 45 Hours

PRESCRIBED BOOKS:

1. Kothari.C.R, *Research methodology: methods and techniques,* 2nd edition, New Age International, 2004.
2. Bryman.A and Bell.E, *Business research methodology,* Oxford university press, 3rd edition, 2011.
3. Pannerselvam, *Research methodology,* Prentice Hall of India, edition 2008.
4. Krishnaswamy.O.R, *Methodology of research in social sciences,* Himalaya Publishing house

REFERENCE BOOKS:

1. Donald R. Cooper, Pamela S. Schindler and J K Sharma, Business Research methods, 11th Edition, Tata Mc Graw Hill, New Delhi, 2012.
2. Alan Bryman and Emma Bell, Business Research methods, 3rd Edition, Oxford University Press, New Delhi, 2011.

3. Uma Sekaran and Roger Bougie, Research methods for Business, 5th Edition, Wiley India, New Delhi, 2012.
4. William G Zikmund, Barry J Babin, Jon C.Carr, Atanu Adhikari,Mitch Griffin, Business Research methods, A South Asian Perspective, 8th Edition, Cengage Learning, New Delhi, 2012.

WEBSITES:

1. http://www.cscjournals.org/journals/IJBRM/description.php
2. http://www.gbmr.ioksp.com/

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	Unit – 5	2	
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	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

SOFTSKILLS
PAPER TITLE: Spoken and Presentation Skills

SUBJECT CODE :	**PRACTICAL**	**100 MARKS**
SEMESTER: II	**CREDITS: 2**	**No. OF HOURS PER WEEK: 2**

COURSE OBJECTIVES:

1. To familiarize learners with the mechanics of presentation.

2. To enable learners to develop their social skills practically and professionally

Unit I: General Language Knowledge and Presentation **6 Hours**

Unit II: Special Language Knowledge and Presentation **6 Hours**

Unit III: General communication Skills for Presentation **6 Hours**

Unit IV: Professional communication Skills for Presentation **6 Hours**

Unit V: Social communication Skills for Presentation **6 Hours**

Total: 30 Hours

PRESCRIBED BOOKS :

1.Raymond V Lesikar, John D Pettit, and Mary E Flatly. 2009. Lesikar‟s Basic
2.Business Communication. 11th ed. Tata McGraw-Hill, New Delhi.

REFERENCE BOOKS :

1. Goleman, Daniel. 1998 *Working with Emotional Intelligence*. Bantam Books. New York
2. Cathcart, Robert.S. & Larry. A. Samovar. 1970. *Small Group communication: A Reader.* 5th Edition. WM.C. Brown Publishers.IOWA.

WEBSITES:

1. http://www.skillsyouneed.com/presentation-skills.html
2. http://www.presentationskills.ca/

SEMESTER - III

CORE 1
PAPER TITLE: STRATEGIC MANAGEMENT

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS: 4**	**No. OF HOURS PER WEEK: 4**

COURSE OBJECTIVES:

1. To learn the major initiatives taken by a company's top management on behalf of corporates, involving resources and performance in external environments. It entails specifying the organization's mission, vision and objectives, developing policies and plan to understand the analysis and implementation of strategic management in strategic business units.

UNIT I: STRATEGY AND PROCESS **15 Hours**

Introduction- Strategy, its importance-Developing a strategic vision- mission- Strategic Management process- Crafting a strategy- strategy and Tactics- The 7"s Framework – Strategic Intent

UNIT II: CORPORATE POLICY **15 Hours**

Corporate Policy: Importance- Characteristics- Objectives-Types of Business policies- formulation and Implementation of Business policies.Business and society: CSR- Social Responsibilities of Business- Corporate Governance-Ethical Responsibilities.

UNIT III: ENVIRONMENTAL ANALYSIS **15 Hours**

Environmental Analysis: Environmental Scanning – Industry analysis- Porter's Five Forces analysis- Internal Scanning- External factors of analysis – SWOT analysis- Value Chain Analysis Stakeholders Expectations- Scenario Planning

UNIT IV: STRATEGY FORMULATION AND ANALYSIS **15 Hours**

Strategy Formulation- Factors of Strategy Formulation and their analytic tools- Business strategy- Corporate strategy and Functional Strategy - Strategic Choice- Generic, Competitive Strategy.

UNIT V: STRATEGIC IMPLEMENTATION, EVALUATION AND CONTROL **15 Hours**

Strategic Implementation- Managing the change process- Matching organization Structure to strategy- Strategic Leadership. Strategic control- Strategic control process- Balanced Scare card-Importance of Strategic Evaluation- Process & Characteristics of Effective evaluation and control system- Future of strategic management.

Total: 75 Hours

PRESCRIBED BOOKS:

1. Hill. Strategic Management : An Integrated approach, 2009 Edition Wiley (2012).
2. John A.Parnell. Strategic Management, Theory and practice Biztantra (2012).
3. Azhar Kazmi, Strategic Management and Business Policy, 3rd Edition, Tata McGraw Hill,2008

REFERENCE BOOKS :

1. Adriau HAberberg and Alison Rieple, Strategic Management Theory & Application, Oxford University Press, 2008.
2. Lawerence G. Hrebiniak, Making strategy work, Pearson, 2005.

3. Gupta, Gollakota and Srinivasan, Business Policy and Strategic Management – Concepts and Application, Prentice Hall of India, 2005.
4. Dr.Dharma Bir Singh, Strategic Management & Business Policy, KoGent Learning Solutions Inc., Wiley, 2012

WEBSITES:

1. http://balancedscorecard.org/Resources/Strategic-Planning-Basics
2. http://strategicmanagement.net/

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13-19	6	**30**
Section C	**Essay** Q.No. 20 is Compulsory (Case Study) and Answer any 3 from Q.No. 21 to 25	20-25	10	**40**

Distribution of Questions:

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Section A	Unit – 1	2	
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	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
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	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

CORE 2
MANAGEMENT INFORMATION SYSTEM

SUBJECT CODE :	THEORY	100 MARKS
SEMESTER: III	CREDITS: 4	No. OF HOURS PER WEEK: 4

COURSE OBJECTIVES:

1. To understand the components of DSS and IS
2. To know the appropriate model to be used for a problem

UNIT I: INTRODUCTION **15 Hours**

Definition of System–Information System –Management Information System – characteristics and Role of Management Information System - Information System Activities And Resources – Types of Information Systems – Managerial Challenges of Information Technology –Strategic Uses of Information Technology.

UNIT II: DATABASE AND INFORMATION MANAGEMENT **15 Hours**

The Database Management Approach–Data warehousing –Data Mining –Database Structures Telecommunication Networks: Business Use of the Internet –Role of Intranets and Extranets– Types of Telecommunication Networks

UNIT III: DEVELOPING BUSINESS/IT SOLUTIONS **15 hours**

Systems Development Life Cycle –Prototyping –Feasibility Studies -System Analysis – Systems Design –End user Development Functional Business Systems: Marketing Systems – Manufacturing Systems –Human Resource Systems –Accounting Systems–Financial Management Systems.

UNIT IV: DECISION SUPPORT SYSTEMS **15 hours**

Decision Making Process -DSS Components –What-if Analysis–Sensitivity Analysis–Goal-seeking Analysis Artificial Intelligence Technologies in Business: Overview of Artificial Intelligence –Neural Networks –Fuzzy Logic Systems

UNIT V: SECURITY AND ETHICAL CHALLENGES **15 hours**

Information Systems Controls –Risks of Online Operations –Security Measures –Systems Controls and Audits–Ethical Responsibility of Business Professionals- ERP -e-governance

Total: 75 Hours

PRESCRIBED BOOKS:

1. Azam, M., Management Information System, McGrawHill Education, 2012.
2. Kendall, K.and Kendall,J., Systems Analysis and Design, 7th Edition,HI Learning, 2009.
3. Laudon, K., Laudon, J.and Dass,R., Management Information Systems –Managing the Digital Firm, 11thEdition, Pearson, 2010.
4. Mohapatra, S., Cases in Management Information Systems, PHI Learning, 2008.
5. Murdick, R.G.,Ross, J.E.and Claggett,J.R., Information Systems for Modern Management, 3rd Edition, PHI, 2011

REFERENCE BOOKS :

1. Rahul de, MIS in Business, Government and Society, Wiley India Pvt Ltd, 2012
1. Gordon Davis, Management Information System : Conceptual Foundations, Structure and Development, Tata McGraw Hill, 21st Reprint 2008.
2. Haag, Cummings and Mc Cubbrey, Management Information Systems for the Information Age, McGraw Hill, 2005. 9th edition, 2013.
3. Turban, McLean and Wetherbe, Information Technology for Management – Transforming Organisations in the Digital Economy, John Wiley, 6th Edition, 2008.

WEBSITES:

1. http://www.webopedia.com/TERM/M/MIS.html
2. http://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=11&cad=rja&uact=8&sqi=2&ved=0CFQQFjAK&url=http%3A%2F%2Fwww.informationbuilders.com%2Fdecision-support-systems-dss&ei=H33YVO3YDIHpmAWZ2IL4Bw&usg=AFQjCNEB9N9uKWhEa2cIlEDktQW6wgZzVw&sig2=slr5NH2mgCITmqGXCr-7Kw&bvm=bv.85464276,d.dGY

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	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

SOFTSKILLS
PAPER TITLE: SOFT SKILLS- PERSONALITY DEVELOPMENT

SUBJECT CODE :	**PRACTICAL**	**100 MARKS**
SEMESTER: III	**CREDITS: 2**	**No. OF HOURS PER WEEK: 2**

COURSE OBJECTIVES:

- To Provide the students with the basic knowledge in Business Management skills

Unit 1: Personal Grooming	**6 Hours**
Unit 2: Interpersonal Skills	**6 Hours**
Unit 3: Attitude Development	**6 Hours**
Unit 4: Business Presentation	**6 Hours**
Unit 5: Formal Meeting	**6 Hours**

Total: 30 Hours

PRESCRIBED BOOKS :

1. J.R.Bhatti.2009.The Dynamics of Personality Development.Pearson Publication

REFERENCE BOOKS :

1. Marc H. Bornstein, Michael Lamb. 2011.Social and Personality Development: An Advanced Textbook. Psychology Press, New York

WEBSITES:

1. http://www.personaldevelopmentideas.com/
2. http://www.manifestyourpotential.com/
3. http://www.self-improvement-advice.org

REFER THE ELECTIVES LIST FOR SEMESTER III ELECTIVES

Internship

SUBJECT CODE :	**PRACTICAL**	**100 MARKS**
SEMESTER: III	**CREDITS: 2**	

Students to work in any business organization for a period of 30 days and to submit a written report of their performance in the organization.

SEMESTER - IV

OFTSKILLS
PAPER TITLE: SOFTSKILLS- PERSUASION SKILLS

SUBJECT CODE :	**PRACTICAL**	**100 MARKS**
SEMESTER: IV	**CREDITS: 2**	**No. OF HOURS PER WEEK: 2**

COURSE OBJECTIVES:

- To Provide the students with the basic knowledge in Business Management skills

Unit I: Negotiation skills. **6 Hours**

Unit II: Interpersonal and persuading skills **6 Hours**

Unit III: Kinesics **6 Hours**

Unit IV: Business Etiquettes **6 Hours**

Unit V: Personal Grooming and Interview Skills **6 Hours**

Total: 30 Hours

PRESCRIBED BOOKS :

1. Goleman, Daniel. 1998, *Working with Emotional Intelligence*. Bantam Books. New York
2. Business Communication. 11th ed. Tata McGraw-Hill, New Delhi

REFERENCE BOOKS :

1. Jones. Leo and Richard Alexander. 2003. *New International Business English*. Cambridge University Press

WEBSITES :

1. http://www.presentationskills.ca/
2. http://www.skillsyouneed.com/ips/social-skills.html
3. https://www.youtube.com/watch?v=VtvNanYXUBI

REFER THE ELECTIVES LIST FOR SEMESTER IV ELECTIVES

The Project Work

SUBJECT CODE :	**PRACTICAL**	**200 MARKS**
SEMESTER: IV	**CREDITS: 8**	

The Project Work will be evaluated jointly by TWO Examiners (i.e. one for Internal and the other for External) for a Maximum of 150 Marks .The Viva-voce will be conducted by Two Examiners (i.e. one for Internal and the other for External) for a Maximum of 50 Marks (8 Credits).

ELECTIVES
HUMAN RESOURCE MANAGEMENT ELECTIVES
PAPER TITLE: INDUSTRIAL RELATIONS AND LABOUR WELFARE

SUBJECT CODE :	THEORY	100 MARKS
SEMESTER: III	CREDITS: 3	No. OF HOURS PER WEEK: 3

COURSE OBJECTIVES:

1. To explore contemporary knowledge and gain a conceptual understanding of industrial relations.

UNIT I: INDUSTRIAL RELATIONS **9 Hours**

Concepts – Importance – Industrial Relations problems in the Public Sector – Growth of Trade Unions – Codes of conduct- Collective bargaining

UNIT II: INDUSTRIAL CONFLICTS **9 Hours**

Disputes – Impact – Causes – Strikes – Prevention – Industrial Peace – Government Machinery – Conciliation – Arbitration – Adjudication.

UNIT III: LABOUR WELFARE **9 Hours**

Concept – Objectives – Scope – Need – Voluntary Welfare Measures – Statutory Welfare Measures – Labour – Welfare Funds – Education and Training Schemes.

UNIT IV: INDUSTRIAL SAFETY **9 Hours**

Causes of Accidents – Prevention – Safety Provisions – Industrial Health and Hygiene – Importance – Problems – Occupational Hazards – Diseases – Psychological problems – Counseling – Statutory Provisions.

UNIT V: WELFARE OF SPECIAL CATEGORIES OF LABOUR **9 Hours**

Child Labour – Female Labour – Contract Labour – Construction Labour – Agricultural Labour –Differently abled Labour –BPO & KPO Labour - Social Assistance – Social Security – Implications. SHE concept (Safety Health and Environment)

Total: 45 Hours

PRESCRIBED BOOKS :

1. Mamoria C.B. and Sathish Mamoria, Dynamics of Industrial Relations, Himalaya Publishing House, New Delhi, 2007.
2. Arun Monappa, Ranjeet Nambudiri, Patturaja Selvaraj. Industrial relations & Labour Laws. Tata McGraw Hill. 2012.

REFERENCE BOOKS :

1. Ratna Sen, Industrial Relations in India, Shifting Paradigms, Macmillan India Ltd., New Delhi, 2007.
2. C.S.Venkata Ratnam, Globalisation and Labour Management Relations, Response Books, 2007.
3. Srivastava, Industrial Relations and Labour laws, Vikas, 2007.
4. P.N.Singh, Neeraj Kumar. Employee relations Management. Pearson. 2011.
5. P.R.N Sinha, Indu Bala Sinha, Seema Priyardarshini Shekhar. Industrial Relations, Trade Unions and Labour Legislation. Pearson. 2004

WEBSITES:

1. http://onlinelibrary.wiley.com/journal/10.1111/%28ISSN%291468-2338
2. http://jir.sagepub.com/

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	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

ELECTIVE
PAPER TITLE: COMPENSATION MANAGEMENT

SUBJECT CODE :	THEORY	100 MARKS
SEMESTER: III	CREDITS: 3	No. OF HOURS PER WEEK: 3

COURSE OBJECTIVES:

1. To help the students to know the structure and management of compensation.

UNIT 1: WAGE AND SALARY ADMINISTRATION **9 Hours**

Definition, concept, Goals, Job Evaluation, Wage and Salary surveys, Time and Piece Rate, Merit pay /skill based pay, Factors affecting wages.

UNIT 2: INCENTIVE PLANS **9 Hours**

Variable pay, Individual and Group Incentive plans, Productivity Gain sharing plans, Profit Sharing Plans, Non - Financial and Financial incentives, Measuring - Cost- to – Company (CTC). ESOP

UNIT 3: EMPLOYEE BENEFITS **9 Hours**

Supplemented Pay benefits (pay for time not worked), Insurance benefits, Retirement benefits, Employees‟ service benefits, ESOPs, Flexible benefits and Benefit Surveys.

UNIT 4: GOVERNING LAWS **9 Hours**

Provident Fund Act 1952, Minimum wages Act 1948, Payment of wages Act 1948, Payment of Bonus Act, 1965. ESI Act, Maternity Act

UNIT 5 **9 Hours**

Current trends in Compensation and Reward Management.

Total: 45 Hours

PRESCRIBED BOOKS :

1. Garry Dessler, “Personnel / Human Resource Management**”,** London, Prentice Hall, 1994.
2. William B. Werther Jr. and Keith Davis “Human Resource Management**”.** New Jersey: McGraw Hill. (1993)

REFERENCE BOOKS :

1. Human Resource Management, Eugence Mckenna and Nic Beach, Pearson Education Limited, 2002.
2. Mamoria C.B. and Mamoria S. Personnel Management, Himalaya Publishing Company, 1997.

WEBSITES :

1. www.sacha**journals**.com/user/image/idemobi002sjpss.pdf
2. http://www.sagepub.in/journals/Journal200811

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	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

ELECTIVE
PAPER TITLE: STRATEGIC HUMAN RESOURCE MANAGEMENT

SUBJECT CODE :	THEORY	100 MARKS
SEMESTER: III	CREDITS: 3	No. OF HOURS PER WEEK: 3

COURSE OBJECTIVES:

1. To help students understand the transformation in the role of HR functions from being a support function to strategic function.

UNIT 1: INTRODUCTION **9 Hours**

Approaches to Strategic HRM, SHRM & Business Strategy, SHRM Strategy, Structure, Culture and Policy, Organizational Culture and HRM,HRM Structures and Policy, The Formulation of HR Strategies, The Strategic Fit, Strategic HRM Models, SIX BOX model, 7 S Framework, Force Field Analysis.

UNIT II: OD INTERVENTIONS **9 Hours**

Introduction the term "interventions"., Types of Interventions-Terms, Third Party, Structural And Comprehensive,

UNIT III: TEAM INTERVENTIONS **9 Hours**

What are Teams and Effective Teams. Stages of Team Development. Role Analysis Technique, Interdependency Exercise, Role Negotiation, Visioning

UNIT IV: STRUCTURAL INTERVENTIONS **9 Hours**

Socio-Technical System as an intervention, Work Redesign, Quality of Work Life, TQM, Reengineering

UNIT V: OD CONSULTANT **9 Hours**

Role of the OD Consultant, Competencies of the OD Consultant, Future Terms and Applications of OD.

Total: 45 Hours

PRESCRIBED BOOKS :

1. Jeffrey A Mello, „Strategic Human Resource Management", Thomson, Singapore, Southwestern 2003.
2. Randy L. Desimone, Jon M. Werner – David M. Marris, „Human Resource Development", Thomson Southwestern, Singapore, 2002.

REFERENCE BOOKS :

1. Robert L. Mathis and John H. Jackson, „Human Resource Management", Thomson Southwestern, Singapore, 2003.
2. Rosemary Harrison, „Employee Development" – University Press, India Ltd, New Delhi, 2003.
3. Srinivas Kandula, „Human Resource Management in Practice", Prentice Hall of India, 2005, New Delhi, 2004.

WEBSITES :

1. http://www.manuscript.publishingindia.com/index.php/JSHRM
2. http://www.brunel.ac.uk/ data/assets/file/0018/91035/phdSimp2009TamerDarwish.pdf

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	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

ELECTIVE
PAPER TITLE: HUMAN RESOURCE DEVELOPMENT

SUBJECT CODE :	THEORY	100 MARKS
SEMESTER: III	CREDITS: 3	No. OF HOURS PER WEEK: 3

Course Objective:

1. To understand the evolution and functions of HRD
2. To identify the content, process and the outcomes of HRD applications
3. To evaluate and understand diversity issues and their impact on organizations

UNIT I: INTRODUCTION **9 Hours**

Human Resource Development – Evolution of HRD - Relationship with HRM - Human Resource Development Functions - Roles and Competencies of HRD Professionals - Challenges to Organization and HRD professionals – Employee Behaviour – External and Internal Influence – Learning and HRD – Learning Strategies and Styles

UNIT II: HRD FRAME WORK **9 Hours**

Frame work of Human Resource Development – HRD in India - History- Ministry of HRD - HRD Processes – Assessing HRD Needs - HRD Model - Designing Effective HRD Program - HRD Interventions- Creating HRD Programs – Implementing HRD programs - Training Methods.

UNIT III: HRD COUNSELLING **9 Hours**

Management Development - Employee counseling and wellness services – Counseling as an HRD Activity - Counseling Programs - Issues in Employee Counseling - Employee Wellness and Health Promotion Programs.

UNIT IV: HRD PROGRAMMES AND IT'S EVALUATION **9 Hours**

Evaluating HRD programs - Models and Frame Work of Evaluation - Assessing the Impact of HRD Programs - Human Resource Development Applications - Realistic Job Review .

UNIT V: WORK FORCE DYNAMICS **9 Hours**

Work Force Reduction, Realignment and Retention - HR Performance and Bench Marking - Impact of Globalization on HRD- Diversity of Work Force - HRD programs for diverse employees - Expatriate & Repatriate support and development.

Total: 45 Hour

PRESCRIBED BOOKS

1. Rao, T.V., Future of HRD, Macmillan Publishers India.
2. Rao, T.V., HRD Score Card 2500: Based on HRD audit, Response Books, SAGE Publications.
3. Rao, T.V., Hurconomics for talent management: Making the HRD missionary business-driven, Pearson Education.

REFERENCE BOOKS

1. Werner & Desimone, HUMAN RESOURCE DEVELOPMENT, Cengage Learning, 2006
2. William E. Blank, HANDBOOK FOR DEVELOPING COMPETENCY BASED TRAINING PROGRAMMES, Prentice-Hall, New Jersey, 1982.
3. Uday Kumar Haldar, HUMAN RESOURCE DEVELOPMENT, Oxford University Press, 2009
4. Srinivas Kandula, STRATEGIC HUMAN RESOURCE DEVELOPMNET, PHI Learning, 2001

Websites:

1. www.shrm.org
2. www.hr.blr.com

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	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
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ELECTIVE
PAPER TITLE: MANAGERIAL BEHAVIOR AND EFFECTIVENESS

.

SUBJECT CODE :	THEORY	100 MARKS
SEMESTER: III	CREDITS: 3	No. OF HOURS PER WEEK: 3

COURSE OBJECTIVES:

1. To examine managerial styles in terms of concern for production and concern for people. To assess different systems of management and relate these systems to organisational characteristics.

UNIT I: DEFINING THE MANAGERIAL JOB **9 Hours**

Descriptive Dimensions of Managerial Jobs – Methods – Model – Time Dimensions in Managerial Jobs – Effective and Ineffective Job behaviour – Functional level differences in Managerial Job behaviour.

UNIT II: DESIGNING THE MANAGERIAL JOB **9 Hours**

Identifying Managerial Talent – Selection and Recruitment – Managerial Skills Development – Pay and Rewards – Managerial Motivation – Effective Management Criteria – Performance Appraisal Measures – Balance Scorecard - Feedback – Career planning and Management.

UNIT III: PRACTICAL APPROACH TO MANAGERIAL EFFECTIVENESS **9 Hours**

Definition – The person, process, product approaches – Bridging the Gap – Measuring Managerial Effectiveness – Current Industrial and Government practices in the Management of Managerial Effectiveness- the Effective Manager as an Optimizer.

UNIT IV: ENVIRONMENTAL ISSUES **9 Hours**

Organisational Processes – Organisational Climate – Leader – Group Influences – Job Challenge – Competition – Managerial Styles.

UNIT V: DEVELOPING THE WINNING EDGE **9 Hours**

Organisational and Managerial Efforts – Self Development – Negotiation Skills – Development of the Competitive Spirit – Knowledge Management – Fostering Creativity and innovation .

Total: 45Hours

PRESCRIBED BOOKS :

1. Peter Drucker, Management, Harper Row, 2005.
2. T.V.Rao, Appraising and Developing Managerial Performance, Excel Books,2000.

REFERENCE BOOKS :

1. Milkovich and Newman, Compensation, McGraw-Hill International, 2005.
2. Blanchard and Thacker, Effective Training Systems, Strategies and Practices Pearson 2006.
3. Dubrin, Leadership, Research Findings, Practices & Skills, Biztantra, 2008.
4. Joe Tidd , John Bessant, Keith Pavitt , Managing Innovation ,Wiley 3rd edition,2006.
5. R.M.Omkar, Personality Development and Career Management, S.Chand 1stedition,2008.
6. Richard L.Daft, Leadership, Cengage, 1 st Indian Reprint 2008.

WEBSITES :

1. http://www.emeraldinsight.com/doi/abs/10.1108/03090591211204733
2. http://www.emeraldinsight.com/doi/abs/10.1108/03090591111095718
3. http://eric.ed.gov/?id=EJ978766

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	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2 Unit – 3	1 1	
	Unit – 4	2	
	Unit - 5	1	

ELECTIVE
PAPER TITLE: STRESS MANAGEMENT

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS: 3**	**No. OF HOURS PER WEEK: 3**

COURSE OBJECTIVES:

1. To provide a broad physical, social and psychological understanding of human stress. The main focus is on presenting a broad background of stress research.

UNIT I: UNDERSTANDING STRESS **9 Hours**

Meaning – Symptoms – Works Related Stress – Individual Stress – Reducing Stress – Burnout.

UNIT II: COMMON STRESS FACTORS TIME & CAREER PLATEAUING 9 Hours

Time Management – Techniques – Importance of planning the day – Time management schedule – Developing concentration – Organizing the Work Area – Prioritizing – Beginning at the start – Techniques for conquering procrastination – Sensible delegation – Taking the right breaks – Learning to say „No".

UNIT III: CRISIS MANAGEMENT **9 Hours**

Implications – People issues – Environmental issues –Psychological fall outs – Learning to keep calm – Preventing interruptions – Controlling crisis – Importance of good communication – Taking advantage of crisis – Pushing new ideas – Empowerment.

UNIT IV: WORK PLACE HUMOUR **9 Hours**

Developing a sense of Humour – Learning to laugh – Role of group cohesion and team spirit – Using humour at work – Reducing conflicts with humour.

UNIT V: SELF DEVELOPMENT **9 Hours**

Improving Personality – Leading with Integrity – Enhancing Creativity – Effective decision Making – Sensible Communication – The Listening Game – Managing Self – Meditation for peace – Yoga for Life.

Total:45 Hours

PRESCRIBED BOOKS :

1. Cooper, Managing Stress, Sage, 2011
2. Jeff Davidson, Managing Stress, Prentice Hall of India, New Delhi, 2012.

REFERENCE BOOKS :

1. Waltschafer, Stress Management ,Cengage Learning, 4th Edition 2009.
2. Juan R. Alascal, Brucata, Laurel Brucata, Daisy Chauhan. Stress Mastery. Pearson
3. Argyle. The Psychology of Happiness. Tata McGraw Hill. 2012
4. Bartlet. Stress – Perspectives & Process. Tata McGraw Hill. 2012

WEBSITES :

1. http://www.apa.org/pubs/journals/str/
2. http://link.springer.com/journal/10771

Question Paper Pattern:

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Section A	**Definition / Principle** Answer any 10 out of 12 Questions	1-12	3	**30**
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	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

FINANCE ELECTIVES
PAPER TITLE: CORPORATE FINANCE

SUBJECT CODE :	THEORY	100 MARKS
SEMESTER: III	CREDITS: 3	No. OF HOURS PER WEEK: 3

COURSE OBJECTIVES:

- Student will acquire nuances involved in short term corporate financing & Good ethical practices

UNIT I: INDUSTRIAL FINANCE **9 Hours**

Indian Capital Market – Basic problem of Industrial Finance in India. Equity – Debenture financing – Guidelines from SEBI, advantages and disadvantages and cost of various sources of Finance - Finance from international sources, financing of exports – role of EXIM bank and commercial banks.– Finance for rehabilitation of sick units.

UNIT II: FINANCING DECISION **9 Hours**

Simulation and financing decision - cash inadequacy and cash insolvency- determining the probability of cash insolvency- Financing decision in the Context of option pricing model and agency costs- Inter-dependence of investment- financing and Dividend decisions.

UNIT III: SHORT TERM-WORKING CAPITAL FINANCE **9 Hours**

Estimating working capital requirements – Approach adopted by Commercial banks, Commercial paper- Public deposits and inter corporate investments.

UNIT IV: ADVANCED FINANCIAL MANAGEMENT **9 Hours**

Appraisal of Risky Investments, certainty equivalent of cash flows and risk adjusted discount rate, risk analysis in the context of DCF methods using Probability information, nature of cash flows, Sensitivity analysis; Simulation and investment decision, Decision tree approach in investment decisions.

UNIT V: CORPORATE GOVERNANCE **9 Hours**

Corporate Governance - SEBI Guidelines- Corporate Disasters and Ethics- Corporate Social Responsibility- Stakeholders and Ethics- Ethics, Managers and Professionalism.

Total: 45 Hours

PRESCRIBED BOOKS :

1. Richard A.Brealey, Stewat C.Myers and Mohanthy, Principles of Corporate Finance, Tata McGraw Hill, 9th Edition, 2011

2. I.M.Pandey, Financial Management, Vikas Publishing House Pvt., Ltd., 12th Edition, 2012.

REFERENCE BOOKS :

1. Brigham and Ehrhardt, Corporate Finance - A focused Approach, Cengage Learning, 2nd Edition, 2011.
2. M.Y Khan, Indian Financial System, Tata McGraw Hill, 6th Edition, 2011
3. Smart, Megginson, and Gitman, Corporate Finance, 2nd Edition, 2011.
4. Krishnamurthy and Viswanathan, Advanced Corporate Finance, PHI Learning, 2011.

WEBSITES :

1. http://www.journals.elsevier.com/journal-of-corporate-finance/
2. http://www.sciencedirect.com/science/journal/09291199

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	Unit – 3	1	1
	Unit – 4	1	1
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	1
	Unit - 5	1	

ELECTIVE

PAPER TITLE: BANKING AND INSURANCE

SUBJECT CODE :	THEORY	100 MARKS
SEMESTER: III	CREDITS: 3	No. OF HOURS PER WEEK: 3

COURSE OBJECTIVES:

- To help students grasp how banks raise their sources and how they deploy it and manage the associated risks
- To make students Understand e-banking and the threats that goes with it.

UNIT I: OVERVIEW OF INDIAN BANKING SYSTEM 9 Hours

Overview of Indian Banking System, Functions of banks, key Acts governing the functioning of Indian banking system – RBI Act 1934, Negotiable Instruments Act 1881, Banking Regulations Act 1948 – Rights and obligations of a banker, Overview of Financial statement of banks – Balance sheet and Income Statement.

UNIT II: SOURCES AND APPLICATION OF BANK FUNDS 9 Hours

Capital adequacy, Deposits and non-deposit sources, Designing of deposit schemes and pricing of deposit services, application of bank funds – Investments and Lending functions, Types of lending – Fund based, non-fund based, asset based – Different types of loans and their features, Major components of a typical loan policy document, Steps involved in Credit analysis, Credit delivery and administration, Pricing of loans, Customer profitability analysis.

UNIT III: CREDIT MONITORING AND RISK MANAGEMENT 9 Hours

Need for credit monitoring, Signals of borrowers‟ financial sickness, Financial distress prediction models – Rehabilitation process, Risk management – Interest rate, liquidity, forex, credit, market, operational and solvency risks – risk measurement process and mitigation, Basic understanding of NPAs and ALM.

UNIT IV: INSURANCE 9 Hours

Insurance: Meaning – Nature and Importance – Risk Management: Identification –Measurement – Diversification – Strategies Theories – Sum of Large Numbers Theory of Probability
Insurance Regulation: IRDA Regulations – Insurance Contract – Agent Norms –Generic Norms of Insurance Advisors

UNIT V: HIGH TECH E-BANKING 9 Hours

Payment system in India – Paper based, e-payments – Electronic banking – advantages – Plastic money, E-money – Forecasting of cash demand at ATMs – Security threats in e-banking and RBI's initiatives. **Total: 45 Hour**

PRESCRIBED BOOKS :

1. Padmalatha Suresh and Justin Paul, "Management of Banking and Financial Services, Pearson, Delhi, 2012.
2. Meera Sharma, "Management of Financial Institutions – with emphasis on Bank and Risk Management", PHI Learning Pvt. Ltd., New Delhi 2010.

REFERENCE BOOKS :

1. Peter S. Rose and Sylvia C. and Hudgins, "Bank Management and Financial Services", Tata McGraw Hill, New Delhi, 2012.

WEBSITES :

1. http://www.springer.com/business+%26+management/finance/journal/10693
2. http://www.emeraldgrouppublishing.com/products/journals/journals.htm?id=ijbms

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	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

ELECTIVE

PAPER TITLE: CORPORATE RESTRUCTURING

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS: 3**	**No. OF HOURS PER WEEK: 3**

COURSE OBJECTIVES:

- To enable student to understand
- Regulatory framework for mergers and acquisitions
- Process involved in mergers and acquisitions and the available takeover defenses

UNIT I: INTRODUCTION **9 Hours**

Corporate Restructuring – meaning, objectives, types and forms, motives for restructuring – meaning of Mergers and Acquisitions, types, causes, distinction between Mergers and Acquisitions, Merger procedure, Scheme for Merger, theories of Merger, cross border Mergers and Acquisitions.

UNIT II:

REGULATORY FRAMEWORK FOR MERGERS AND ACQUISITION 9 Hours

Compliance with Indian Companies Act, Competition Act 2002, Income Tax Act 1961, Securities and Exchange Board of India (Substantial Acquisition of Shares and Takeovers) Regulations, 2011.

UNIT III:

MERGER AND ACQUISITION PROCESS, FINANCING AND ACCOUNTING FRAMEWORK **9 Hours**

Due Diligence – types, screening due diligence, challenges and checklist - Valuation for Merger and Acquisition – concepts of value, methods of Enterprise and Equity valuation, Brand, Goodwill, Human resources, Customer Relationships valuation, Firm valuation, Cost of Capital, Relative valuation, Issues in Valuation, Synergy and Value creation – Financing Mergers and Acquisitions –equity, debt and venture capital funds – Negotiation, Deal structuring and Methods of payments in mergers and acquisitions – Accounting for Mergers and Acquisitions.

UNIT IV: POST-MERGER INTEGRATION **9 Hours**

Critical success factors for post-merger integration, Ingredients of integration, Timing and Speed of integration, Approaches to integration, Challenges in integration, Steps for successful integration, Cultural integration, Redesigning post merger cultural process.

UNIT V: CORPORATE CONTROL MECHANISM AND TAKEOVER DEFENSES- 9Hrs

Internal and External control mechanism, Takeover tactics, Takeover defenses, Regulatory aspects in India with respect to Takeover defenses.

Total: 45 Hours

PRESCRIBED BOOKS :

1. Rajesh Kumar B., Mergers and Acquisitions, Tata McGraw Hill Education Pvt. Ltd., New Delhi,2012.
2. Jay M. Desai and Nisarg A. Joshi, Mergers and Acquisitions, Biztantra, New Delhi, 2012.

REFERENCE BOOKS :

1. Kamal Ghosh Ray, PHI Learning Private Limited, New Delhi, 2010.
2. Enrique R. Arzac, Valuation for Mergers, Buyouts and Restructuring, Second Edition, Wiley India, 2010.
3. Patrick A. Gaughan, Mergers, Acquisitions and Corporate Restructurings, Fifth Edition, Wiley India, 2011.

WEBSITES :

1. http://www.ccsenet.org/journal/index.php/ijbm/article/view/585
2. http://www.worldscientific.com/worldscinet/jrf

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	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

ELECTIVE

PAPER TITLE: SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

SUBJECT CODE :	THEORY	100 MARKS
SEMESTER: III	CREDITS: 3	No. OF HOURS PER WEEK: 3

COURSE OBJECTIVES:

Enables student to

- Understand the nuances of stock market operations
- Understand the techniques involved in deciding upon purchase or sale of securities

UNIT I: INVESTMENT SETTING **9 Hours**

Financial and economic meaning of Investment – Characteristics and objectives of Investment – Types of Investment and it"s characteristics– Equity Share, Preference Share, Bonds and Debentures — Risk and return concepts- Systematic and Unsystematic Risk

UNIT II: SECURITIES ANALYSIS **9 Hours**

Valuation and return- evaluation of fixed income securities:Bond Risk,Yield to Maturity and Bond Value Theorems - evaluation of ordinary shares: Types of Dividend, Dividend Discount Model,Walter ,Gordon and MM Model

UNIT III: FUNDAMENTAL ANALYSIS **9 Hours**

Economic Analysis – Economic forecasting and stock Investment Decisions – Industry Analysis : Industry classification, Industry life cycle – Company Analysis: Quantitative and Qualitative factors- Measuring Earnings – Applied Valuation Techniques – Graham and Dodd Model.

UNIT IV **9 Hours**

Fundamental Analysis Vs Technical Analysis – Charting methods – Market Indicators. Trend – Trend reversals – Patterns - Moving Average – Exponential moving Average – Oscillators – Market Indicators – Efficient Market theory.

UNIT V: PORTFOLIO MANAGEMENT **9 Hours**

Portfolio Construction: Traditional and Modern Approach –Portfolio Selection:Markowitz Model, Capital Asset Pricing model, Sharp Single Index Model – Portfolio Revision: Constant Rupee, Constant Ratio,Variable Ratio – Portfolio Evaluation: Treynor, Sharpe and Jensen – Mutual Funds: Types, Features and Evaluation.

Total: 45 Hours

PRESCRIBED BOOKS :

1. Donald E.Fischer & Ronald J.Jordan, Security Analysis & Portfolio Management, PHI Learning., New Delhi, 8th edition, 2011.
2. Prasannachandra, Investment analysis and Portfolio Management, Tata McGraw Hill, 2011.

REFERENCE BOOKS :

1. Reilly & Brown, Investment Analysis and Portfolio Management, Cengage Learning, 9th edition, 2011.
2. S. Kevin , Securities Analysis and Portfolio Management , PHI Learning , 2012.
3. Bodi, Kane, Markus, Mohanty, Investments, 8th edition, Tata McGraw Hill, 2011.

4. V.A.Avadhan, Securities Analysis and Portfolio Management, Himalaya Publishing House, 2011.
5. V.K.Bhalla, Investment Management, S.Chand & Company Ltd., 2012.

WEBSITES :

1. http://www.iijournals.com/doi/abs/10.3905/jpm.1990.409271
2. http://www.inderscience.com/jhome.php?jcode=ijpam

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	Unit – 4	1	
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	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

ELECTIVE
PAPER TITLE: MERCHANT BANKING AND FINANCIAL SERVICES

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS: 3**	**No. OF HOURS PER WEEK: 3**

COURSE OBJECTIVES:
To enable student
- Understand the modes of issuing securities
- Acquire financial evaluation technique of leasing and hire purchase

UNIT I: MERCHANT BANKING **9 Hours**
Introduction – An Over view of Indian Financial System – Merchant Banking in India – Recent Developments and Challenges ahead – Institutional Structure – Functions of Merchant Bank - Legal and Regulatory Framework – Relevant Provisions of Companies Act- SERA- SEBI guidelines- FEMA, etc. - Relation with Stock Exchanges and OTCEI.

UNIT II: ISSUE MANAGEMENT **9 Hours**
Role of Merchant Banker in Appraisal of Projects, Designing Capital Structure and Instruments – Issue Pricing – Book Building – Preparation of Prospectus Selection of Bankers, Advertising Consultants, etc. - Role of Registrars –Bankers to the Issue, Underwriters, and Brokers. – Offer forSale – Green Shoe Option – E-IPO, Private Placement – Bought out Deals – Placement with FIs,MFs, FIIs, etc. Off - Shore Issues. – Issue Marketing – Advertising Strategies – NRI Marketing –Post Issue Activities.

UNIT III: OTHER FEE BASED SERVICES **9 Hours**
Mergers and Acquisitions – Portfolio Management Services – Credit Syndication – Credit Rating –Mutual Funds - Business Valuation.

UNIT IV: FUND BASED FINANCIAL SERVICES **9 Hours**
Leasing and Hire Purchasing – Basics of Leasing and Hire purchasing – Financial Evaluation.

UNIT V: OTHER FUND BASED FINANCIAL SERVICES **9 Hours**
Consumer Credit – Credit Cards – Real Estate Financing – Bills Discounting – factoring and Forfaiting – Venture Capital.

Total: 45 Hours

PRESCRIBED BOOKS :
1. M.Y.Khan, Financial Services, Tata McGraw-Hill, 12th Edition, 2012
2. Nalini Prava Tripathy, Financial Services, PHI Learning, 2011.

REFERENCE BOOKS :
1. Machiraju, Indian Financial System, Vikas Publishing House, 2nd Edition, 2010.
2. J.C.Verma, A Manual of Merchant Banking, Bharath Publishing House, New Delhi,
3. Varshney P.N. & Mittal D.K., Indian Financial System, Sultan Chand & Sons, New Delhi.
4. Sasidharan, Financial Services and System, Tata Mcgraw Hill, New Delhi, 2nd Edition, 2011.

WEBSITES :

1. http://www.ccmf-uwi.org/files/publications/journal/2007_1_2/174_204.pdf
2. http://link.springer.com/article/10.1007%2FBF00114077#page-1

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	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

ELECTIVE
PAPER TITLE: TAX MANAGEMENT

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS: 3**	**No. OF HOURS PER WEEK: 3**

COURSE OBJECTIVES:

- To make the students to understand the nuances of tax management.

UNIT I **9 Hours**

Introduction: Income Tax Law – Scheme of Taxation – important concepts – method of Accounting – scope of Total income & Residential status – Tax free incomes.

UNIT II **9 Hours**

Heads of Income – Salaries, Income from house property, profits and gains of Business of profession, capital gains and Income from other sources.

UNIT III **9 Hours**

Deductions to be made in computing total income –Reliefs of Income tax – Taxation of Non-Residents.

UNIT IV **9 Hours**

Set off and carry forward of losses – clubbing provisions and their implications.

UNIT V **9 Hours**

Assessment of Individuals, Assessment of HUF, Assessment of Firm and Assessment of companies – Tax Planning, Tax Avoidance and Evasion.

Total: 45 Hours

PRESCRIBED BOOKS :

1. Ahuja, G. K.,& Gupta, R. Systematic Approach to Income Tax, Allahabad, Bharat law house.
2. Lal, B.B., Direct Taxes Practice and Planning Konark Publishers Private Ltd, Delhi, Latest Edition.

REFERENCE BOOKS :

1. Iyengar, A C.,Sampat Law of Income Tax. Allahabad, Bharat Law House.
2. Kanga, J. B. and Palkhivala, N.A., Income Tax. Bombay, Vol.1-3, N.M. Tripathi.
3. Prasad, B., Income Tax Law and Practice ViswaPrakashan, New Delhi, Latest Edition.
4. Ranina, H. P. Corporate Taxation: A Handbook. New Delhi, Oriental Law House.

WEBSITES :

1. https://www.kpmg.com/Global/en/services/Tax/dispute-resolution-controversy/Documents/bna-international-tax-2012-05-14.pdf
2. http://www.journals.elsevier.com/journal-of-international-accounting-auditing-and-taxation/

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	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

MARKETING ELECTIVES

PAPER TITLE: RETAIL MARKETING

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 3**	**No. OF HOURS PER WEEK: 3**

COURSE OBJECTIVES:

- To understand the concepts of effective retailing

UNIT I: INTRODUCTION **9 Hours**

An overview of Global Retailing – Challenges and opportunities – Retail trends in India – Socio Economic and technological Influences on retail management – Government of India policy Implications on retails.

UNIT II: RETAIL FORMATS **9 Hours**

Organized and unorganized formats – Different organized retail formats – Characteristics of each format – Emerging trends in retail formats – MNC's role in organized retail formats.

UNIT III: RETAILING DECISIONS **9 Hours**

Choice of retail locations - internal and external atmospherics – Positioning of retail shops – Building retail store Image - Retail service quality management – Retail Supply Chain Management – Retail Pricing Decisions. Mercandising and category management – buying.

UNIT IV:
RETAIL SHOP MANAGEMENT AND VISUAL MERCHANDISING **9 Hours**

Visual Merchandise Management – Space Management – Retail Inventory Management – Retail store brands – Retail advertising and promotions – Mannequins - Retail Management Information Systems - Online retail – Emerging trends.

UNIT V: RETAIL SHOPPER BEHAVIOUR **9 Hours**

Understanding of Retail shopper behavior – Shopper Profile Analysis – Shopping Decision Process- Factors influencing retail shopper behavior – Complaints Management - Retail sales force Management – Challenges in Retailing in India.

Total: 45 Hours

PRESCRIBED BOOKS :

1. Michael Levy ,Baston, Aweitz and Ajay Pandit, Retail Management, Tata Mcgraw Hill, Sixth Edition, 2007
2. Ogden, Integrated Retail Management, Biztantra, India, 2008.

REFERENCE BOOKS :

1. Patrick M. Dunne and Robert F Lusch, Retailing, Thomson Learning, 4th Edition 2008.
2. Chetan Bajaj, Rajnish Tow and Nidhi V. Srivatsava, Retail Management, Oxford University Press, 2007.
3. Swapna Pradhan, Retail Management -Text and Cases, Tata McGraw Hill, 3rd Edition, 2009.
4. Dunne, Retailing, Cengage Learning, 2nd Edition, 2008
5. Ramkrishnan and Y.R.Srinivasan, Indian Retailing Text and Cases, Oxford University Press, 2008
6. Dr.Jaspreet Kaur , Customer Relationship Management, Kogent solution.

WEBSITES :

1. http://www.ehow.com/about_6401557_definition-retail-marketing.html
2. http://www.ibef.org/industry/retail-india.aspx

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Section C	Unit – 1	1	
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ELECTIVE
PAPER TITLE: BRAND MANAGEMENT

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 3**	**No. OF HOURS PER WEEK: 3**

COURSE OBJECTIVES:

To understand the methods of managing brands and strategies for brand management.

UNIT I: INTRODUCTION **9 Hours**

Basics Understanding of Brands – Definitions - Branding Concepts – Functions of Brand - Significance of Brands – Different Types of Brands – Co branding – Store brands.

UNIT II: BRAND STRATEGIES **9 Hours**

Strategic Brand Management process – Building a strong brand – Brand positioning – Establishing

Brand values – Brand vision – Brand Elements – Branding for Global Markets – Competing with foreign brands.

UNIT III: BRAND COMMUNICATIONS **9 Hours**

Brand image Building – Brand Loyalty programmes – Brand Promotion Methods – Role of Brand ambassadors, celebraties – On line Brand Promotions.

UNIT IV: BRAND EXTENSION **9 Hours**

Brand Adoption Practices – Different type of brand extension – Factors influencing Decision for extension – Re-branding and re-launching.

UNIT V: BRAND PERFORMANCE **9 Hours**

Measuring Brand Performance – Brand Equity Management - Global Branding strategies - Brand Audit – Brand Equity Measurement – Brand Leverage -Role of Brand Managers– Branding challenges & opportunities.

Total: 45 Hours

PRESCRIBED BOOKS :

1. Kevin Lane Keller, Strategic Brand Management: Building, Measuring and Managing, Prentice Hall, 3rd Edition, 2007.
2. Moorthi YLR, Brand Management – I edition, Vikas Publishing House 2012

REFERENCE BOOKS :

1. Lan Batey, Asain Branding – A Great way to fly, PHI, Singapore, 2002.
2. Paul Tmepoal, Branding in Asia, John Willy, 2000.
3. Ramesh Kumar, Managing Indian Brands, Vikas Publication, India, 2002.
4. Jagdeep Kapoor, Brandex, Biztranza, India, 2005
5. Mahim Sagar, Deepali Singh, D.P.Agarwal, Achintya Gupta.–Brand Management Ane Books Pvt.Ltd – (2009).

WEBSITES :

1. http://www.businessdictionary.com/definition/brand-management.html
2. http://www.alternatives.ie/marketing_hub/article/brand_management_process_and_responsibilities

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	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

ELECTIVE

PAPER TITLE: SERVICES MARKETING

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 3**	**No. OF HOURS PER WEEK: 3**

COURSE OBJECTIVES:

To understand the meaning of services and the significance of marketing the services.

UNIT I: INTRODUCTION **9 Hours**

Definition – Service Economy – Evolution and growth of service sector – Nature and Scope of Services – Unique characteristics of services - Challenges and issues in Services Marketing.

UNIT II: SERVICE MARKETING OPPORTUNITIES **9 Hours**

Assessing service market potential - Classification of services – Expanded marketing mix – Service marketing – Environment and trends – Service market segmentation, targeting and positioning.

UNIT III: SERVICE DESIGN AND DEVELOPMENT **9 Hours**

Service Life Cycle – New service development – Service Blue Printing – GAP model of service quality – Measuring service quality – SERVQUAL – Service Quality function development.

UNIT IV: SERVICE DELIVERY AND PROMOTION **9 Hours**

Positioning of services – Designing service delivery System, Service Channel – Pricing of services, methods – Service marketing triangle - Integrated Service marketing communication.

UNIT V: SERVICE STRATEGIES **9 Hours**

Service Marketing Strategies for health – Hospitality – Tourism – Financial – Logistics - Educational – Entertainment & public utility Information technique Services

Total: 45 Hours

PRESCRIBED BOOKS:

1. Chiristropher H.Lovelock and Jochen Wirtz, Services Marketing, Pearson Education, New Delhi, 7th edition, 2011.
2. Hoffman, Marketing of Services, Cengage Learning, 1st Edition, 2008.

REFERENCE BOOKS:

1. Kenneth E Clow, et al, Services Marketing Operation Management and Strategy, Biztantra, 2nd Edition, New Delhi, 2004.
2. Halen Woodroffe, Services Marketing, McMillan, 2003.

WEBSITES :

1. http://www.emeraldinsight.com/journal/jsm
2. http://www.learnmarketing.net/servicemarketing.htm

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	1-12	3	**30**
Section B	**Short Answer** Answer any 5 out of 7 questions	13-19	6	**30**
Section C	**Essay** Q.No. 20 is Compulsory (Case Study) and Answer any 3 from Q.No. 21 to 25	20-25	10	**40**

Distribution of Questions :

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

ELECTIVE

PAPER TITLE: CONSUMER BEHAVIOUR

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 3**	**No. OF HOURS PER WEEK: 3**

COURSE OBJECTIVES:

- To understand the role of consumer behavior in marketing and to identify qualitative and quantitative methods of measuring consumer behavior.

UNIT I: INTRODUCTION **9 Hours**

Concepts – Significance – Dimensions of Consumer Behavior – Application of knowledge of Consumer Behaviour in marketing decisions.

UNIT II: CONSUMER BEHAVIOR MODELS **9 Hours**

Industrial and individual consumer behaviour models - Howared- Sheth, Engel – Kollat, Webstar and wind Consumer Behaviour Models – Implications of the models on marketing decisions.

UNIT III: INTERNAL INFLUENCES **9 Hours**

Psychological Influences on consumer behavior – motivation – perception – personality Learning and Attitude- Self Image and Life styles – Consumer expectation and satisfaction.

UNIT IV: EXTERNAL INFLUENCES **9 Hours**

Socio-Cultural, Cross Culture - Family group – Reference group – Communication -Influences on Consumer behavior

UNIT V: PURCHASE DECISION PROCESS **9 Hours**

High and low involvement - Pre-purchase and post-purchase behavior – Online purchase decision process – Diffusion of Innovation – Managing Dissonance - Emerging Issues

Total: 45 Hours

PRESCRIBED BOOKS :

1. Leon G.Schiffman and Leslie Lasar Kanuk, Consumer Behavior, Pearson Education, India, 2002.
2. Paul Peter et al., Consumer Behavior and Marketing Stratergy, Tata McGraw Hill, Indian Edition, 7th Edition 2005.

REFERENCE BOOKS :

1. Frank R. Kardes, Consumer Behaviour and Managerial Decision Making, 2nd Edition.
2. Assel, Consumer Behavior - A Strategic Approach, Biztranza, 2008.
3. Sheth Mittal, Consumer Behavior- A Managerial Perspective, Thomson Asia (P) Ltd., 2003.
4. Abbael, Consumer behavior: A strategic approach (Indian edition 2005) Wiley 2012.
5. Hed, Hoyer. Consumer behavior, 2008 edition Wiley 2012.
6. Das Gupta. Consumer behavior, 2008 edition, Wiley 2012.
7. Shri Prakash. Theory of Consumer behavior, I edition, Vikas 2012.
8. Srabanti Mukherjee, Consumer behavior, Cengage Learning, 2012.

WEBSITES :

1. http://www.consumerpsychologist.com/
2. http://onlinelibrary.wiley.com/journal/10.1002/%28ISSN%291479-1838

Question Paper Pattern :

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Section A	**Definition / Principle** Answer any 10 out of 12 Questions	1-12	3	**30**
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	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

ELECTIVE
PAPER TITLE: SALES AND DISTRIBUTION MANAGEMENT

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 3**	**No. OF HOURS PER WEEK: 3**

COURSE OBJECTIVES:

- The objective of this course is to study the scope of Sales and distribution management mainly for lead generation and retention activities in both business to business and business to consumer environments, learn the basics of Sales and distribution management.

UNIT I **9 Hours**

Organisation Framework of The Field Sales Force**:** Types of Field Sales Organisations – Career in Field Sales Management. Field Sales Manager – His Tasks and Responsibilities – Relation with Salesman and Relationships with top Management – Coordinating and Controlling the Marketing Mix. Operating Environment for Field Sales Force.

UNIT II **9 Hours**

Information and Planning**:** Qualities and Role-Hierarchy of Objectives and Goals, Concept of Strategies and Tactics. Development of Sales Performance Standards – Relationship of Performance Standards to Sales Development Function, its Purpose and Types, Check On Training and Staffing Programmes.

UNIT III **9 Hours**

Sales Forecasting – Methods and Procedural Steps in Forecasting - Sales Budgeting - Allocation of Field Sales Resources. Design Sales Territories, Procedure for Designing – Determining Manpower Requirements, Recruiting, Methods and The Selection System. Sales Quotas, Types of Sales Quotas, its Purpose and Managerial Evaluation. Man Power Planning – Tasks, Skill, Qualification.

UNIT IV **9 Hours**

Staffing – Responsibilities, tools and Methods of Selection. Motivational and Compensation Procedures for Sales Force – Method of Financial Incentives and its Purpose – Designing A Compensation Plan. Evaluation of Performance and Control. Salesmanship – Sales Positions – Theories of Selling – Understanding Consumer Behaviour. Sales Audit and Analysis – Control of Sales Efforts and Costs.

UNIT V **9 Hours**

Distribution: Role of Distribution in the Marketing Mix Role and Functions. Transport and Handling**:** Economics of Transportation, Determining Optimum Mode of Transport – Organisation, Machines, Procedures and Documentation. Dealer Network: Role of Middlemen/Dealer in Marketing and Distribution. Dealer Functions at Wholesale and Retail Level - Strategic Plan of Network – Location, Selection - Appointment and Termination of Dealers - Morale and Motivation.

Total: 45 Hours

PRESCRIBED BOOKS :

1. Havalder, K. and Cavale, V., Sales and Distribution Management, 2nd Edition, Tata McGraw-Hill Education, 2011.
2. Kapoor, S. and Kansal, P., Basics of Distribution Management: A Logitical Approach, PHI Learning, 2009.

REFERENCE BOOKS :

1. Cron, W.L. and DeCarlo, T.E., Sales Management: Concepts and Cases, 10thEdition, Wiley India Pvt. Ltd., 2011.
2. Ingram, T., Sales Management: Analysis and Decision Making, 6thEdition, South-Western, 2007.
3. Mallik, P.K., Sales Management, Oxford University Press, 2011.

WEBSITES :

1. http://www.emeraldinsight.com/doi/abs/10.1108/09590551111183317
2. http://www.uk.sagepub.com/books/Book233271

Question Paper Pattern :

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	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

ELECTIVE

PAPER TITLE: ADVERTISING MANAGEMENT AND SALES PROMOTION

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 3**	**No. OF HOURS PER WEEK: 3**

COURSE OBJECTIVES:

- This course introduces students to the basic concepts of advertising and sales promotion and how business organisations and other institutions carry out such activities.

UNIT I **9 Hours**

Advertising: Advertising, objectives, task and process, market segmentation and target audience – Message and copy development.

UNIT II **9 Hours**

Advertising – Integrated Media: Mass Media - Selection, Planning and Scheduling – Web programme and budget planning.

UNIT III **9 Hours**

Implemenation: Implementing the programme coordination and control – Advertising agencies – Organization and operation.

UNIT IV **9 Hours**

Sales Promotion: Why and When Sales promotion activities, Consumer and sales channel oriented – planning, budgeting and implementing and controlling campaigns.

UNIT V **9 Hours**

Control: Measurement of effectiveness – Ethics, Economics and Social Relevance.

Total: 45 Hours

PRESCRIBED BOOKS :

1. Belch, G.E., Belch, M. and Purani, K., Advertising and Promotion, 7thEdition, Tata McGraw-Hill Education, 2009.
2. Bhatia, T.K., Advertising and Marketing in Rural India, 2ndEdition, Macmillan India Ltd., 2007.

REFERENCE BOOKS :

1. Hackley, C., Advertising and Promotion: An integrated communications approach, 2ndEdition, Sage Publications, 2010.
2. Jefkins, F., Advertising, 4thEdition, Pearson, 2002.
3. Marshall, P., Ultimate Guide to Facebook Advertising, Tata McGraw-Hill Education, 2011.
4. Mullins, R., Sales Promotions: How to create, implement and integrate campaigns that really work, 5thEdition, Kogan Page, 2011.
5. Ogilvy, D., Ogilvy on Advertising, Research Press, 2007.

6. Percy, L. and Rosenbaum-Elliot, R., Strategic Advertising Management, 4thEdition, Oxford University Press, 2012.
7. Pricken, M., Creative Advertising: Ideas and Techniques from the World‟s Best Campaigns, 2ndEdition, Thomas and Hudson, 2008.
8. Shrimp, T.A., Integrated Marketing Communications in Advertising and Promotion, 8thEdition, Cengage Learning India, 2012.

WEBSITES :

1. www.tandfonline.com/toc/rina20/current#.VNh-VCyz_4Y
2. http://www.warc.com/Pages/Store/ProductInfo.aspx?ProductID=36

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	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

ELECTIVE

DIGITAL MARKETING

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 3**	**No. OF HOURS PER WEEK: 3**

Course Objective:

- To familiarise the students on the scope of online platform in marketing the business.

UNIT I: TAKING THE BUSINESS ONLINE **9 Hours**

Online Opportunities- Understanding the digital channels- Building the web presence- Planning the online business strategy.

UNIT II: SEARCH ENGINE MARKETING **9 Hours**

Search Engine Basics- Working of Search Engine- Organic Search- Paid Search-Marketing to the locals-Local directories- SEM auctions-Search Engine Optimization-Search ads- Search Campaigns.

UNIT III: SOCIAL MEDIA MARKETING **9 Hours**

Social Media Plan, Strategy- Selecting the right social media-Developing the right social content-Mobile apps and Mobile sites- Content Marketing.

UNIT IV: REACHING CUSTOMERS WITH ADVERTISING **9 Hours**

E-mail Marketing- Display advertisements and search engine advertising- retargeting- video advertising-

UNIT V: ANALYTICS AND ONLINE SELLING **9 Hours**

Web analytics- Organic Search Analytics- turning data into insights with analytics- Building the business online- Expand the business globally through online.

Total: 45 Hour

Prescribed Books:

1. Understanding Digital Marketing-Damian Ryan-Kogan Page- 4th Edition
2. Fundamentals of Digital Marketing – Puneet Singh Bhatia – Pearson -First Edition

Reference Books:

1. Digital Marketing -Seema Gupta- Mcgraw Hill
2. Marketing 4.0 : Moving from Traditional to Digital -Philip Kotler, Hermawan Kartajaya, Iwan Setiawan-Wiley

WEBSITES :

http://www.mindtools.com/pages/article/henri-fayol.htm
http://faculty.mercer.edu/jackson_r/Ownership/chap02.pdf
http://global.kyocera.com/inamori/management/twelve.html

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	Unit – 4	2	
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ELECTIVE

BUSINESS ANALYTICS

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 3**	**No. OF HOURS PER WEEK: 3**

Course Objective:

- To familiarize the students on the latest technological tools that give a impetus to business

UNIT I: BUSINESS ANALYTICS **9 Hours**

Business Analytics – Types of Business Analytics – Domains of Analytics – Behaviourial Analytics – Cohort Analytics – Enterprise Optimisation – Difference between Business Analytics and Business Intelligence - Applications of Business Analytics - Challenges in Business Analytics

UNIT II: ARTIFICIAL INTELLIGENCE **9 Hours**

Artificial Intelligence - History of Artificial Intelligence – Methods and goals of Artificial Intelligence- Applications of Artificial Intelligence- Tools of Artificial Intelligence - Issues in Artificial Intelligence – Computer Languages for Artificial Intelligence – Future of Artificial Intelligence

UNIT III: MACHINE LEARNING **9 Hours**

Definition of Machine Learning - Machine Learning Methods - Few Approaches to Machine Learning – Artificial Neural Networks - Deep Learning – Clustering – Inductive Logic Programming – Representation Learning – Practical uses of Machine Learning – Ethics in Machine Learning

UNIT IV: INTERNET OF THINGS **9 Hours**

Internet of Things – Meaning – Characteristics of Internet of Things (IoT) – Technologies for Internet of Things(IoT) - Applications of Internet of Things (IoT) – Cloud Computing and Internet of Things (IoT) – Business Models for Internet of Things -Problems in Internet of Things.

UNIT V : BLOCK CHAIN TECHNOLOGY **9 Hours**

Block Chain Technology – Meaning of Blockchain – Types of Blockchain – Blockchain Technology and Finance industry - Bitcoin and Smart Contract - Other uses of Blockchain

Total: 45 Hour

Prescribed Books :

1. Steven Orla Kimbrough, Hoong Chuin Lau, Business Analytics for Decision Making, CRC Press A Chapman & Hall Book, 2016
2. Stevan Finalay, Artificial Intelligence and Machine Learning for Business, Relativistic Publisher, 2018

Reference Books:

1. Bikramaditya Singhal, Gautam Dhameja, Priyansu Sekhar Pand, Beginning Blockchain: A Beginner's Guide to Building Blockchain Solutions, Apress Publisher, 2018.
2. Rajkumar Buyya, Amir Vahid Dastjerdi, Internet of Things: Principles and Paradigms, Morgam Kaufmann,2016

WEBSITES :

1. http://www.mindtools.com/pages/article/henri-fayol.htm
2. http://faculty.mercer.edu/jackson_r/Ownership/chap02.pdf
3. http://global.kyocera.com/inamori/management/twelve.html

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GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A - Grade' by NAAC
(Affiliated to the University of Madras)

MASTER OF COMPUTER APPLICATIONS (MCA)

Regulations and Syllabus

(For the Candidates admitted in 2019 -2020 and thereafter)

SEMESTER SYSTEM WITH CREDITS

(Effective from the Academic year 2019-2020 and thereafter)

RULES AND REGULATIONS

I. CHOICE BASED CREDIT SYSTEM (CBCS) WITH GRADING

The College follows the CBCS with grades under the semester pattern. Every course paper is provided with a credit point based on the quantum of subject matter, complexity of the content and the hours of teaching allotment. This is done after a thorough analysis of the content of each subject paper by the members of the Board of studies and with the approval of the Academic Council. Students are also offered a variety of Job-oriented courses, Elective courses and courses involving Soft-skills as the part of curriculum. Students can earn extra credits by opting for Massive Open Online Courses (MOOCs) and Certificate Courses.

The evaluation method under CBCS involves a more acceptable grading system that reflects the personality of the student. This is represented as Cumulative Grade Point Average (CGPA) and Grade Point Average (GPA) which are indicators of Academic Performance of the student. It provides students scope for horizontal mobility and empowers them with the flexibility of learning at their convenience.

II. ELIGIBILITY FOR ADMISSION

Candidates admitted to the first year of the UG programme should have passed the higher secondary examinations (Academic or Vocational Stream) conducted by the Government of Tamil Nadu or an examination accepted as equivalent thereof by the Syndicate of the University of Madras. Students applying for the PG programme should have taken the UG degree in the concerned subject from a recognized university as per the norms of the University of Madras.

III. DURATION OF THE COURSE

The UG course is of three-year duration with six semesters and the PG course is of two- year duration with four semesters excluding MCA – three-year duration with six semesters. The odd semester includes the period from June to November and the even semester from December to April. There shall not be less than 90 working days for each semester.

IV. COURSE OF STUDY

The main subject of study for Bachelor's Degree shall consist of the following:

1. FOUNDATION COURSES

a) PART - I : Tamil or Classical Language (Hindi / Sanskrit/French)

b) PART - II : English

2. CORE COURSES

a) PART - III : Consisting of (a) Main subjects, (b) Allied Subjects, (c) Elective subjects related to the main subject of study and project work.

b) PART - IV

i. Those who have not studied Tamil / Hindi up to XII standard and have taken a non- Tamil / non – Hindi language under Part – I shall opt for BasicTamil / Basic Hindi in the first two semesters.

ii. Those who have studied Tamil up to XII standard, and taken a non -Tamil language under Part – I shall opt for Advanced Tamil in the first two semesters.

iii. Others, who do not come under either of the clauses mentioned above, can choose a Non-Major Elective (NME) in the first two semesters.

iv. Soft Skills. (I, II, III&IV Semesters)

v. Environmental Studies (IV Semester)

vi. Value Education (V Semester)

c) PART - V : Compulsory Extension Service

A candidate shall be awarded one credit for compulsory extension service.

All the students shall enroll for NSS / NCC /Sports & Games/ Rotaract/ Youth Red Cross / Citizen Consumer Club / Enviro Club or any other service organization in the College and shall have to put in compulsory minimum attendance of 40 hours which shall be duly certified by the Principal of the College. If a student lacks 40 hours attendance in any Semester, he/she shall have to compensate the same during the subsequent Semesters. Literacyand population, educational field work shall be compulsory components in the above extension service activities.

V. COURSE STRUCTURE

The UG course consists of 15-18 Core papers, 3 Elective papers and 4 Allied papers. The Credit for each core paper shall be 3-4, while the elective and allied papers shall carry a credit of 5. The B.Com (Hons) course has 32 core papers of 4 credits each.

The PG course has 14-17 core papers with 4 credits, elective papers with 3-4 credits and a project work.

The MBA course has 13 core papers of 4 credits each, 8 elective and interdisciplinary papers of 3 credits each and a project work.

The MCA Regular (3 Years) course has 26 core papers of 2-4 credits, 4 Elective papers of 3-4 credits, 1 Non – Major Elective of 4 credits, 1 Extra-disciplinary paper of 4 credits and a project work of 18 credits.

The MCA Lateral Entry (2 Years) course has 14 core papers of 2-4 credits, 4 Elective papers of 3-4 credits, 1 Non – Major Elective of 4 credits, 1 Extra-disciplinary paper of 4 credits and a project work of 18 credits.

The MSW course has 17 core papers with 3 credits for theory papers, 6 credits for field work, 2 credits for summer placement, 1 credit for study tour, 6 credits for research projects and 2 credits for block placement.

Internship training is a compulsory component for all the PG courses.

❖ **The details of the course structure are given in the following table:**

CHOICE BASED CREDIT SYSTEM WITH GRADING

POST GRADUATE DEGREE

COMPONENTS	M.Sc. Chemistry M.Sc. Mathematics M.Sc. Zoology M.A. Economics M.A. Defence & Strategic Studies			M. COM			M. S.W		
	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits
CORE COURSES INCLUDING PRACTICAL	14-17	4	60-70	16	4	64	17	3-6	65
PROJECT	0-1	6	0 - 6	0	0	0	1	6	6
ELECTIVES INCLUDING EXTRA DISCIPLINARY COURSES	3-5	3 - 4	10-20	4	4	16	7	2	14
SKILL	4	2	8	4	2	8	4	2	8
INTERNS HIP	0-1	2	0-2	1	2	2	0	0	0
TOTAL			**90**			**90**			**93**

COMPONENTS	M.C.A. REGULAR (3 YEARS)			M.C.A. LATERAL ENTRY (2 YEARS)			M.B.A.		
	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits
CORE COURSES INCLUDING PRACTICAL	26	2-4	81	14	2-4	41	13	4	52
PROJECT	1	18	18	1	18	18	1	8	8
ELECTIVES INCLUDING EXTRA DISCIPLINARY COURSES	6	3-4	21	6	3- 4	21	8	3	24
SKILL	6	2	12	4	2	8	4	2	8
INTERNS HIP	1	3	3	1	3	3	1	2	2
TOTAL			**135**			**91**			**94**

UNDER GRADUATE DEGREE

PART	COMPONENTS	B.Com(Gen.) B.Com(A&F) B.Com(B.M.) B.Com(M.M.) B.Com(ISM) B.B.A. B.C.A B.Sc (IT)			B.Com (C.S) B.Sc.(Mat.) B.Sc.(Phy.) B.Sc.(Chem.) B.Sc.(Plant Bio.) B.Sc.(Adv.Zoo) B.Sc.(C.S.) B.Sc.(Viscom) B.Sc (Biotech) B.A.(Eco.) B.A.(Defence), B.A. (English).			B.Com (Honours)		
		No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits
Part I Foundation Course	**Language (Tamil/ Hindi/ Sanskrit/ French)**	2	3	6	4	3	12	2	3	6
Part II Foundation Course	**English**	2	3	6	4	3	12	2	3	6
Part III	**Core Papers**	18	4	72	15-18	3-4	60	32	4	132
	Allied Papers	4	5	20	4	5	20	-	-	-
	Elective Papers	3	5	15	3	5	15	-	-	-
Part IV	**Non Major Electives/ Basic Tamil/ Advanced Tamil***	2	2	4	2	2	4	2	2	4
	Skill Based Elective	4	3	12	4	3	12	5	2-4	14
	Environmental Studies	1	2	2	1	2	2	1	2	2
	Value Education	1	2	2	1	2	2	1	2	2
Part-V	**Extension Service**	1	1	1	1	1	1	1	1	1
Total				**140**			**140**			**167**

Under Part IV of the Course, students should register separately for two Non-Major Elective papers, during the First and Second semester. The marks obtained under Part IV would not be included for classification of the candidate although a pass is mandatory. Students should have obtained the minimum credit under Part V to be eligible to receive the degree.

VI. EXAMINATIONS

Continuous Internal Assessment (CIA) will be for 50 percentage and End Semester Examination (ESE) will be for 50 percentage.

➢ CONTINUOUS INTERNAL ASSESSMENT (CIA)

Every semester has two centralized CIA examinations and one model examination for each paper. Each of the Continuous Assessment Tests (CAT) of one-and-a-half-hour duration will be conducted on completion of 30 and 60 working days respectively in each semester. A Model exam of three hours' duration wi**l** be conducted on completion of 80 working days in each semester.

The schedules for these tests are as follows:

C.I.A.Test	Schedule	Syllabus Coverage
I	After 30 working days from the commencement of the Semester	40%
II	After 60 working days of the Semester	80%
III (Model Examination)	After 80 working days of the Semester	95%

The components for the CIA are as follows:

Internal Components			
Assessment Type	**Nature**	**Maximum Marks**	**% of Weightage**
CIA	Written Test - 1	50	5
	Written Test – 2	50	5
Model	Model Examination	100	10
	Assignment		10
	Class activity		15
	Attendance		5
	Total		**50**

The class activity relates to a programme of accepted innovative techniques such as seminars, quiz, portfolio creation, MCQ, power point presentation, objective tests, role play etc. The mode of evaluation of the class activity will be fixed before the commencement of the semester and an approval will be obtained from the HOD. Once the classes begin, the student would be informed.

A record of all such assessment procedures will be maintained by the department and is open for clarification. Students will have the right to appeal to the Principal in case of glaring disparities in marking.

CIA marks for practical subjects will be awarded by the respective faculty based on the performance of the student in the model practical examination, observation notebook, submission of record books, regularity and attendance for the practical classes. The attendance particulars for practical classes will be maintained by the concerned faculty.

Marks for attendance will be awarded as per the following:

Percentage of General Attendance	Marks Awarded
90-100	5
75-89	4
60-74	3
<60	0

- **END SEMESTER EXAMINATIONS (ESE)**

Examinations will be conducted during each semester after the completion of a minimum of 90 working days. Examinations will be held for all papers of the course in Nov/Dec and April/May for all UG and PG courses.

Practical examinations will be conducted only during the end of the odd / even semester either before, during or after the commencement of the theory exam. The schedule for ESE Practicals will be notified by the Controller of Examinations in consultation with the Dean (Academics).

A candidate will be permitted to appear for the End of Semester examinations for any semester if:

a) He / She secures not less than 75% of attendance in the working days during the semester.
b) His / Her conduct has been satisfactory
c) He / She should have applied for the examination
d) He / She should have paid the requisite examination fee

The attendance requirements to appear for the ESE are as follows:

i. Students must have 75% of attendance in each part of the course of study to appear for the examination.

ii. Students who have 65% to 74.9% of attendance shall apply for condonation in the prescribed form along with the prescribed fee after obtaining permission from the Principal. Students cannot claim condonation as a matter of right. Submission of Medical Certificate is normally not accepted to condone shortage ofattendance.

iii. Students who have 50% to 64.9% of attendance will fall under the - **Withheld category**. Such students cannot take up the ESE exams. They should apply to the Principal for permission to write the next supplementary examination and pay the requisite fee for this purpose. However, they can appear for previous semester supplementary paper.

iv. Students who have less than 50% of attendance fall under the - **Detained category would not be permitted to appear for the examination. They shall redo the semesters after completion of the course and appear for the examination after securing the required percentage of attendance. The decision of the Principal remains final and binding in all respects.**

v. Students who do not get the minimum marks to pass in the ESE shall compulsorily re-appear for the paper in the subsequent semester after paying the required fee.

A Student who for whatever reasons is not able to complete the program within the normal period (N) or the minimum duration prescribed for the programme, may be allowed two years period beyond the normal period to clear the backlog to be qualified for the degree. (Time Span = N +2 +1 years for the completion of programme).

In exceptional cases like Major accidents and child birth an extension of one year be considered beyond maximum span of time (Time Span = N + 2 + 1 years for the completion of programme).

If they fail to do so, they shall re-register their names and take the examination in the revised regulations/syllabus of the paper in force at the time of their reappearance. In the event of removal of that paper consequent to the change of regulation and/or curriculum after 5-year period, the candidate shall have to take up an equivalent paper in the revised syllabus as suggested by the Chairman of the concerned Board of Studies. Students qualifying during the extended period, shall not be eligible for **RANKING.**

➢ **INSTANT EXAMINATIONS (SPECIAL SUPPLEMENTARY EXAMINATION)**

In order to provide an opportunity to the final UG and PG students to obtain the degree in the same year and also to facilitate vertical mobility, special supplementary End Semester Examinations will be conducted in about 30 days from the date of publication of results every year for the final semester theory papers and also for the candidates who had failed in **ONLY ONE** theory paper of the previous semesters. Students, who wish to apply for special supplementary End Semester Examinations, can do so within 7 days from the date of publication of results.

Students involved in Malpractice will not be permitted to appear for Supplementary Examination.

The details of the ESE are as follows:

External Component			
Assessment type	**Comprehensive Test**	**Maximum mark**	**% of Weightage**
External Exam	3 Hours Examination	100	50
	Grand Total (CIA+ESE)		100

VII. CONDUCT OF EXAMINATION

Chief Superintendent of Examinations will be the Principal or a person appointed by the Principal. The conduct of End Semester Examinations lies with the team led by the Chief Superintendent.

The time-table for examinations will be finalized by the office of the Controller of Examinations and will be displayed well in advance i.e., 20 days prior to the commencement of examinations.

The Hall tickets for eligible students will be issued 3 days prior to the commencement of examinations. For Subjects like Environmental Studies / Value Education, End Semester Examinations may be conducted on-line or along with the regular ESE.

VIII. VALUATION

Valuation of the answer scripts are undertaken at the central valuation camp led by the Controller of Examinations or the Camp Officer appointed by the Controller of Examinations. Single valuation of answer scripts by external examiners is adopted for both UG and PG Courses.

IX. PUBLICATION OF RESULTS

The Examination results will be published on the web portal during the third / fourth week of May for the II, IV and VI semester examinations and during the third / fourth week of December for the I, III and V semester examinations

A. GUIDELINES FOR OBTAINING PHOTOCOPY OF THE ANSWER SCRIPT

Candidates seeking photocopy of the answer scripts are advised to go through these rules and regulations before theyapply

i. Photocopy is allowed only for Regular theory papers in PART I, II and III. **(Supplementary excluded).**

ii. Select the papers carefully in which you wish to get the photocopy. No second application for additional papers would be accepted.

B. GUIDELINES FOR APPLYING REVALUATION OF THE ANSWER SCRIPT

Candidates seeking revaluation are advised to go through these rules and regulations before they apply

i. Revaluation is allowed only for Regular theory papers in PART I, II and III. **(Supplementary excluded).**

ii. Select the papers carefully in which you wish to get the revaluation. No second application for additional papers would be allowed.

iii. The application is to be filled in by the candidate in his/her own hand-writing and not by anyone else on his/her behalf.

iv. Entries made by the candidate are to be verified by the HOD and forwarded to the Principal for endorsement.

v. Prescribed Fee payment receipt or challan to be attached with the Application Form and submitted to the Principal's Office. The candidate wi**l** be given an acknowledgement for submission mentioning date and time.

vi. Candidate to be aware that when applying for revaluation, He / She SURRENDERS the original performance and will now accept the revised performance in which

(a) There can be NO CHANGE in the marks (or)

(b) There can be INCREASE in themarks

X. CLASSIFICATION OF PERFORMANCE – GRADING SYSTEM FOR THE SEMESTER

A candidate shall be declared to have qualified for the award of the Degree provided the candidate has successfully completed the Programme requirements and has passed all prescribed subjects of study in all the semesters.

Passing Minimum :

UG CIA 40% AGGREGATE 40%

B.Com(Hons.) and PG CIA 50% ESE 50% AGGREGATE 50% OF THE MAXIMUM OF THE COMPONENT IN THAT PAPER / COURSE

P: Pass, U: Re-Appear, WH: Withheld, AAA: Absent, CIA: Continuous Internal Assessment, ESE: End Semester Examination, GPA: Grade Point Average. CGPA: Cumulative Grade Point Average

UNDER GRADUATE DEGREE

PART – I	**:**	**TAMIL / OTHER LANGUAGES**
PART – II	**:**	**ENGLISH**
PART – III	**:**	**CORE, ALLIED AND ELECTIVE**
PART – IV	**:**	**TAMIL / NON MAJOR ELECTIVE, SKILL BASED ELECTIVES, ENVIORNMENTAL STUDIES AND VALUE EDUCATION**
PART – V	**:**	**EXTENS ION ACTIVITIES**

POST GRADUATE DEGREE

PART – A	**:**	**CORE, ELECTIVE, MAJOR PROJECT**
PART – B	**:**	**SOFT SKILL COURSE, INTERNS HIP**

RANGE OF MARKS FOR GRADES UG Also for Certificate / Diploma				RANGE OF MARKS FOR GRADES UG[B.Com.(Hons.)], PG and also for PG Diploma			
Range of Marks	**Grade Points**	**Letter Grade**	**Description**	**Range of Marks**	**Grade Points**	**Letter Grade**	**Description**
90 - 100	9.0 - 10.0	O	Outstanding	90 - 100	9.0 - 10.0	O	Outstanding
80 - 89	8.0 - 8.9	D+	Excellent	80 - 89	8.0 - 8.9	D+	Excellent
75 - 79	7.5 - 7.9	D	Distinction	75 - 79	7.5 - 7.9	D	Distinction
70 - 74	7.0 - 7.4	A+	Very Good	70 - 74	7.0 - 7.4	A+	Very Good
60 - 69	6.0 - 6.9	A	Good	60 - 69	6.0 - 6.9	A	Good
50 - 59	5.0 - 5.9	B	Average	50 - 59	5.0 - 5.9	B	Average
40 - 49	4.0 - 4.9	C	Satisfactory	00 - 49	0.0 - 4.9	U	Re-appear
00 - 39	0.0 - 3.9	U	Re-appear	ABSENT	0	AAA	Absent
ABSENT	0	AAA	Absent				

C*i*= Credits earned for course *i* in any semester

G*i*= Grade Point obtained for course *i* in any semester

n refers to the semester in which such courses were credited.

- **CGPA Grades:**

CGPA	GRADE	CLASSIFICATION OF FINAL RESULT
9.5-10.0	O+	First Class - Exemplary*
9.0 and above but below 9.5	O	
8.5 and above but below 9.0	D++	First Class with Distinction*
8.0 and above but below 8.5	D+	
7.5 and above but below 8.0	D	
7.0 and above but below 7.5	A++	First Class
6.5 and above but below 7.0	A+	
6.0 and above but below 6.5	A	
5.5 and above but below 6.0	B+	Second Class
5.0 and above but below 5.5	B	

B.Com (Hons.)	UG	B.Com (Hons.)	B.Com (Hons.)	UG	UG
0.0 and above but below 5.0	4.5 and above but below 5.0	U	Re-appear	C+	Third Class
	4.0 and above but below 4.5			C	
	0.0 and above but below 4.0			U	Re-appear

The candidates who have passed in the first appearance and within the prescribed semester of the UG/PG Programme (Core, Allied and Elective) alone are eligible.

GRADING SYSTEM

For a Semester:

GRADE POINT AVERAGE [GPA] = $\sum_i C_i G_i / \sum_i C_i$

$$GPA = \frac{\text{Sum of the multiplication of grade points by the credits of the courses}}{\text{Sum of the credits of the courses (passed) in a semester}}$$

For the entire programme:

CUMULATIVE GRADE POINT AVERAGE [CGPA] = $\sum_n \sum_i C_{ni} G_{ni} / \sum_n \sum_i C_{ni}$

$$CGPA = \frac{\text{Sum of the multiplication of grade points by the credits of the entire programme}}{\text{Sum of the credits of the courses of the entire programme}}$$

(CGPA is calculated only if the candidate has passed in all the courses in the entire programme)

XI. CONCESSIONS FOR DIFFERENTLY-ABLED STUDENTS

A. DYSLEXIA STUDENTS

For students who are mentally disabled, learning disability and mental retardation, who are slow learners, who are mentally impaired having learning disorder and seizure disorder and students who are spastic and cerebral Palsy, the following concessions shall be granted:

i. Part I Foundation course Tamil or any other Language can be exempted.

ii. One-third of the time of paper may be given as extra time in the examination.

iii. Leniency in overlooking spelling mistakes, and

iv. Amanuensis for all courses provided the request is duly certified by the Medical Board of the Government Hospital/ General Hospital/ District headquarters Hospitals and they shall be declared qualified for the degree if they pass the other examinations prescribed for the degree.

B. HEARING, SPEAKING IMPAIRED & MENTALLY RETARDED

For students who are hearing and speaking impaired and who are mentally challenged, the following concessions shall be granted:

i. One Language paper either Part I Foundation course Tamil or any other Language or Part II English or its equivalent can beexempted

ii. Part IV Non-Major Elective (NME) or Basic Tamil or Advanced Tamil can be exempted.

C. VISUALLY CHALLENGED STUDENTS:

i. Exempted from paying examination fees.

ii. A scribe shall be arranged by the College and the scribe be paid as per the College decision.

XII. INTERDISCIPLINARY ELECTIVE (IDE)

It has been proposed that the UG students admitted from the academic year 2019 – 2020 onwards would take up an Interdisciplinary Elective (IDE) Paper in their Fifth Semester for the students admitted in the year 2019 onwards.

❖ **The following Departments functioning in Shift I will be offering IDE Papers to students only from Shift I:**

S.NO	DEPARTMENT	IDE (TITLE OF THE PAPER)
1	Mathematics	Business Mathematics
2	Physics	Integrated Electronics
3	Chemistry	Chemistry in Everyday Life
4	Plant Biology and Plant Biotechnology	Horticulture and Mushroom Cultivation
5	Advanced Zoology and Biotechnology	Wildlife Conservation
6	Commerce (General)	Entrepreneurial Development
7	Corporate Secretaryship	Entrepreneurial Development
8	Economics	Economics of Insurance
9	Defence and Strategic Studies	An Introduction to Defence Journalism
10	Department of Hindi	Communication Hindi : Oral and Written

❖ **The following Departments functioning in Shift II will be offering IDE Papers to students only from Shift II:**

S.NO	DEPARTMENT	IDE (TITLE OF THE PAPER)
1	Commerce (General)	Entrepreneurial Development
2	Commerce (A&F)	Indian Constitution and Human Rights
3	Commerce (BM)	Personal Investment Planning
4	Commerce (MM)	Tourism Management
5	Commerce (Hons)	Business Venture
6	Corporate Secretaryship	Entrepreneurial Development
7	BBA	Managerial Skill Development
8	BCA	Introduction to Web Designing(HTML & CSS) -Practical
9	Computer Science	Internet And Its Applications
10	Visual Communication	Film Appreciation

❖ **The following Departments from Shift II, functioning in Shift I timings can only offer IDE Papers to the students functioning within the same Shift I timings:**

S.NO	DEPARTMENT	IDE (TITLE OF THE PAPER)
1	Commerce (ISM)	Essentials of office Automation Tools and E-Mail Etiquette
2	B.Sc.(IT)	Web Designing
3	B.Sc. (Biotechnology)	Intellectual Property Rights
4	B.A. (English)	Travel Writing

XIII. OPTION TO EARN ADDITIONAL CREDITS

A. MOOCs (Massive Open Online Courses)

- UG students can opt for a minimum of one Course and earn 2 credits, while a maximum of 6 Credits can be earned by opting three courses during their three- year period of study.
- PG students can opt for a minimum of one Course and earn 2 credits, while a maximum of 4 Credits can be earned by opting two courses during their two-year period of study.
- This is completely optional.

B. CERTIFICATE COURSES

The Certificate courses are offered by the departments for a duration of 30 hours which will enable the students to earn 2 additional credits.

C. ADDITIONAL CREDIT FOR EXTENSION SERVICES

All the students who have put in additional 40 hours or more apart from the compulsory minimum hours in NSS / NCC / Sports & Games / Rotaract / Youth Red Cross / Citizen Consumer Club / Enviro Club or any other service organization in the College and which shall be duly certified by the Principal of theCollege, will be eligible to earn an additional credit at the time of completion of their Course.

XIV. REQUIREMENT FOR PROCEEDING TO SUBSEQUENTSEMESTER

i. Candidates shall register their names for the first semester examination after admission in the UG / PG courses.

ii. Candidates shall be permitted to proceed from the first semester up to final semester irrespective of their failure in any of the semester examinations subject to the condition that the candidate had registered for all the arrear subjects of earlier semesters along with current semester subjects.

XV. ISSUE OF CERTIFICATES

A Statement of Marks will be issued to every student who has written the examination.

❖ **Consolidated Mark Sheet**

Consolidated mark sheets will be given to final year students along with total credits earned only to those who have passed in all the papers prescribed for the respective degree.

❖ **Transcript**

Students who wish to obtain any Transcript certificate for joining courses of study in other Universities in India or abroad or for obtaining scholarships, can obtain these certificates from the office of the Controller of Examinations. A requisition letter duly signed by the Student and forwarded by the Principal along with fee challan is to be submitted to the office of the Controller of Examinations. The Certificate will be provided within 15 working days in a sealed envelope.

❖ **Provisional Certificate**

A copy of the results of the successful final year students will be sent to the University of Madras in the prescribed format in July/August and the University will issue a Provisional Certificate through the College. A soft copy can be downloaded from the University of Madras website and a hard copy will be provided by them within 90 days of the issue of soft copy.

❖ **Corrections in the Certificates**

Any corrections like name, date of birth etc., can also be made in the certificate. A letter of request duly signed by the student, HOD and Principal along with the prescribed fee paid challan is to be forwarded to the office of the Controller of Examinations. The time line to update will be 15 working days. The amount once paid will not be refunded under any circumstances.

❖ **Duplicate Mark Sheet**

In case of loss of mark sheet / certificate, a duplicate will be provided after submitting a non-traceable certificate issued from the Police station duly signed by an Inspector or Sub Inspector. A letter of request duly signed by the student, HOD and Principal along with the prescribed fee paid challan is to be forwarded to the office of the Controller of Examinations.

❖ **Duplicate Provisional Certificate / Degree Certificate:**

Students have to apply directly to the University of Madras for duplicate provisional certificate and degree certificate.

❖ **Verification of Qualification**

Agencies which request for verification of educational qualification of students under autonomous mode of this college and students who opt for higher studies / employment and who require verification of educational qualification, shall verify online through the QR code in the consolidated mark sheet through online payment. They can also apply to the Principal to this effect along with the prescribed fees which has to be forwarded to the OCOE. The relevant certificate will be issued within 15 working days from the receipt of the forwarded request of the Principal and the same office.

XVI. CONVOCATION AND NOTICE

❖ **Convocation**

Every year after the Convocation is conducted by the University of Madras, the College will hold a Graduation day / Convocation in which the Degree Certificates will be distributed to the students who are present. For others it will be issued by the College Office. Students should collect the same within 30 days of convocation after which a search fee will be charged. **Students are responsible to collect their Certificates and the College shall not be liable for the same.**

❖ **Notice**

Candidates, who have completed the duration of the course and left the College, can get information regarding Supplementary Examinations, issue of examination applicationforms, certificates and application for Graduation day through the college web site andgeneral notice board. Regular students will however be informed of the examinations by circulation, in addition to the modes mentioned above.

No candidate will be communicated individually.

XVII. MODUS OPERANDI FOR THE SYLLABUS

i. The department will finalize thesyllabus.

ii. Finalization implies a change in the existing syllabus or a revamp of entire syllabus

iii. They will place it on the BOS meeting. After approval of the syllabus in the BOS, the concerned department will submit the minutes along with the modified syllabus book / sheet (five copies) to the Dean's office within ten days of the BOS meeting

iv. A Soft copy of the batch-wise syllabus approved by the BOS in PDF format is to be sent to the Dean's mail ID within ten days of the BOS meeting.

COURSE STRUCTURE

Semester	Subject	Subject Title	Credits	Hrs	CIA	ESE	Total
I	Core-1	Problem Solving and Programming using C	4	5	50	50	100
	Core-2	Computer Communication and Networking	4	5	50	50	100
	Core-3	Open Source Technologies	4	5	50	50	100
	Core-4	Software Engineering	4	5	50	50	100
	Core-5	Practical - I : Programming in C Lab	2	4	50	50	100
	Core-6	Practical - II : Open Source Technology Lab	2	4	50	50	100
	Soft Skill-1	Language and Communication Skill	2	2	50	50	100
II	Core-7	Data Structures and Algorithms	4	5	50	50	100
	Core-8	Advanced Internet Technologies	4	5	50	50	100
	Core-9	Operating Systems	4	5	50	50	100
	Core-10	Advanced Java Programming	4	5	50	50	100
	Core-11	Practical - III : Advanced Internet Technologies Lab	2	4	50	50	100
	Core-12	Practical - IV : Advanced Java Programming Lab	2	4	50	50	100
	Soft Skill-2	Presentation Skill	2	2	50	50	100
III	Core-13	Web Development using PHP and MySQL	4	4	50	50	100
	Extra-Disciplinary	Accounting and Financial Management	4	5	50	50	100
	Core-14	Data Analysis using Python	4	4	50	50	100
	Core-15	Artificial Intelligence	3	4	50	50	100
	Non-Major Elective	Essential Statistics For Analytics	4	4	50	50	100
	Core-16	Practical - V : PHP and MySQL Lab	2	4	50	50	100
	Core-17	Practical - VI : Data Analysis using Python Lab	2	4	50	50	100
	Soft Skill-3	Managerial Skill	2	1	50	50	100
IV	Core – 18	Machine Learning using R	3	4	50	50	100
	Core – 19	User Interface Design and Development	3	4	50	50	100
	Core – 20	Advanced Database Management System	4	4	50	50	100
	Core – 21	Cloud Computing and Virtualization	4	4	50	50	100
	Elective -1	Elective - I (**LATEST TECHNOLOGY)**	3	4	50	50	100
	Core – 22	Practical - VII : UI Design and Development Lab	2	4	50	50	100
	Core – 23	Practical - VIII : Advanced DBMS Lab	2	4	50	50	100
	Soft Skill-4	Quantitative Aptitude	2	2	50	50	100
V	Core – 24	Robotic Process Automation	4	5	50	50	100
	Elective-2	Elective – II	4	5	50	50	100
	Elective-3	Elective – III	3	5	50	50	100
	Elective-4	Elective – IV	3	5	50	50	100
	Core – 25	Practical - IX : Robotic Process Automation Lab	2	4	50	50	100
	Core - 26	Practical - X : Mini Project	2	5	50	50	100
	Soft Skill-5	Group Discussion	2	1	50	50	100
	Internship	During Summer Vacation of IV Semester 6 to 8 Weeks	3	-	50	50	100
VI	Soft Skill-6	Content Writing	2	2	50	50	100
	Project	Project and Viva-Voce	18	28	20	60+20	100
		TOTAL CREDITS	**135**				

GURU NANAK COLLEGE (AUTONOMOUS), CHENNAI – 600 042
With Effect From 2019-20

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS (MCA)

SEMESTER – I			
Subject	**Subject Title**	**Credits**	**No. of Hours**
Core-1	Problem Solving and Programming using C	4	5
Core-2	Computer Communication and Networking	4	5
Core-3	Open Source Technologies	4	5
Core-4	Software Engineering	4	5
Core-5	Practical - I : Programming in C Lab	2	4
Core-6	Practical - II : Open Source Technology Lab	2	4
Soft Skill-1	Language and Communication Skill	2	2
	Total	**22**	**30**

SEMESTER – II			
Subject	**Subject Title**	**Credits**	**No. of Hours**
Core-7	Data Structures and Algorithms	4	5
Core-8	Advanced Internet Technologies	4	5
Core-9	Operating Systems	4	5
Core-10	Advanced Java Programming	4	5
Core-11	Practical - III : Advanced Internet Technologies Lab	2	4
Core - 12	Practical - IV : Advanced Java Programming Lab	2	4
Soft Skill-2	Presentation Skill	2	2
	Total	**22**	**30**

SEMESTER – III			
Subject	**Subject Title**	**Credits**	**No. of Hours**
Core-13	Web Development using PHP and MySQL	4	4
Extra-Disciplinary	Accounting and Financial Management	4	5
Core-14	Data Analysis using Python	4	4
Core-15	Artificial Intelligence	3	4
Non-Major Elective	Essential Statistics For Analytics	4	4
Core-16	Practical - V : PHP and MySQL Lab	2	4
Core-17	Practical - VI : Data Analysis using Python Lab	2	4
Soft Skill-3	Managerial Skill	2	1
	Total	**25**	**30**

SEMESTER – IV			
Subject	**Subject Title**	**Credits**	**No. of Hours**
Core – 18	Machine Learning using R	3	4
Core – 19	User Interface Design and Development	3	4
Core – 20	Advanced Database Management System	4	4
Core – 21	Cloud Computing and Virtualization	4	4
Elective - 1	Elective - I **(LATEST TECHNOLOGY)**	3	4
Core – 22	Practical - VII : UI Design and Development Lab	2	4
Core – 23	Practical - VIII : Advanced DBMS Lab	2	4
Soft Skill-4	Quantitative Aptitude	2	2
	Total	**23**	**30**

SEMESTER – V			
Subject	**Subject Title**	**Credits**	**No. of Hours**
Core – 24	Robotic Process Automation	4	5
Elective-2	Elective – II	4	5
Elective-3	Elective – III	3	5
Elective-4	Elective – IV	3	5
Core – 25	Practical - IX : Robotic Process Automation Lab	2	4
Core - 26	Practical - X : Mini Project	2	5
Soft Skill-5	Group Discussion	2	1
Internship	During Summer Vacation of IV Semester 6 to 8 Weeks	3	-
	Total	**23**	**30**

SEMESTER – VI			
Subject	**Subject Title**	**Credits**	**No. of Hours**
Soft Skill-6	Content Writing	2	2
Project	Project and Viva-Voce	18	28
	Total	**20**	**30**

	Credits	**No. of Hours**
OVERALL	**135**	**180**

ELECTIVES

Elective - II	Data Mining and Warehousing
	Hadoop Big Data
	Data Science And Big Data Analytics
Elective - III	MATLAB Programming
	Object Oriented Analysis, Design and UML
	Design and Analysis of Algorithm
Elective - IV	Information Security and Cyber Laws
	Enterprise Resource Planning
	e-Commerce
	Human Resource Management

QUESTION PAPER PATTERN

Section	Question Component	Numbers	Marks	Total
Section - A	**Definition / Principle** Answer ALL questions (Each in 50 words)	1-10	2	20
Section - B	**Short Answer** Answer any 5 out of 7 questions (Each in 300 words)	11-17	7	35
Section - C	**Essay** Answer any 3 out of 5 questions (Each in 1200 words)	18-22	15	45

DISTRIBUTION OF QUESTIONS

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE– I
PROBLEM SOLVING AND PROGRMMING USING C

SUBJECT CODE : 19PMCA301	**THEORY**	**MARKS : 100**
SEMESTER : I	**CREDITS : 4**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To introduce problem solving and basic programming concepts in C.
- At the end of this course students will be able to solve problems and program efficiently in C.

UNIT-I : **(15 Hours)**

Basics of 'C', Input / Output & Control Statements, C character set, Identifiers– Keywords - Variables – Constants – I/O Statements, Operators - operators hierarchy & associativity, Data input/output, Type conversion.

UNIT-II: **(15 Hours)**

Control statements, Arrays and Functions Sequencing, Selection: if and switch statement; Repetition: For, While, and Do-While loop; Break, Continue, Goto. Array-One Dimension and Multidimensional Array - Structure and Union.

UNIT-III: **(15 Hours)**

User Defined and Built in Functions : Definition, prototypes, passing parameters, recursion, Passing Array to function- passing Structure to function. String - Declaration -Initialization and String Manipulation Functions.

UNIT-IV: **(15 Hours)**

Pointers - pointer operators - arrays and pointers - Dynamic memory allocation - File Management in C - Files and Streams - File handling functions - Command Line Arguments.

UNIT-V: **(15 Hours)**

Introduction to Graphics in C, Drawing objects in C - line, circle, rectangle, ellipse- Changing Foreground and Background color, filling objects with colors.

PRESCRIBED BOOKS :

1. E. Balaguruswami, "Programming in ANSI C", Tata Mcgraw Hill, 2012.
2. D.M.Dhamdhere,1999,Systems Programming and Operating Systems, Second Revised Edition, Tata McGraw –Hill, New Delhi.

REFERENCE BOOKS :

1. Brian W. Kernighan, Dennis M. Ritchie, "The C Programming Language", 2nd Ed., Prentice Hall of India.
2. Rema Thareja, "Programming in C", Oxford University Press.
3. Yashwant Kanetker, "Let us C", BPB Publications, 2008.

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
Section - A	**Definition / Principle** Answer ALL questions (Each in 50 words)	1-10	2	20
Section - B	**Short Answer** Answer any 5 out of 7 questions (Each in 300 words)	11-17	7	35
Section - C	**Essay** Answer any 3 out of 5 questions (Each in 1200 words)	18-22	15	45

Distribution of Questions

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
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	Unit – 3	1	
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Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE - II
COMPUTER COMMUNICATION AND NETWORKING

SUBJECT CODE : 19PMCA302	**THEORY**	**MARKS : 100**
SEMESTER : I	**CREDITS : 4**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To understand the basic aspects of Computer Communication and Networking.
- At the end of this course students will have a good understanding about computer communication and networking.

UNIT-I : **(15 Hours)**

Computer Networks - Applications - Line configuration - Topology - Transmission Modes - Categories of Network: LAN, MAN, WAN - OSI Layer. Physical Layer: Signals - spectrum - bandwidth of analog/digital signals.

UNIT-II : **(15 Hours)**

Data Link Layer: Error Detection - Error correction- Line discipline Flow Control: stop - wait protocol and sliding window protocol Error control: ARQ, Go-back-n ARQ, selective - repeat ARQ. Data Link Protocols: Asynchronous protocols – synchronous protocol.

UNIT-III: **(15 Hours)**

Network Layer: Circuit switching - packet switching- message switching - Connection oriented and connectionless services. Routing Algorithms – congestion control Algorithms - internetworking - Routers and Switches- Introduction to firewalls.

UNIT-IV : **(15 Hours)**

LAN Protocols: Ethernet - Token Ring - Token Bus - FDDI - Addressing and Frame format – Bridges - LAN Security: Types of threats - Levels of security Wireless LAN: need - components - Receiving Devices - advantages and disadvantages.

UNIT-V : **(15 Hours)**

TCP/IP Networking : TCP/IP Architecture - Structural overview – Internetworking model - Protocol evolution - Division of functions - Network characteristics - implementation characteristics - Network addressing and Routing: Datagram Header - IP address space.

PRESCRIBED BOOKS :

1. Behruz A. Ferouzon, " Data Communication and Networking", Tata McGraw, 2004.

REFERENCE BOOKS :

1. Andrew S.Tanenbaum ,"Computer Networks ", III edition - Pearson Education, 1998.
2. William Stallings , "Data and Computer Communication " , Pearson Education, 5th Edition, September 2000.

Question Paper Pattern

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	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
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	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE - III
OPEN SOURCE TECHNOLOGIES

SUBJECT CODE : 19PMCA303	**THEORY**	**MARKS : 100**
SEMESTER : I	**CREDITS : 4**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To understand about Open source technologies and working with Linux commands.
- At the end of this course students will be able to work in Linux Environment.

UNIT-I : **(15 Hours)**

Introduction to Unix – Unix Components – Commands in Unix – Command Substitution – File and File Organization : Unix files – categories of files- file system – directory commands - File related commands.

UNIT-II : **(15 Hours)**

File Attributes and Permission – Standard I/O- Redirection , pipes and filters – Sample database file – Handling Columns and Fields –The Sort and unique command-Vi editor.

UNIT-III : **(15 Hours)**

Shell Programming : Shell variables – export commands – positional parameters – branching control structures – loop control structures – real arithmetic initial programs – debugging scripts.

UNIT-IV : **(15 Hours)**

Regular Expressions –The Grep family – The stream editor(sed) – The process- Parent and child process- types of process – foreground and background process- internal and external commands.

UNIT-V : **(15 Hours)**

Structure of an AWK script- variables, Records, Field and special variables- patterns , operators-awk control structures.

PRESCRIBED BOOKS :

1. M.G.Venkateshmurthy,"Introduction to Unix and shell programming ", Pearson Education India, New Delhi , 2009.

REFERENCE BOOKS :

1. R. Stones, N. Mattew, 2011, Beginning Linux Programming, 4th Edition, Wiley India Pvt. Ltd.-New Delhi.
2. Andrew M. St. Laurent, "Understanding Open Source and Free Software Licensing Guide to Navigating Licensing Issues in Existing & New Software", O'Reilly Media

Question Paper Pattern

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	Unit – 3	1	
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	Unit – 5	1	

CORE - IV
SOFTWARE ENGINEERING

SUBJECT CODE : 19PMCA304	**THEORY**	**MARKS : 100**
SEMESTER : I	**CREDITS : 4**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To understand about software engineering in detail.
- At the end of this course students will be able to understand the software engineering progress and its intricacies.

UNIT-I : **(15 Hours)**

The Software Product and Software Process : Software Product and Process Characteristics, Software Process Models: Linear Sequential Model, Prototyping Model, RAD Model, Evolutionary Process Models like Incremental Model, Spiral Model, Component Assembly Model, RUP and Agile processes.

UNIT-II : **(15 Hours)**

Requirement Elicitation, Analysis, and Specification : Functional and Non-functional requirements, Requirement Sources and Elicitation Techniques, Analysis Modeling for Function-oriented and Object-oriented software development, Requirement Validation.

UNIT-III: **(15 Hours)**

Software Design: The Software Design Process, Design Concepts and Principles, Software Modeling and UML, Architectural Design, Architectural Views and Styles, User Interface Design, Function-oriented Design, Component Based Design, Design Metrics.

UNIT-IV : **(15 Hours)**

Software Testing : Purpose- – Testing Vs Debugging - Bugs – Types of Bugs -Levels of Testing – Testing Approaches – Types of Testing – Test Cases - Test Plan- Flow/Graphs and Path Testing – Achievable paths – Path instrumentation – Transaction Flow Testing Techniques – Data Flow Testing Strategies -Linguistic – Metrics – Structural Metrics.

UNIT-V : **(15 Hours)**

Software Project Management : The Management spectrum – W5HH principle –Process and Project Metrics –Software Measurement – Software Project Estimation – Decomposition Techniques - Project Scheduling and Tracking, Risk Assessment and Mitigation, Software Quality Assurance (SQA), Project Plan, Project Metrics.

PRESCRIBED BOOKS :

1. Roger. S. Pressman, 2010, Software Engineering A Practitioners approach, Seventh Edition, Tata McGraw-Hill, New Delhi.
2. B. Beizer , 2003, Software Testing Techniques, II Ed., DreamTech India, New Delhi.

REFERENCE BOOKS :

1. I. Sommerville, 2001, Software Engineering, 6th Edition, Addison Wesley, Boston.
2. Rajib Mal, 2005, -Fundamental of Software engineering , 2 nd Edition , PHI, New Delhi.
3. N. E. Fenton, S. L. Pfleenger, 2004, Software Metrics, Thomson Asia, Singapore.
4. Richard H.Thayer, ”Software Engineering& Project Management”, Willey India
5. Pankaj Jalote , ”An Integrated Approach to Software Engineering”, Narosa Pub, 2005

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	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE - V
PRACTICAL - I : PROGRAMMING IN C LAB

SUBJECT CODE : 19PMCA305P	**PRACTICAL**	**MARKS : 100**
SEMESTER : I	**CREDITS : 2**	**TOTAL No. OF HOURS :60**

COURSE OBJECTIVES:

- To have hands-on experience in C programming.
- At the end of this course students will be able to write C program and good at debugging.

EXERCISES:

1. Determining a given number is prime or not.
2. Determine a given Number is Armstrong Number or Not.
3. Pascal's triangle
4. Quadratic Equation.
5. Program for SIN(X) = X-X3/3!+X5/5!-X7/7!+..... XN/N!
6. Program for exp(x) = 1+x+x.x/2!+x.x.x/3!.....
7. Program for nPr and nCr.
8. C program to delete the specified integer from the Array.
9. Matrix Multiplication
10. Transpose of a Matrix
11. Program to count No. of Vowels, Consonants, Words and Spaces in a String
12. String Manipulation
13. File Processing
14. Write a program to accept 10 numbers and display its sum using pointer
15. Program for Payroll Processing using Structure
16. Program to draw a circle using C graphics
17. Program to draw a Line using C Graphics
18. Write a C program to draw a Triangle
19. Program for printing Text in Graphics Using Outtextxy Function.
20. Program to change Background and Foreground Color using C Graphics.

CORE - VI

PRACTICAL - II : OPEN SOURCE TECHNOLOGY LAB

SUBJECT CODE : 19PMCA306P	**PRACTICAL**	**MARKS : 100**
SEMESTER : I	**CREDITS : 2**	**TOTAL No. OF HOURS : 60**

COURSE OBJECTIVES:

- To have hands-on experience in Open Source Technology – LINUX.
- At the end of this course students will be able to write shell programs in Linux and good at debugging.

1. Use an if/then/else constructs to find the smallest of given three numbers.
2. Generate Fibonacci series for n numbers.
3. Find the factorial of n numbers.
4. Check whether a given number is Armstrong or not.
5. Accept any number of arguments and print them in reverse order.
6. Write a script that does the following :
   a) Display the name of the script being executed.
   b) Display the first, third and fifth arguments given to the script.
   c) Display the total number of arguments passed to the script.
   d) Print the number of arguments.
7. Design a menu driven program for rename, remove and copy commands.
8. To check file permission (read/write/execute) and file type(File/Directory)
9. Write a program to get two user inputs (File name and Column number). List the n^{th} column from a file.
10. Remove duplicate words from a List or File.
11. To Process electricity billing using awk command.

SOFT SKILL - I
.: LANGUAGE AND COMMUNICATION SKILL

SUBJECT CODE : 19PGSL401C	**SOFT SKILL**	**MARKS : 100**
SEMESTER : I	**CREDITS : 2**	**TOTAL No. OF HOURS : 30**

COURSE OBJECTIVES:

- Students are trained in basic communication skills and this helps them to have command over the language.
- At the end of this course, students will be able to communicate well and this will help them to grow in real world.

UNIT-I : **(6 Hours)**

Twinning Functions of Listening and Speaking.

UNIT-II : **(6 Hours)**

Twinning Functions of Reading and Writing.

UNIT-III : **(6 Hours)**

Individual Communication.

UNIT-IV : **(6 Hours)**

Intermediary Communication.

UNIT-V : **(6 Hours)**

Social Communication.

PRESCRIBED BOOKS :

1. Windshuttle, Keith and Elizabeth Elliot, 1999, Writing, Researching and Communicating: Communication Skills for the Information Age, 3rd Reprint. Tata McGraw-Hill Australia.
2. Dignen, Flinders and Sweeney, English 365, Cambridge University Press.
3. Goleman, Daniel, 1998, Working with Emotional intelligence, Bantam Books, New York.

REFERENCE BOOKS :

1. Jones, Leo and Richard Alexander, 2003, New International Business English. Cambridge University Press.

WEBSITES :

1. www.tatamcgrawhill.com/sites/0070600988

CORE - VII
DATA STRUCTURES AND ALGORITHMS

SUBJECT CODE : 19PMCA307	**THEORY**	**MARKS : 100**
SEMESTER : II	**CREDITS : 4**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To understand about the basic concepts of algorithms and data structures.
- At the end of this course students will be able to understand algorithms and create efficient algorithms for applications.

UNIT-I : **(15 Hours)**

Abstract data types - Arrays and sequential representations – ordered lists – Stacks and Queues – Evaluation of Expressions – Singly Linked List –Polynomial addition.

UNIT-II : **(15 Hours)**

Trees – Binary tree representations – Tree Traversal – Binary Tree Representation of Trees – Graphs and Representations –Graph Implementation - Graph Traversals - Minimum Cost Spanning Trees.

UNIT-III : **(15 Hours)**

Algorithms – Pseudo code conventions - Sorting – Heap Sort – Merge Sort – Quick Sort – Binary Search – Finding the Maximum and Minimum.

UNIT-IV : **(15 Hours)**

Greedy Method : The general method – optimal storage on tapes – Knapsack Problem – Job Sequencing with deadlines .

UNIT-V : **(15 Hours)**

Back tracking: The general method – The 8-Queens Problem – Sum of Subsets – Graph Coloring.

PRESCRIBED BOOKS :

1. Ellis Horowiz, Sartaj Sahni and Sanguthevar, " Fundamentals of Data Structure".
2. Ellis Horowiz, Sartaj Sahni and Sanguthevar Rajasekaran, Galgotia Publications, 2001, "Fundamentals of Computer Algorithms ".

REFERENCE BOOKS :

1. A.V.Aho, J.D. Ullman, J.E. Hopcraft, 1983, Data Structures and Algorithms, Addison Wesley, Boston.

Question Paper Pattern

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	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE - VIII
ADVANCED INTERNET TECHNOLOGIES

SUBJECT CODE : 19PMCA308	**THEORY**	**MARKS : 100**
SEMESTER : II	**CREDITS : 4**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To understand the basic concepts of Advanced Internet Technologies like HTML5, CSS,XML and scripting languages.
- At the end of this course students will be able to work in HTML5, CSS, Javascript, VBscript and XML.

UNIT-I : **(15 Hours)**

Introduction to HTML and HTML5 - Formatting and Fonts -Commenting Code – Anchors – Backgrounds – Images – Hyperlinks – Lists – Tables –Nested Tables– Frames - HTML Forms- HTML Media – Audio and Video.

UNIT-II : **(15 Hours)**

Advantages of Style sheet, CSS structure and Syntax, using different kinds of style sheets, managing layout and positioning, building with boxes, buttons, borders and background, using colors – web typography – CSS3 text effects – animating and multimedia with CSS.

UNIT-III : **(15 Hours)**

Java Script overview – variables and operators in java script-enabling java script in browsers-Loops – If..Else, Switch..Case, while... Loop, for... loop , break and continue statements, Functions in java script, different Event type, Cookies , page redirection , Dialog boxes, objects, number, Boolean, string, array, Date, math etc.

UNIT-IV : **(15 Hours)**

VB Script overview – syntax, enabling browsers – variables, constants, operators-Loops, for loop , for.. each loop, while.. wend loop, do..while, do..until- event – cookies – Numbers-string-arrays – date – procedures-dialog boxes- object oriented- Reg expression- error handling.

UNIT-V : **(15 Hours)**

XML Introduction- Introduction of XML- Some current applications of XML, Features of XML, Anatomy of XML document, The XML Declaration, Element Tags-Nesting and structure, XML text and text formatting element, Table element, Mark-up Element and Attributes, Document Type Definition (DTD) types.

PRESCRIBED BOOKS :

1. Beginning HTML5 and CSS3, Ed Tittel and Chris Minnick-Wiley Publications.
2. Ivan Bayross " Web Enabled Commercial Application Development using HTML, DHTML, Javascript, Perl CGI.

REFERENCE BOOKS :

1. Jon Duckett "Beginning HTML, XHTML, CSS and Javascript", Wrox Publication.
2. Richard York "Beginning Javascript and CSS Development", Wrox Publication.

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CORE - IX
OPERATING SYSTEMS

SUBJECT CODE : 19PMCA309	**THEORY**	**MARKS : 100**
SEMESTER : II	**CREDITS : 4**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To understand different operating systems and their core concepts.
- At the end of this course students will have in-depth knowledge in core concepts of operating systems .

UNIT-I : **(15 Hours)**

Introduction – Multiprogramming - Time sharing - Distributed system - Real-Time systems - I/O structure - Dual-mode operation - Hardware protection _ General system architecture - Operating system services - System calls - System programs - System design and implementation. Process Management: Process concept - Concurrent process - Scheduling concepts - CPU scheduling - Scheduling algorithms, Multiple processor Scheduling.

UNIT-II: **(15 Hours)**

Process Management: Process Synchronization - Critical section - Synchronization hardware - Semaphores, classical problem of synchronization, Inter-process communication. Deadlocks: Characterization, Prevention, Avoidance, and Detection.

UNIT-III: **(15 Hours)**

Storage management - Swapping, single and multiple partition allocation - paging - segmentation - paged segmentation, virtual memory - demand paging - page replacement and algorithms, thrashing. Secondary storage management - disk structure - free space management - allocation methods – disk scheduling - performance and reliability improvements - storage hierarchy.

UNIT-IV: **(15 Hours)**

Files and protection - file system organization - file operations - access methods - consistency semantics - directory structure organization - file protection - implementation issues - security – encryption.

UNIT-V : **(15 Hours)**

Protection and security – goals of protection – domain of protection – Access matrix – security problems – user authentication – program, system threads – intrusion detection – cryptography.

PRESCRIBED BOOKS :

1. A. Silberschatz P.B. Galvin, Gange, 2002, Operating System Concepts, 6th Edn., Addison-Wesley Publishing Co., Boston.

REFERENCE BOOKS :

1. H.M. Deitel, 1990, An Introduction to Operating Systems, Addison Wesley Publishing Co., Boston
2. D.M. Dhamdhare , 2002, Operating System, Tata McGraw-Hill, New Delhi.

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	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE - X
ADVANCED JAVA PROGRAMMING

SUBJECT CODE : 19PMCA310	**THEORY**	**MARKS : 100**
SEMESTER : II	**CREDITS : 4**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To understand the advanced concepts of Java technologies.
- At the end of this course students will be able to write programs in Advanced Java Technologies.

UNIT-I : **(15 Hours)**

Understanding Object oriented programming-classes and Inheritance – Abstract classes – Inner classes and Lambda- working with string, Array and classes: Array list- Linked list- Generic collection classes – Handling bulk data operation with collections-Files and Databases : working with files- JDBC connectivity- working with XML.

UNIT-II : **(15 Hours)**

Power of servlets –Http Basics- Servlet API –Page Generation- Server Side Includes- Servlet chaining and Filters-Servlet Life Cycle: Basic Aspects- Servlet Reloading – Init and Destroy Method - Single Thread Model-Background Processing. Retrieving information- Initialization parameters, The Server, Client, and Request.

UNIT-III : **(15 Hours)**

Session Tracking: User Authorization- Hidden form fields-URL Rewriting- Persistent Cookies-Session Tracking API. Security-HTTP authentication- Digital Certificates – Secure Socket Layer- Data Base Connectivity – Internationalization: European Languages - Conforming to Local Customs -Multiple Languages.

UNIT-IV : **(15 Hours)**

JSP Basics – Declarations – Expressions – Scriptlets - Implicit objects - Standard actions- Directives-Declarations- Expressions – Scriptlet- Implicit objects- Standard actions - JSP Standard Tag Library (JSTL) : JSTL Core Library - General-purpose actions- Conditional actions.

UNIT-V : **(15 Hours)**

Spring Basics-Exploring Spring's Architecture-The Application context- Beans-The Spring Life cycle - Understanding Bean Scopes - Dependency Injection and Inversion of Control-Setter-Based Dependency Injection – Hibernate : Understanding object/relational persistence- persistence - Persistence in object-oriented applications- Persistence layers and alternatives- Object/relational mapping (ORM).

PRESCRIBED BOOKS :

1. Java All-In-One for Dummies, Doug Lowe , 4th Edition, Published by John Wiley& Sons Inc.
2. Java ™ Servlet Programming- Jason Hunter with William Crawford, Published by O'Reilly & Associates, Inc.
3. Learn Java for Web Development,Vishal Layka, Apress publication.
4. Hibernate in Action, Christian Bauer Gavin King, Manning Publications Co

REFERENCE BOOKS :

1. Murachs ,Java Servlet and JSP,2nd Edition, Joel Murach Andrea Steelman, Mike Murach & Associates Inc.

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CORE - XI
PRACTICAL - III : ADVANCED INTERNET TECHNOLOGIES LAB

SUBJECT CODE : 19PMCA311P	**PRACTICAL**	**MARKS : 100**
SEMESTER : II	**CREDITS : 2**	**TOTAL No. OF HOURS : 60**

COURSE OBJECTIVES:

- To have hands-on experience in HTML5, CSS, Script and XML programming.
- At the end of this course students will be able to develop design Web Based Applications and good at debugging.

APPLICATION:

1. Create a web page using html5 to create forms to accept values from the users.
2. Generate a dynamic web page using css3 to have coloring features.
3. Write a HTML code that enables CSS design to create blocks and inline function.
4. Write a program using java script for sorting numbers and strings.
5. Generate a java script to calculate the hit ratio of a web page.
6. Generate a java script to validate an Email ID
7. Write a VB script to display a digital clock.
8. Write a program using java script to demonstrate the mouse events.
9. Write a program using java script to design an employee database.
10. Generate a program using css3 for 2D and 3D transformation.

CORE - XII
PRACTICAL - IV : ADVANCED JAVA PROGRAMMING LAB

SUBJECT CODE : 19PMCA312P	**PRACTICAL**	**MARKS : 100**
SEMESTER : II	**CREDITS : 2**	**TOTAL No. OF HOURS : 60**

COURSE OBJECTIVES:

- To have hands-on experience in Advanced Java Programming.
- At the end of this course students will be able to develop server side applications based on Java Technologies and good at debugging.

APPLICATION

1. HTML to Servlet Applications.
2. Applet to Servlet Communication.
3. Designing online applications with JSP.
4. Creating JSP program using JavaBeans.
5. Working with Enterprise JavaBeans.
6. Performing Java Database Connectivity.
7. Creating Web services with RMI.
8. Creating and Sending Email with Java.
9. Building web applications.

1524

SOFT SKILL - II
PRESENTATION SKILL

SUBJECT CODE : 19PGSL402F	**SOFT SKILL**	**MARKS : 100**
SEMESTER : II	**CREDITS : 2**	**TOTAL No. OF HOURS : 30**

COURSE OBJECTIVES:

- Students are trained in presentation skill which is significant for their personal and professional success.
- At the end of this course students will have positive attitude and they will be confident in effective verbal and non-verbal Communication.

UNIT-I : **(6 Hours)**

Soft-Skills Introduction - What are Soft Skills? Significance of Soft-Skills – Soft-Skills Vs. Hard Skills – Selling Soft- Skills – Components of Soft Skills – Identifying and Exhibiting Soft-Skills – Soft- Skills Orientation – Top 60 Soft-Skills – Practicing Soft-Skills.

UNIT-II : **(6 Hours)**

Developing Positive Attitude - Introduction – Meaning – Features of Attitudes – Attitudes and Behavior – Formation of Attitudes – Change of Attitudes – Ways of changing Attitudes – Attitudes in Workplace- The power of positive Attitude- Developing Positive Attitude – Obstacles in developing Positive Attitude.

UNIT-III : **(6 Hours)**

Active Listening and Effective Public Speaking - Differences between Listening and Hearing – Critical Listening – Barriers to Active Listening – Improving Listening – Ethical Listening – Effective Public Speaking – Selecting the topic for public speaking – Understanding the audience – Evidence and Research – Organizing the main ideas – Language and Style choice in the speech – Delivering the speech.

UNIT-IV : **(6 Hours)**

Persuasive Writing - Introduction – Importance of writing – Creative Writing – Writing Tips – Writing Powerful email communication – Using appropriate salutations – Making subject matter Significant – Anticipating, Empathizing, and understanding others while sending emails – Do and Don'ts in email communication.

UNIT-V : **(6 Hours)**

Effective Body Language - Introduction – Voluntary and Involuntary Body Language – Forms of Body Language, Parts of Body Language – Forms of Body Language – Uses of Body Language in Building the Interpersonal relationship – Types of Body Language – Gender Differences – Interpreting Body Language.

PRESCRIBED BOOKS :

1. Dr. K. Alex, "Soft Skills Know yourself & Know the World", Edition 2009, S.Chand Publications.

REFERENCE BOOKS :

1. Barun K. Mitra, "Personality Development and Soft Skills", Sixth Impression, 2012, Oxford university Press.

CORE - XIII
WEB DEVELOPMENT USING PHP AND MYSQL

SUBJECT CODE : 19PMCA313	**THEORY**	**MARKS : 100**
SEMESTER : III	**CREDITS : 4**	**TOTAL No. OF HOURS : 60**

COURSE OBJECTIVES:

- To understand the basic concepts of web development using PHP and MySQL.
- At the end of this course students will be able to work with PHP and MySQL database and deploy them in servers.

UNIT-I : **(12 Hours)**

Introduction to PHP, History of PHP, Versions of PHP, Features of PHP, Advantages of PHP over Other Scripting Languages, Installation and Configuration of PHP, Data Types in PHP, PHP Syntax, Comments, PHP Variables and Constants, Scope of Variables, PHP String, String Manipulation, PHP Operators, Precedence of Operators, Expressions, Creating a PHP Script, Running a PHP Script.

UNIT-II : **(12 Hours)**

Basic HTML, Embedding PHP in HTML, Passing Information between Pages, PHP $_GET, PHP $_POST, PHP Conditional Statements, PHP Looping Statements, Break, Continue, Exit, PHP Functions: Built-in and User Defined Function, Regular Expression Functions, Mathematical, Date and Time Functions, PHP Arrays: Creating Array and Accessing Array Elements.

UNIT-III : **(12 Hours)**

PHP File Permissions, Working with Files: Opening, Closing, Reading, Writing a File; Working with Directory: Creating, Deleting, Changing a Directory; Working with Forms: Introduction to a Web Form, Processing a Web Form, Validating a Web Form, Input Validation, PHP with Client Side Scripting Language, Exception and Error Handling in PHP, Introduction to Cookies and Session Handling.

UNIT-IV : **(12 Hours)**

Working with Database: PHP-Supported Databases; Using PHP & My SQL: Installation and Configuration of My SQL on Windows, Checking Configuration, Connecting to Database, Selecting a Database, Adding Table and Altering Table in a Database, Inserting, Deleting and Modifying Data in a Table, Retrieving Data, Performing Queries, Processing Result Sets.

UNIT-V : **(12 Hours)**

Code Re-use, require(), include(), and the include path, File System Functions and File Input and Output, File Uploads, Use of CSS, Introduction to Object Oriented Programming with PHP, Installing and Configuring Apache to use PHP on Windows, php.ini File, Handling and Avoiding Errors.

PRESCRIBED BOOKS :

1. Vikram Vaswani ,"Php & My Sql", Tmh Publications
2. Julie C. Meloni ," Php Essentials", Bpb Publications

REFERENCE BOOKS :

1. Expert Php And Mysql, Wrox Programmer To Programmer, Wrox Press, 2010

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
Section - A	**Definition / Principle** Answer ALL questions (Each in 50 words)	1-10	2	20
Section - B	**Short Answer** Answer any 5 out of 7 questions (Each in 300 words)	11-17	7	35
Section - C	**Essay** Answer any 3 out of 5 questions (Each in 1200 words)	18-22	15	45

Distribution of Questions

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
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	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

EXTRA DISCIPLINARY
ACCOUNTING AND FINANCIAL MANAGEMENT

SUBJECT CODE : **19PMCA314**	**THEORY**	**MARKS : 100**
SEMESTER : III	**CREDITS : 4**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To understand the basic concepts in accounting and financial statements.
- At the end of this course, student will be able to work with and analyze financial statements of a business.

UNIT-I : **(15 Hours)**

Principles of Accounting: Principles of double entry -Assets and Liabilities - Accounting records and systems - Trial balance and preparation of financial statements - Trading, Manufacturing, Profit and Loss accounts, Balance Sheet including adjustments (Simple Problems).

UNIT-II : **(15 Hours)**

Analysis and Interpreting Accounts and Financial Statements: Ratio analysis - Use of ratios in interpreting the final accounts (trading accounts , profit and loss a/c and balance sheet) - final accounts to ratios as well as ratios to final accounts (Simple Problems).

UNIT-III : **(15 Hours)**

Break-even analysis and Marginal Costing: Meaning of variable cost and fixed cost - Cost-Volume-Profit analysis – calculation of breakeven point, Profit Volume Ratio , Margin of Safety (Simple Problems).

UNIT-IV : **(15 Hours)**

Budget/Forecasting: preparation of and Characteristics of functional budgets, Production, Material Purchase Budget, sales, cash and flexible budgets.

UNIT-V : **(15 Hours)**

Project Appraisal: Method of capital investment decision making: Payback method , ARR method - Discounted cash flows - Net Present values – Profitability Index - Internal rate of return.

PRESCRIBED BOOKS :

1. Shukla M.C. & T.S. Grewal, 1991, Advanced Accounts, S.Chand & Co. New Delhi.
2. Gupta R.L. & M. Radhaswamy, 1991, Advanced Accounts Vol. II, Sultan Chand & Sons, New Delhi.
3. Man Mohan & S.N. Goyal, 1987, Principles of Management Accounting, Arya Sahithya Bhawan.
4. Kuchhal, S.C., 1980, Financial Management, Chaitanya, Allahabad.
5. Hingorani, N.L. & Ramanthan, A.R, 1992, Management Accounting, 5th edition, Sultan Chand, New Delhi.
6. "T.S Reddy & Y.H Reddy" ,Financial Management Accounting, Margham Publications.

REFERENCE BOOKS :

1. S.K. Gupta & R.K. Sharma- Practical Problems in Management Accounting.
2. Khan and Jain "Financial Management" Tata McGraw Hill (Recent Edition).

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Section - A	**Definition / Principle** Answer ALL questions (Each in 50 words)	1-10	2	20
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	Unit – 3	1	
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	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE - XIV
DATA ANALYSIS USING PYTHON

SUBJECT CODE : 19PMCA315	**THEORY**	**MARKS : 100**
SEMESTER : III	**CREDITS : 4**	**TOTAL No. OF HOURS : 60**

COURSE OBJECTIVES:

- To understand the basic concepts of Python programming and Data Analysis.
- At the end of this course, student will be able to analyze data using Python.

UNIT-I: **(12 Hours)**

Input, Processing, and Output - print Function - Variables - Reading Input from the Keyboard - Performing Calculations - Simple Functions - Introduction to Functions - Defining and Calling a Function - Designing a Program to Use Functions - Local Variables - Passing Arguments to Functions - Global Variables and Global Constants – different lopping constructs.

UNIT – II : **(12 Hours)**

Files and Exceptions - File Input and Output - Using Loops to Process Files - Processing Records – Exceptions - Lists and Tuples – Sequences – Lists -List Slicing -List Methods and Useful Built-in Functions - Copying Lists - Processing Lists - Two-Dimensional Lists - Tuples - Basic String Operations - String Slicing Dictionaries and Sets - Dictionaries - Sets -Serializing Objects.

UNIT – III: **(12 Hours)**

Classes and Objects in Python - Object-Oriented Programming - Inheritance Polymorphism - Recursion and its Examples - GUI Programming: Using the tkinter Module - Display Text with Label Widgets - Organizing Widgets with Frames - Button Widgets and Info Dialog Boxes -Getting Input with the Entry Widget - Labels as Output Fields - Radio Buttons and Check Buttons.

UNIT – IV: **(12 Hours)**

Role of Statistics and Mathematics in Analysis - Knowledge domain: Data, information, and knowledge Data Analysis Process - Data preparation -Data exploration - Predictive modeling - Visualization of results - Quantitative versus qualitative data analysis - Importance of data visualization - Sensors and cameras in Social networks analysis.

UNIT-V: **(12 Hours)**

Working with Data – Data source - Open data – Text, Excel - SQL databases -NoSQL databases - Multimedia - Web scraping - Data scrubbing - Text parsing - Data transformation - Data formats - CSV - Parsing a CSV file with the csv module - Parsing a CSV file using NumPy - Parsing an XML file in Python using xml module - Simulation of Stock Prices - Financial time series.

PRESCRIBED BOOKS:

1. Starting out with Python, " Tony Gaddis", Addison-Wesley, Pearson pub. 2012.
2. Practical Data Analysis, "Hector Cuesta", Packt Publication 2013.

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	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE - XV
ARTIFICIAL INTELLIGENCE

SUBJECT CODE : 19PMCA316	**THEORY**	**MARKS : 100**
SEMESTER : III	**CREDITS : 3**	**TOTAL No. OF HOURS : 60**

COURSE OBJECTIVES:

- To understand the basic concepts of Artificial Intelligence.
- At the end of this course, students will be having deep insight in basic concepts of Artificial Intelligence.

UNIT-I : **(12 Hours)**

Problems and Search : What is AI – AI problems – AI Techniques – Level of Model – **Problems, Problem Space and Search :** Defining the problem as a State Space Search – Production Systems – Depth First Search - Breadth First Search

UNIT-II : **(12 Hours)**

Heuristic Search Techniques : Generate-and-Test - Hill Climbing – Breadth first Search- Best First Search- The A* algorithm - **Problem Reduction** : AND –OR graphs – the AO* algorithm.

UNIT-III : **(12 Hours)**

Knowledge Representation : Representation and Mappings – approaches to knowledge representation – **Using Predicate Logic :** Representing Instance and Isa Relationship – Computable functions and Predicates- Resolution – The Unification Algorithm – Resolution in Predicate Logic - Question Answering.

UNIT-IV: **(12 Hours)**

Representing Knowledge using Rules : Procedural vs. Declarative Knowledge – Logic programming - Forward vs Backward reasoning - Matching

UNIT-V : **(12 Hours)**

Introduction to Non-monotonic Reasoning – Minimalist Reasoning - **Expert Systems :** Representing and using Domain Knowledge – Expert System shells – Knowledge Acquisition.

PRESCRIBED BOOKS :

1. Artificial Intelligence (SIE), Kevin Knight, Elaine Rich, B. Nair, Mc-Graw Hill Publication.

REFERENCE BOOKS :

1. Artificial Intelligence By Example, Denis Rothman, Packt Publishing Ltd.

Question Paper Pattern

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	Unit – 4	1	
	Unit – 5	1	

NON-MAJOR ELECTIVE
ESSENTIAL STATISTICS FOR ANALYTICS

SUBJECT CODE : 19PMCA317	**THEORY**	**MARKS : 100**
SEMESTER : III	**CREDITS : 4**	**TOTAL No. OF HOURS : 60**

COURSE OBJECTIVES:

- To understand the essential statistical concepts for Analytics.
- At the end of this course, students will have required knowledge in Statistics for Data Analytics.

UNIT-I : (12 Hours)

Measures of location – Arithmetic Mean, Median, Mode, Geometric Mean, Harmonic Mean, and their properties, Merits and demerits - Measures of Dispersion -- Range, Mean Deviation, Quartile Deviation, Standard deviation, Coefficient of variation, Skewness and Kurtosis.

UNIT-II : (12 Hours)

Sample spaces - events - Axiomatic approach to probability - conditional probability - Independent events - Baye's formula - Random Variables : Continuous and Discrete random variables.

UNIT-III : (12 Hours)

Bivariate distribution - conditional and marginal distributions - Discrete distributions - discrete uniform, Binomial poison Distributions - Continuous distributions - Uniform, Normal, Exponential and Gamma distributions.

UNIT-IV : (12 Hours)

Correlation ,Regression – Rank Correlation Coefficient – Curve fitting by the Method of Least Squares.

UNIT-V : (12 Hours)

Concept of Sampling Distributions – Standard Error – Test of Significance based on t, Chi-Square and F-distributions with respect to Mean and Variance.

PRESCRIBED BOOKS :

1. P.R.Vittal&V.Malini, Statistical and Numerical methods, Margham Publications.
2. Snedecor, G.W., & Cochran, W.G.(1967): Statistical Methods, Oxford and IBH,Prentice Hall
3. Dr. S.P. Gupta - Sultan Chand & Sons , “Statistical Methods”.

REFERENCE BOOKS :

1. Fundamental of Mathematical Statistics - S.C. Gupta & V.K. Kapoor - Sultan Chand
2. Wilks, S.S.: Elementary Statistical Analysis - Oxford and IBH
3. Mode, E.B.: Elements of Statistics - Prentice Hall.

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	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE - XVI
PRACTICAL - V : PHP AND MYSQL LAB

SUBJECT CODE : 19PMCA318P	**PRACTICAL**	**MARKS : 100**
SEMESTER : III	**CREDITS : 2**	**TOTAL No. OF HOURS : 60**

COURSE OBJECTIVES:

- To have hands-on experience in PHP and MySQL Applications.
- At the end of this course students will be able to develop Web Applications in PHP and MySQL.

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APPLICATIONS:

1. Design a webpage that should compute one's age on a given date using PHP.
2. Design a webpage to generate multiplication table for a given number.
3. Design an authentication web page in PHP with MySQL to check user name and password.
4. 4.Design a program using session
5. Develop a program using cookie and session
6. Write PHP code to implement Query string (passing variables using URL) concept.
7. Write PHP code to develop E-mail registration form and store all the submitted data in database table.
8. Write a program to develop student registration form and display all the submitted data on another page.
9. Write a program to read customer information like Cust_no, Cust_name, Item_purchased and Mob_no from Customer table and display all these information in table format on output screen.
10. Write a program that keeps track of how many times a visitor has loaded the page.
11. Write a program for editing and deleting a particular record from database.
12. Write a php program to calculate the bonus of an employee

CORE - XVII
PRACTICAL - VI : DATA ANALYSIS USING PYTHON LAB

SUBJECT CODE : 19PMCA319P	**PRACTICAL**	**MARKS : 100**
SEMESTER : III	**CREDITS : 2**	**TOTAL No. OF HOURS : 60**

COURSE OBJECTIVES:

- To have hands-on experience in Data Analysis using Python.
- At the end of this course students will be able to analyze data efficiently using Python
  .

1. Write a program in Python to print the Max value in the given list and find whether a given number prime or not.
2. Write a program to search a given number using Liner
3. Design a program in python to find a number using Binary search.
4. Sort a numbers using insertion sort.
5. Write a program in python to sort the numbers in ascending order using merge sort.
6. Simulate an elliptical orbit in PyGame.
7. Simulate a bouncing ball using PyGame.
8. Create a database application to add, display and delete in the Book Database.
9. Create a simple calculator in python.
10. Create a database application to add, display and delete students detail in the student database.
11. Write a program in python to print the distance between two prints.
12. Create a Frame Widget using Tkinter .
13. Create a Radio button and the checkbox using Tkinter.
14. Create Tkinter object called Slider which allows the user to set a value by moving an indicator.
15. Create a menu bar using Tkinter.
16. Create Client / Server application using python
17. Write a python program to count the vowels in a given word.
18. Write a python program to find the hash in a File.
19. Write a python program to find the resolution of a image.
20. Write a Python program for a banking application.

SOFT SKILL - 3
MANAGERIAL SKILL

SUBJECT CODE : 19PGSL403J	**SOFT SKILL**	**MARKS : 100**
SEMESTER : III	**CREDITS : 2**	**TOTAL No. OF HOURS : 15**

COURSE OBJECTIVES:

- To help students to understand about stress, negative emotions and manage them effectively.
- To enlighten about the important interpersonal skills like group decision-making, negotiation and leadership skills.

UNIT-I: **(3 Hours)**

Stress management

- Definitions and Manifestations of stress.
- Stress coping ability and stress inoculation training.
- Management of various forms of fear (examination fear, stage fear or public speaking anxiety), depression and anger.

UNIT-II : **(3 Hours)**

Conflict Management skills

- Types of conflict (intrapersonal, Intra group and inter group conflicts).
- Basic concepts, cues, signals, symbols and secrets of body language.
- Significance of body language in communication and assertiveness training.
- Conflict stimulation and conflict resolution techniques for effective management.

UNIT-III: **(3 Hours)**

Interpersonal Skills

- Group decision making (strengths and weaknesses).
- Developing characteristics of charismatic and transformational leadership.
- Emotional intelligence and leadership effectiveness- self-awareness, self-management, self-motivation, empathy and social skills.
- Negotiation skills- preparation and planning, definition of ground rules, clarification and justification, bargaining and problem solving, closure and implementation.

UNIT-IV: **(3 Hours)**

Time Management

- Time management personality profile.
- Time management tips and strategies.
- Advantages of time management.

UNIT-V: **(3 Hours)**

Towards Empowerment

- Network culture.
- Managerial empowerment and entrepreneurship.
- Prevention of moral dwarfism especially terrorism.
- Altruism (prosocial behavior/helping behavior).

Recommended Texts:

1. Swaminathan. V.D & Kaliappan. K.V. (2001). Psychology for Effective Living. Chennai.
2. Robbins, S.B. (2005). Organizational Behavior. New Delhi: Prentice Hall of India.
3. Smith, B. (2004). Body Language. Delhi: Rohan Book Company.
4. Hurlock, E.B. (2006). Personality Development, 28th Reprint. New Delhi: Tata McGraw Hill .

CORE - XVIII
MACHINE LEARNING USING R

SUBJECT CODE : 19PMCA320	**THEORY**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 3**	**TOTAL No. OF HOURS : 60**

COURSE OBJECTIVES:

- To understand about the basic concepts of machine learning using R.
- At the end of this course students will be able to apply machine learning concepts in environments where huge volumes of data are used.

UNIT-I : **(12 Hours)**

Introducing Machine Learning - The origins of machine learning - Uses of machine learning - How do machines learn : Abstraction and knowledge representation Generalization - Assessing the success of learning - Steps to apply machine learning to your data - Choosing a machine learning algorithm : Thinking about the input data - Thinking about types of machine learning algorithms - Matching your data to an appropriate algorithm.

UNIT-II : **(12 Hours)**

Using R for machine learning: Installing and loading R packages - Managing and Understanding Data: R data structures: Vectors - Factors – Lists - Data frames – Matrices and arrays - Managing data with R: Saving and loading R data structures importing and saving data from CSV files - Importing data from SQL databases.

UNIT-III : **(12 Hours)**

Exploring and understanding data - Exploring the structure of data - Exploring numeric variables - Measuring the central tendency – mean and median - Measuring spread and quartiles - boxplots - histograms - normal distributions - Measuring spread, variance and standard deviation - Exploring relationships between variables - Visualizing relationships – scatterplots.

UNIT-IV : **(12 Hours)**

Finding Patterns – Market Basket Analysis Using Association Rules - Understanding association rules - The Apriori algorithm for association rule learning - Measuring rule interest – Building a set of rules with the Apriori principle – identifying frequently purchased groceries with association rules.

UNIT-V : **(12 Hours)**

Understanding neural networks - From biological to artificial neurons - Activation functions - Network topology - The number of layers - The direction of information travel - The number of nodes in each layer - Training neural networks with back propagation

PRESCRIBED BOOKS :

1. Machine Learning with R, " Brett Lantz " , Packt Publishing , Open Source, 2013 Edition.

REFERENCE BOOKS :

1. R Deep Learning Essentials, " Dr Joshua F. Wiley" , Packt Publishing open source, 2016 Edition

Question Paper Pattern

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Section - A	**Definition / Principle** Answer ALL questions (Each in 50 words)	1-10	2	20
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	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
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CORE - XIX
USER INTERFACE DESIGN AND DEVELOPMENT

SUBJECT CODE : 19PMCA321	**THEORY**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 3**	**TOTAL No. OF HOURS : 60**

COURSE OBJECTIVES:

- To understand the basic concepts of responsive web designing using AngularJS and Node JS.
- At the end of this course, students will be able to efficiently design and develop Web Pages with Interactive User Interface Tools.

UNIT-I : **(12 Hours)**

Introduction to HTML5 and CSS3 : Overview of HTML5 and CSS3 -New Structural Tags and Attributes - CSS Building Block : Working with style sheet- Defining Selectors - Showing Progress : <meter> Element Creating User Friendly Web Forms -Describing Data with New Input Fields, Slider, Spinboxes, Dates, Email, URL, Color.

UNIT-II : **(12 Hours)**

Autofocus, Placeholder, Validating User Input, In-Place Editing with content editable - Drawing in the Browser: Drawing Logos, Drawing Lines, Adding text- Embedding Audio and Video, Plug-ins, YouTube - Geolocation.

UNIT-III : **(12 Hours)**

Introduction to AngularJS: Architectural Concept : MVC Architecture - Setting up the framework - Organizing the code - Creating Reusable components with Directives : Directive, built-in directives - ngApp ,ngController, ngBind , ngRepeat, ngModel and ngInclude Creating our own Directives.

UNIT-IV : **(12 Hours)**

AngularJS Data Handling: Expressions - Filters - Basic usage with Expressions - Creating filters - Angular JS Forms - Events - Form Validation - Creating our form - Basic Validation -Understanding the $pristine and $dirty properties - AngularJS Includes.

UNIT-V : **(12 Hours)**

Introduction to Node Js : Understanding the Node Environment - V8 - Extending Javascript -Features of Node JS -Memory and other limits - console - REPL - Node.js Package Manager - Module - Node Js Web Server- Streams - Node Js File System - Process Model- Timers- Callbacks - Node Js Event Loop.

PRESCRIBED BOOKS :

1. Briyan P.Hogan , " Html5 And Css3",Second Edition.
2. Rodrigo Branas , "Angularjs Essentials",Packt Publishing.
3. Sandro Pasquali, "Mastering Node.Js", Packt Publishing

REFERENCE BOOKS :

1. Angularjs – 1st Edition, Brad Green, Shyam Seshadri, O'reilly
2. Html5 And Css3 Responsive Web Design Cookbook, Benjamin Lagrone, Packt Publishing

Question Paper Pattern

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	Unit – 5	1	
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	Unit – 2	1	
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	Unit – 4	1	
	Unit – 5	1	

CORE - XX
ADVANCED DATABASE MANAGEMENT SYSTEM

SUBJECT CODE : 19PMCA322	**THEORY**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 4**	**TOTAL No. OF HOURS : 60**

COURSE OBJECTIVES:

- To understand the advanced database management systems concepts.
- At the end of this course, students will be able to work with DBMS, write and work with SQL queries and PL/SQL cursors, procedures, functions and triggers.

UNIT-I : (12 Hours)

Introduction : Definition of Data, Database and DBMS – Need for database –Advantages of Relational Database Systems - Database characteristics - **Database related terms** : Concurrency, Consistency, Data Availability, Reliability, Transparency, Data Integrity and Data Security.

UNIT-II : (12 Hours)

Relational data structure: Relation – Domains & Attributes – Keys – SQL Data types – **E-R model:** Entities, Entity Sets – Relationships and Mapping Cardinalities, Relationship Sets – ER Diagram Notations – Participation Constraints - Extended E-R Features – Rules for transforming ER Diagram into Tables – **Data Definition Language** : Create, Alter and Drop Tables –**Normalization** : Need, Normalization process - **Normal forms :** 1NF, 2NF and 3 NF – Denormalization. **Transaction Control Language(TCL) commands:** Commit, Savepoint, Rollback - **Database Administration:** DBA Tasks – User Privileges.

UNIT-III : (12 Hours)

Data Manipulation Language : Insert, Update, Delete and Select statement with all its clauses – **Subqueries** : Nested and Correlated subqueries - **JOINS :** Self Join, Equi Join, Non-Equi Join, Outer Join **VIEWS :** View Definition – Uses of Views -Simple and Complex Views- View Expansion - Updating tables through views.

UNIT-IV : (12 Hours)

PL / SQL: Basic Concepts - tables and records manipulations – control statements – Anonymous blocks, Stored Procedures, Functions, Exception handling, Cursors and Triggers.

UNIT- V : (12 Hours)

Introduction to NoSQL ("not only SQL") Databases & MongoDB : Introducing NoSQL and MongoDB - What Is NoSQL- Choosing RDBMS, NoSQL, or Both - Understanding MongoDB - MongoDB Data Types - Planning Your Data Model

PRESCRIBED BOOKS :

1. Database Management System - Post, Gerald V ,Tata McGraw-Hill, 2004
2. Database Management System - Date ,C.J., Galgotia Publications
3. An introduction to Database Systems - Bipin C Desai Galgotia Publications Ltd.,
4. Sams Teach Yourself NoSQL with MongoDB in 24 Hours, 2015 - Brad Dayley

REFERENCE BOOKS :

1. Database Management Systems - Raghu Ramakrishnan McGraw Hill Publishing Company Limited, 2004.

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Section	Question Component	Numbers	Marks	Total
Section - A	**Definition / Principle** Answer ALL questions (Each in 50 words)	1-10	2	20
Section - B	**Short Answer** Answer any 5 out of 7 questions (Each in 300 words)	11-17	7	35
Section - C	**Essay** Answer any 3 out of 5 questions (Each in 1200 words)	18-22	15	45

Distribution of Questions

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
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	Unit – 4	1	
	Unit – 5	1	

CORE – XXI
CLOUD COMPUTING AND VIRTUALIZATION

SUBJECT CODE : 19PMCA323	**THEORY**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 4**	**TOTAL No. OF HOURS : 60**

COURSE OBJECTIVES:

- To understand about the basics of Cloud Computing and Virtualization.
- At the end of this course, students will have a deep in-sight about cloud environment.

UNIT-I : **(12 Hours)**

Cloud Computing Fundamentals: Cloud Computing definition, Types of cloud, Cloud services: Benefits and challenges of cloud computing, Evolution of Cloud Computing , Applications cloud computing, Business models around Cloud - Major Players in Cloud Computing - Issues in Cloud - Eucalyptus - Nimbus - Open Nebula, CloudSim.

UNIT-II : **(12 Hours)**

Cloud Models and Characteristics: Cluster Computing, Grid Computing, Grid Computing Versus Cloud Computing, Key Characteristics of Cloud Computing. Cloud Models: Benefits of Cloud Models, Public Cloud, Private Cloud, Hybrid Cloud, Community Cloud, Shared Private Cloud, Dedicated Private Cloud, and Dynamic Private Cloud.

UNIT-III : **(12 Hours)**

Cloud Services and File System: Types of Cloud services: Software as a Service - Platform as a Service - Infrastructure as a Service - Database as a Service - Monitoring as a Service - Communication as services. Service providers - Google App Engine, Amazon EC2, Microsoft Azure, Sales force.

UNIT-IV : **(12 Hours)**

Virtualization: Basics of Virtualization - Types of Virtualization - Implementation Levels of Virtualization - Virtualization Structures - Tools and Mechanisms - Virtualization of CPU, Memory, I/O Devices - Virtual Clusters and Resource management - Virtualization for Data-center Automation. Introduction to MapReduce, GFS, HDFS, Hadoop Framework.

UNIT-V : **(12 Hours)**

Security in the Cloud: Security Overview - Cloud Security Challenges and Risks - Software-as-a-Service Security - Security Monitoring - Security Architecture Design - Data Security - Application Security - Virtual Machine Security - Identity Management and Access Control - Autonomic Security.

PRESCRIBED BOOKS :

1. Cloud Computing ”A Practical Approach” Anthony T. Velte, Toby J. Velte, TMH.
2. Kai Hwang, Geoffrey C Fox, Jack G Dongarra, “Distributed and Cloud Computing, From Parallel Processing to the Internet of Things”,Morgan Kaufmann Publishers.
3. John W.Rittinghouse and James F.Ransome, “Cloud Computing: Implementation, Management, and Security”, CRC Press, 2010.
4. Kumar Saurabh,“Cloud Computing-insights into New-Era Infrastructure”, WileyIndia
5. Ronald L. Krutz, Russell Dean Vines, “Cloud Security - A comprehensive Guide to Secure Cloud Computing”, Wiley - India, 2010.

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Section	Question Component	Numbers	Marks	Total
Section - A	**Definition / Principle** Answer ALL questions (Each in 50 words)	1-10	2	20
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Section C	Unit – 1	1	
	Unit – 2	1	
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	Unit – 4	1	
	Unit – 5	1	

ELECTIVE – I
MOBILE COMPUTING-(LATEST TECHNOLOGY)

SUBJECT CODE : 19PMCA324	THEORY	MARKS : 100
SEMESTER : IV	CREDITS : 3	TOTAL No. OF HOURS : 60

COURSE OBJECTIVES:

- To understand the basic concepts of mobile computing.
- To learn the basics of mobile telecommunication system.
- To know the basis of transport and application layer protocols.
- To gain knowledge about different mobile platforms and application development.

UNIT-I : **(12 Hours)**

INTRODUCTION-Introduction to Mobile Computing –Generations of Mobile Communication Technologies- Applications of Mobile Computing-Vehicles-Emergencies-Business-Replacement of wired networks-Mobile and Wireless devices-Wireless Transmission-Frequencies for radio transmission – Spread spectrum –Multiplexing-Medium access control – SDMA- TDMA- FDMA- CDMA.

UNIT-II: **(12 Hours)**

TELECOMMUNICATION SYSTEM- Introduction to Cellular Systems - GSM –Mobile Services Bearer services-Tele services-Supplementary services-Sytem Architecture-Radio interface – Protocols –Localization and Calling-Handover-Security-New data services–Frequency Allocation — GPRS.

UNIT-III: **(12 Hours)**

WIRELESS STANDARDS- Wireless LAN- Infrared vs Radio Transmission, Infrastructure Networks, Ad-hoc Networks, IEEE 802.11-System architecture-Protocol architecture-Physical Layer-Medium access control layer-MAC management-Bluetooth-User scenarios-Architecture-Radio layer-Baseband layer.

UNIT-IV: **(12 Hours)**

SATELLITE SYSTEMS & MOBILE NETWORK LAYER- History – Applications – Basics – GEO 173-LEO 174-MEO 175-Mobile IP –Goals, assumptions and requirements-Entities and terminology-IP packet delivery-Agent discovery-Registration-Tunneling and encapsulation-Optimization-Dynamic host configuration protocol-Mobile ad-hoc networks.

UNIT-V: **(12 Hours)**

MOBILE TRANSPORT LAYER-Traditional TCP– Congestion control-Slow start-Fast retransmit/fast recovery-implications of mobility-Classical TCP improvements-Indirect TCP-Snooping TCP-Mobile TCP-Selective retransmission-Transaction-Oriented TCP-TCP over 2.5/3G wireless networks-Performance enhancing proxies.

PRESCRIBED BOOKS :

1. Jochen H. Schiller ―Mobile Communications‖, Pearson, Second Edition, 2003.

REFERENCE BOOKS:

1. Prasant Kumar Pattnaik, Rajib Mall, ―Fundamentals of Mobile Computing‖, PHI Learning Pvt.Ltd, New Delhi – 2012.

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Section - A	**Definition / Principle** Answer ALL questions (Each in 50 words)	1-10	2	20
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	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
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	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE - XXII
PRACTICAL - VII : UI DESIGN AND DEVELOPMENT LAB

SUBJECT CODE : 19PMCA325P	**PRACTICAL**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 2**	**TOTAL No. OF HOURS : 60**

COURSE OBJECTIVES:

- To have hands-on experience in user interface design and development using Angular JS and Node JS.
- At the end of this course, students will be able to design and develop attractive and efficient user interface.

HTML5 and CSS3:

1. Create a website in HTML5 to display Header and Footer.
2. Create a form to implement audio and video Element in HTML .
3. Create a webpage to implement Internal style sheet.
4. Create a webpage to implement External style sheet.
5. Create user friendly web forms using HTML5 controls.
6. Create HTML5 form controls for Validating user Input.

ANGULARJS:

7. Create a webpage to implement Angularjs Expressions
8. Write a script for Angularjs Controller.
9. Write a script for Angularjs Includes
10. Write a script for Angularjs Filters.

CORE - XXIII
PRACTICAL -VIII : ADVANCED DBMS LAB

SUBJECT CODE :19PMCA326P	**PRACTICAL**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 2**	**TOTAL No. OF HOURS : 60**

COURSE OBJECTIVES:

- To have hands-on experience in PL/SQL.
- At the end of this course, students will be able to create stored procedures, functions, cursors and triggers using PL/SQL.

1. Create an Anonymous PL/SQL block and exhibit control statement usage in it .
2. Create a Stored Procedure using PL/SQL to increase the Basic pay of an employee with a specific amount.
3. Create a Stored Procedure using PL/SQL to exhibit Exception handling in PL/SQL.
4. Create a Function procedure using PL/SQL to calculate and return the Net pay of an employee .The function must receive necessary inputs as parameters.
5. Create a Cursor using PL/SQL to exhibit manipulation of the result of a Select query.
6. Create a Trigger using PL/SQL to validate Basic pay given in Insert Query. Allow insertion only if Basic Pay is greater than 5000.
7. Create a Trigger using PL/SQL to exhibit BEFORE trigger
8. Create a Trigger using PL/SQL to exhibit AFTER trigger
9. Create a Trigger using PL/SQL to exhibit COLUMN LEVEL trigger
10. Create a Trigger using PL/SQL to exhibit ROW LEVEL trigger

SOFT SKILL - 4
QUANTITATIVE APTITUDE

SUBJECT CODE : 19PGSL407L	**SOFT SKILL**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 2**	**TOTAL No. OF HOURS : 30**

COURSE OBJECTIVES:

- Students are trained in Aptitude which includes numerical problems.
- At the end of this course, students will be able to clear aptitude tests conducted by several agencies.

UNIT- I : **(6 Hours)**

Numbers, HCF, LCM, Decimal Fractions, Simplification, Square Roots, Cube roots, Averages.

UNIT- II : **(6 Hours)**

Problems in numbers and ages, Surds, Indices, Percentages, Profit and Loss, Ratio and Proportion, Partnership, Chain Rule.

UNIT- III : **(6 Hours)**

Time and Work, Pipes and Distances. Time and distance, Problems on Trains.

UNIT- IV : **(6 Hours)**

Boats and Streams, Alligation, Simple Interest, Compound Interest, Logarithms, Area, Volume and Surface Area.

UNIT- V : **(6 Hours)**

Races and Games of Skill, Calendar, Clocks, Stocks and Shares, Permutation and Combination, Probability, True discount, Banker's Discount, Height and Distances, Old man out and Series, Tabulation, Bar graphs, Pie charts, Line Graphs.

PRESCRIBED BOOKS :

1. R.S. Aggarwal, "Quantitative Aptitude for Competitive Examinations", Seventh Revised Edition, S. Chand and Co.Ltd., New Delhi, 2005.

REFERENCE BOOKS :

1. Barron's Guide for GMAT, Galgotia Publications, New Delhi, 2006.

CORE - 24
ROBOTIC PROCESS AUTOMATION

SUBJECT CODE : 19PMCA327	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To understand the basics of Robotic Process Automation using UiPath.
- At the end of this course, students will be able to automate process using UiPath.

UNIT-I: **(15 Hours)**

Introduction to RPA : Scope and Techniques of Automation -Robotic process automation - Benefits of RPA - Applications of RPA - Industries, Companies using RPA - Components of RPA - The future of automation -RPA Tools - RPA Tools in Google Trends - Introduction to UiPath and its Components.

UNIT-II : **(15 Hours)**

Learning UiPath Studio: Projects- The user interface- Various Panels- Argument - Task recorder - Advanced UI interactions - Input methods - Output methods -Example using Recorder. Sequence, Flowchart: Sequencing the workflow - Sequence - Activities - Using activities with workflows -Flowcharts.

UNIT-III : **(15 Hours)**

Control Flow: The Assign activity- The Delay activity - The Break activity - The While activity - The Do while activity - The For each activity - The If activity - The Switch activity - Step-by-step example using Sequence and Control flow.

UNIT-IV : **(15 Hours)**

Data Manipulation : Variables and the scope of a variable in the workflow - Collections, how to store data in arrays, and how to traverse them - Arguments - Clipboard usage - Data scraping - File management - Data table usage.

UNIT-V : **(15 Hours)**

Taking Control Of The Controls and Exception Handling: Finding and Attaching Windows - Finding the control - Techniques for waiting for a control - Act on controls – mouse and keyboard activities - Working with UiExplorer -Handling events - Exception handling -Common exceptions and ways to handle them.

PRESCRIBED BOOKS :

1 Alok mani tripathi, "learning robotic process automation", Packt Publishing , Open Source.
2 https://www.edureka.co/blog/rpa-tutorial/

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	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

ELECTIVE - 2
DATA MINING AND WAREHOUSING

SUBJECT CODE : 19PMCA334	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To understand the basic concepts of Data mining and Data warehousing.
- At the end of this course students will be able to enlighten in Data mining and warehousing concepts.

UNIT-I : **(15 Hours)**

Introduction: Data Mining tasks – Data Mining versus Knowledge Discovery in Data bases – Relational databases – Data warehouses – Transactional databases – Object oriented databases – Spatial databases – Temporal databases – Text and Multimedia databases – Heterogeneous databases - Mining Issues – Metrics – Social implications of Data mining.

UNIT-II : **(15 Hours)**

Data Preprocessing: Why Preprocess the data – Data cleaning – Data Integration – Data Transformation – Data Reduction – Data Discretization.

UNIT-III : **(15 Hours)**

Data Mining Techniques: Association Rule Mining – The A Priori Algorithm – Multilevel Association Rules – Multidimensional Association Rules – Constraint Based Association Mining.

UNIT-IV : **(15 Hours)**

Classification and Prediction: Issues regarding Classification and Prediction – Decision Tree induction – Bayesian Classification – Back Propagation – Classification Methods – Prediction – Classifiers accuracy.

UNIT-V : **(15 Hours)**

Clustering Techniques: cluster Analysis – Clustering Methods – Hierarchical Methods – Density Based Methods – Outlier Analysis – Introduction to Advanced Topics: Web Mining , Spatial Mining and Temporal Mining.

PRESCRIBED BOOKS :

1. J.Han and M. Kamber , 2001, Data Mining: Concepts and Techniques, Morgan Kaufmann, New Delhi

REFERENCE BOOKS :

1. M. H.Dunham, 2003, Data Mining : Introductory and Advanced Topics , Pearson Education, Delhi.
2. Paulraj Ponnaiah, 2001, Data Warehousing Fundamentals, Wiley Publishers.
3. S.N. Sivananda and S. Sumathi, 2006, Data Mining, Thomsan Learning, Chennai.

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	Unit – 3	1	
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	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

ELECTIVE - 2
HADOOP BIG DATA

SUBJECT CODE : 19PMCA335	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To understand the basic concepts of Big Data Analytics and usage of R for implementing machine learning algorithms.
- At the end of this course, students will have in-depth knowledge in working with data analytics tools.

UNIT-I : **(15 Hours)**

Understanding the features of R language - Using R packages - Performing data operations - Installing Hadoop - Installing Hadoop on Linux, Ubuntu flavour, single node cluster, Multimode cluster - Understanding HDFS - characteristics of HDFS.

UNIT-II : **(15 Hours)**

Map Reduce - Understanding the HDFS architecture, HDFS components, Map Reduce architecture, Map Reduce components - Learning Data Analytics with R and Hadoop - Understanding the data analytics project life cycle, Identifying the problem, Designing data requirement, Pre-processing data, Performing analytics over data - Visualizing data.

UNIT-III : **(15 Hours)**

Understanding data analytics problems -Exploring web pages categorization - Computing the frequency of stock market change - Importing and Exporting Data from Various DBs - Learning about data files as database - Understanding different types of files - Installing R packages.

UNIT-IV : **(15 Hours)**

Importing the data into R - Exporting the data from R - Understanding Mongo DB - Installing Mongo DB - Mapping SQL to Mongo DB - Mapping SQL to Mongo QL - Installing mongo db - Importing the data into R - Understanding Big Data Analysis with Machine Learning - Introduction to machine learning - Types of machine-learning algorithms.

UNIT-V : **(15 Hours)**

Supervised machine-learning algorithms - Linear regression - Linear regression with R - Linear regression with R and Hadoop - Logistic regression - Logistic regression with R - Logistic regression with R and Hadoop - Unsupervised machine learning algorithm - Clustering - Clustering with R - Performing clustering with R and Hadoop - Recommendation algorithms.

PRESCRIBED BOOKS :

1. "Big Data Analytics with R and Hadoop", Vignesh prajapati, Packt publication

REFERENCE BOOKS :

1. Big data for dummies, Judith Hurwitz, Alan Nugent, A Wiley Brand.

Question Paper Pattern

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	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

ELECTIVE - 2
DATA SCIENCE AND BIG DATA ANALYTICS

SUBJECT CODE : 19PMCA328	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To understand the basics of Data Science, Big Data Analytics, usage of R for implementing machine learning algorithms
- At the end of this course, students will have deep insight in Data Science and Big Data Analytics.

UNIT-I : **(15 Hours)**

Introduction to Big Data Analytics - Big Data Overview - Data Structures - Analyst Perspective on Data Repositories - State of the Practice in Analytics - BI Versus Data Science -Current Analytical Architecture - Drivers of Big Data -Emerging Big Data Ecosystem and a New Approach to Analytics.

UNIT-II : **(15 Hours)**

Key Roles for the New Big Data Ecosystem -Examples of Big Data Analytics - Data Analytics Lifecycle Overview-Discovery-Data Preparation- Model Planning - Model Building- Communicate Results - Exploratory Data Analysis-.Visualization Before Analysis - Dirty Data -Visualizing a Single Variable - Examining Multiple Variables - Data Exploration Versus Presentation.

UNIT-III : **(15 Hours)**

Statistical Methods for Evaluation- Hypothesis Testing - ANOVA. Overview of Clustering - K-means - Use Cases - Overview of the Method -Determining the Number of Clusters –Diagnostics- Overview of Clustering - K-means - Use Cases - Overview of the Method -Determining the Number of Clusters –Diagnostics.

UNIT-IV : **(15 Hours)**

Regression–Linear Regression –Use Cases-Model Description-Logistic Regression-Use Cases-Model Description - Additional Regression Models - Classification: Decision Trees- Overview of a Decision Tree - The General Algorithm -Decision Tree Algorithms - Evaluating a Decision Tree.

UNIT-V : **(15 Hours)**

Naive Bayes - Bayes' Theorem- Nai've Bayes Classifier- Smoothing - Additional Classification Methods - MapReduce and Hadoop: Analytics for Unstructured Data- MapReduce - Apache Hadoop - The Hadoop Ecosystem – Basics of Pig, Hive.

PRESCRIBED BOOKS :

1. Data Science & Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data. Published by John Wiley & Sons, Inc.2015 Edition.
2. Machine Learning with R, " Brett Lantz " , Packt Publishing , Open Source, 2013 Edition.

Question Paper Pattern

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	Unit – 5	1	
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	Unit – 4	1	
	Unit – 5	1	

ELECTIVE - 3
MATLAB PROGRAMMING

SUBJECT CODE : 19PMCA336	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 3**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To understand the basic aspects of MATLAB and working principles in MATLAB IDE.
- At the end of this course students will be able to work in MATLAB projects.

UNIT-I : **(15 Hours)**

Introduction to MATLAB- Programming Environment- Matlab IDE- Manipulating Windows- Variables- Expressions, Constants –Control Flow Commands.

UNIT-II : **(15 Hours)**

Variable workspace-Number functions. Writing Simple Matlab Script- Solving Simple Equations- Strings- String functions.

UNIT-III : **(15 Hours)**

Vector- Creating Vector- Operations on Vector- Statistical functions Matrices- Matrix Operations- Built-in functions- user defined functions-M files- Creating and Running Script files.

UNIT-IV : **(15 Hours)**

Data import and Data Output-Matlab Plotting- Graphing with ezplot- Modifying Graphs- Graphing with plot- Adding Title, Labels, Grid Lines and Scaling on the Graph –Setting Colors on Graph.

UNIT-V : **(15 Hours)**

Two Dimensional Plots: Bar Graph and Histogram-Building Graphical User Interface- User Interface Controls- Building a Graphical User Interface.

PRESCRIBED BOOKS :

1. Brian R.Hunt, Ronald L. Pipsman, Jonathan M.Rosenberg " A Guide to Matlab for Beginners and Experienced Users", Cambridge.
2. Craig S.Lent "Learn to Program with Matlab".

REFERENCE BOOKS :

1. MATLAB: A Practical Introduction to Programming and Problem Solving , 3rd edition, Stormy Attaway, Elsevier, 2013.

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
Section - A	**Definition / Principle** Answer ALL questions (Each in 50 words)	1-10	2	20
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	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

ELECTIVE - 3
OBJECT ORIENTED ANALYSIS, DESIGN AND UML

SUBJECT CODE : 19PMCA329	**THEORY**	**MARKS :**
SEMESTER : V	**CREDITS : 3**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To understand object oriented analysis and UML concepts.
- At the end of this course students should be able to design UML diagrams for object oriented programming.

UNIT-I: **(15 Hours)**

System Development - Object Basics - Development Life Cycle - Methodologies - Patterns -Frameworks - Unified Approach .

UNIT-II : **(15 Hours)**

Use-Case Models - Object Analysis - Object relations - Attributes - Methods – Class and Object responsibilities.

UNIT-III : **(15 Hours)**

Design Processes - Design Axioms - Class Design - Object Storage - Object Interoperability.

UNIT-IV : **(15 Hours)**

User Interface Design - View layer Classes - Micro-Level Processes - View Layer Interface.

UNIT-V : **(15 Hours)**

UML Basics – UML Specifications –Drawing Usecase Diagrams, Sequence Diagrams, State Chart Diagrams, Class Diagrams, Component Diagrams, Deployment diagrams using UML editor – Working with Star UML.

PRESCRIBED BOOKS :

1. Ali Bahrami, Reprint 2009, Object Oriented Systems Development, Tata McGraw Hill International Edition.
2. UML 2.0 in a Nutshell: A Desktop Quick Reference, By Dan Pilone, Neil Pitman, O'Reilly Media, Inc." 2005

REFERENCE BOOKS :

1. G. Booch, 1999, Object Oriented Analysis and design, 2nd Edition, Addison Wesley, Boston.
2. R. S.Pressman, 2010, Software Engineering A Practitioner‟s approach, Seventh Edition, TataMcGraw Hill, New Delhi.
3. Rumbaugh, Blaha, Premerlani, Eddy, Lorensen, 2003, Object Oriented Modeling And design , Pearson education, Delhi.

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
Section - A	**Definition / Principle** Answer ALL questions (Each in 50 words)	1-10	2	20
Section - B	**Short Answer** Answer any 5 out of 7 questions (Each in 300 words)	11-17	7	35
Section - C	**Essay** Answer any 3 out of 5 questions (Each in 1200 words)	18-22	15	45

Distribution of Questions

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

ELECTIVE - 3
DESIGN AND ANALYSIS OF ALGORITHM

SUBJECT CODE : 19PMCA337	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 3**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To understand about the basic concepts of algorithms.
- At the end of this course, students will be able to understand how to design and analyze algorithms.

UNIT-I : **(15 Hours)**

Introduction – Definition of Algorithm – pseudocode conventions – recursive algorithms – time and space complexity –big-"oh" notation – practical complexities – randomized algorithms – repeated element – primality testing - Divide and Conquer: General Method - Finding maximum and minimum.

UNIT-II : **(15 Hours)**

Merge sort - Quicksort, Selection, Strassen's matrix multiplication – Greedy Method: General Method – knapsack problem - Tree vertex splitting.

UNIT-III : **(15 Hours)**

Job sequencing with deadlines – optimal storage on tapes , Dynamic Programming: General Method - multistage graphs – all pairs shortest paths – single source shortest paths.

UNIT-IV : **(15 Hours)**

String Editing – 0/1 knapsack. Search techniques for graphs – DFS-BFS-connected components – biconnected components.

UNIT-V : **(15 Hours)**

Back Tracking: General Method – 8-queens - Sum of subsets - Graph Coloring – Hamiltonian cycles. Branch and Bound: General Method - Traveling Salesperson problem.

PRESCRIBED BOOKS :

1. E. Horowitz, S. Sahni and S. Rajasekaran, 1999, Computer Algorithms, Galgotia, New Delhi.

REFERENCE BOOKS :

1. G. Brassard and P. Bratley, 1997, Fundamentals of Algorithms, PHI, New Delhi.
2. A.V. Aho, J.E. Hopcroft, J.D. Ullmann, !974, The design and analysis of Computer Algorithms, Addison Wesley, Boston.
3. S.E.Goodman and S.T.Hedetniemi, 1977, Introduction to the Design and Analysis of algorithms, Tata McGraw Hill Int. Edn, New Delhi.

WEBSITES:

1. http://www.cise.ufl.edu/~raj/BOOK.html

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
Section - A	**Definition / Principle** Answer ALL questions (Each in 50 words)	1-10	2	20
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	Unit – 5	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

ELECTIVE - 4
INFORMATION SECURITY AND CYBER LAWS

SUBJECT CODE : 19PMCA330	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 3**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To understand about the importance and need of security of information and cyber laws that aid information security.
- At the end of this course, student will have required knowledge in information security to work in real world environment..

UNIT-I : **(15 Hours)**

Introduction to Information Systems and Security: Information Systems - Types of IS - Development of IS - Introduction to Information Security - Need for Information Security - Threats to Information Systems - Information Assurance - Cyber Security - Security Risk Analysis.

UNIT-II: **(15 Hours)**

Introduction to Application Security and Counter Measures: Introduction to Application Security - Data Security Considerations - Security Technologies - Security Threats - Security Threats to E-Commerce - E-Cash and Electronic Payment System - Credit/Debit/Smart Cards - Digital Signature - Cryptography and Encryption.

UNIT-III : **(15 Hours)**

Introduction to Security Measures: Secure Information System Development Application, Development Security - Information Security Governance and Risk Management - Security Architecture and Design - Security Issues in Hardware, Data Storage, and Downloadable Devices - Physical Security of IT Assets - Backup Security Measures.

UNIT-IV : **(15 Hours)**

Introduction to Security Policies: Need for an Information Security Policy - Information Security Standards – ISO - Introducing Various Security Policies and Their Review Process .

UNIT-V : **(15 Hours)**

Cyber Laws : Introduction to Indian Cyber Law - Objective and Scope of the IT Act, 2000 - Intellectual Property Issues - Overview of Intellectual-Property- Related Legislation in India - Patent - Copyright - Law Related to Semiconductor Layout and Design - Software License.

PRESCRIBED BOOKS:

1. Dr. Surya Prakash Tripathi, Ritendra Goyal, Praveen kumar Shukla ,"Introduction to Information Security and Cyber Laws" Willey Dreamtech Press.
2. Saurabh Sharma, "Information Security and Cyber Laws" by Vikas Publishing.

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
Section - A	**Definition / Principle** Answer ALL questions (Each in 50 words)	1-10	2	20
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	Unit – 4	2	
	Unit – 5	2	
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	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

ELECTIVE - 4
ENTERPRISE RESOURCE PLANNING

SUBJECT CODE : 19PMCA338	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 3**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To understand the basics of Enterprise Resource planning and managing ERP projects.
- At the end of this course, students will be able to carry out effective resource planning.

UNIT-I : **(15 Hours)**

A Foundation for Understanding Enterprise Resource Planning systems – Re-engineering and Enterprise Resource Planning Systems – Planning, Design ,and Implementation of Enterprise Resource Planning Systems – ERP Systems: Sales and Marketing – ERP Systems: Accounting and finance ERP Systems :Production and Materials Management ERP Systems: Human Resources.

UNIT-II : **(15 Hours)**

Managing an ERP Project – Supply chain Management and the marketplace – Rules of the game – Winning as a team.

UNIT-III : **(15 Hours)**

Solutions - Supply chains as Systems - Modeling the Supply Chain – Supply Chain Software - Operations – Meeting Demand – Maintaining Supply – Measuring Performance.

UNIT-IV : **(15 Hours)**

Planning – Forecasting Demand – Scheduling Supply – Improving performance – Mastering Demand – Designing the Chain – Maximizing Performance.

UNIT-V : **(15 Hours)**

Essentials of Customer relationship management – Designing CRM application – Various modules of CRM application - Advantages of CRM.

PRESCRIBED BOOKS :

1. Sumner Mary, Enterprise Resource Planning, First edition, Pearson education, 2006
2. Taylor David A., Supply Chains (A managers guide), Pearson education, 2004
3. Tiwana, Essential guide to knowledge management : The e-business and CRM applications, Pearson education

REFERENCE BOOKS :

1. ALTEKAR Rahul V., Enterprise wide resource planning (Theory and practice), Prentice Hall of India, 2005.
2. Garg Vinod K & Venkatakrishnan N.K, Enterprise resource planning, Second edition, Prentice Hall of India, 2006.
3. Handfield R. B & Nichols. Ernest L., Introduction to supply chain management, Prentice Hall of India, 2006.

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	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

ELECTIVE - 4
E-COMMERCE

SUBJECT CODE : 19PMCA339	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 3**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To understand the basics of E-commerce and its intricacies.
- At the end of this course, students will be able to understand the basic aspects of Ecommerce to develop their own E-commerce sites.

UNIT-I : **(15 Hours)**

Introduction to Electronic Commerce: Electronic Commerce Framework – Electronic Commerce and Media Convergence – The Anatomy of E-Commerce Applications – Electronic Commerce Consumer Applications – Electronic Commerce Organization Applications. The Network Infrastructure for Electronic Commerce: Components of the I way – Network Access Equipment – Global information Distribution Networks.

UNIT-II : **(15 Hours)**

The Internet as a Network Infrastructure: The Internet Terminology – NSFNET: Architecture and Components – National Research and Education Network – Globalization of the Academic Internet - Internet Governance – An overview of Internet Applications. The Business of Internet Commercialization: Telco/Cable/On-Line Companies - National Independent ISPs – Regional Level ISPs – Local –level ISPs – Service Provider Connectivity - Internet Connectivity options.

UNIT-III : **(15 Hours)**

Network Security and Firewalls: Client Server Network Security and Threats. Electronic Commerce and the World Wide Web: Architectural Framework for Electronic commerce – World Wide Web (WWW) as the Architecture – Hypertext Publishing - Technology behind the Web – Security and the Web. Consumer-Oriented Electronic Commerce: Consumer-Oriented Applications – Mercantile process models – Mercantile Models from the Consumers and the Merchant' Perspective.

UNIT-IV : **(15 Hours)**

Electronic Payment Systems: Types of Electronic Payment Systems – Digital Token based Electronic Payment Systems – Smart Cards and Credit Card – Based Electronic Payment Systems – Risk and Electronic Payment Systems – Designing Electronic Payment Systems. Inter-organizational Commerce and EDI: Electronic Data Interchange –Applications in Business –Legal, Security and Privacy issues - Internet – Based EDI.

UNIT-V : **(15 Hours)**

Advertising and the Marketing on the Internet: The New Age of Information based marketing and Advertising on the Internet – Consumer Search and Resource Discovery Paradigms and Retrieval - Electronic Commerce Catalogs or Directories – Information filtering – Consumer – Data Interface : Emerging Tools. On Demand Education and Digital Copyrights: Computer based Education and Training – Technological Components of Education on demand. Software Agents: Characteristics and Properties – The Technology behind – Applets, Browsers and Software Agents- Software Agents in Action.

PRESCRIBED BOOKS :

1. Ravi Kalakota and Andrew B. Whinston, Eleventh Impression, 2011, Frontiers of Electronic Commerce, Pearson Education Inc., Delhi.

REFERENCE BOOKS :

1. Daniel Minoli, and Emma Minoli, Web commerce Technology Handbook, TMH..

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	Unit – 5	1	
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	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

ELECTIVE - 4
HUMAN RESOURCE MANAGEMENT

SUBJECT CODE : 19PMCA340	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 3**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To understand the basic concepts of Human Resource management.
- At the end of this course, students will be able to understand the HR activities.

UNIT-I : **(15 Hours)**

Perspectives In Human Resource Management-Evolution Of Human Resource Management – The Importance Of The Human factor – objectives of human resource management – role of human resource manager – human resource policies – computer applications in human resource management.

UNIT-II : **(15 Hours)**

The Concept Of Best Fit Employee - Importance of human resource planning – forecasting human resource requirement – internal and external sources. Selection process-screening – tests - validation – interview - medical examination – recruitment introduction – importance – practices – socialization benefits.

UNIT-III : **(15 Hours)**

Training And Executive Development - Types of training, methods, purpose, benefits and resistance. Executive development programme – common practices - benefits – self development – knowledge management.

UNIT-IV : **(15 Hours)**

Sustaining Employee Interest - Compensation plan – reward – motivation – theories of motivation – career management – development, mentor – protege relationships.

UNIT-V : **(15 Hours)**

Performance Evaluation And Control Process - Method of performance evaluation – feedback – industry practices. Promotion, demotion, transfer and separation – implication of job change. The control process – importance – methods – requirement of effective control systems grievances – causes – implications – redressal methods.

PRESCRIBED BOOKS :

1. Decenzo and Robbins, Human Resource Management, Wilsey, 6th edition, 2001.
2. Biswajeet Pattanayak, Human Resource Management, Prentice Hall of India, 2001.

REFERENCE BOOKS :

1. Human Resource Management, Eugence Mckenna and Nic Beach, Pearson Education Limited, 2002.
2. Dessler Human Resource Management, Pearson Education Limited, 2002.
3. Mamoria C.B. and Mamoria S.Personnel Management, Himalaya Publishing Company, 1997.
4. Wayne Cascio, Managing Human Resource, McGraw Hill, 1998.
5. Ivancevich, Human Resource Management, McGraw Hill 2002.

Question Paper Pattern

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	Unit – 3	1	
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	Unit – 5	1	
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	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE – XXV

PRACTICAL – IX : ROBOTIC PROCESS AUTOMATION LAB

SUBJECT CODE : 19PMCA331P	**PRACTICAL**	**MARKS : 100**
SEMESTER : V	**CREDITS : 2**	**TOTAL No. OF HOURS : 60**

COURSE OBJECTIVES:

- To have hands-on experience in RPA programming.
- At the end of this course students will be able to create RPA programs to automate manual applications using UiPath.

1. Create a simple project which will greet you with the name.
2. Create a simple project to enter 2 numbers & check whether their sum is less than 20.
3. Create a simple automation that writes two messages to the Output panel with a delay of 50 seconds.
4. Create a project use the Break activity to execute only one iteration
5. Create a project with to display an integer variable, increases from 5 to 50 in increments of 5.
6. Use Do while Activity to generate all multiples of 2, less than 20.
7. Use the For each activity to go through a collection of even numbers and display each element one at a time.
8. Use If activity to check whether the sum of any two numbers is less than 6.
9. Use switch Activity to check whether a given number is odd or even.

CORE – XXVI
PRACTICAL – X : MINI PROJECT

SUBJECT CODE : 19PMCA332P	**PRACTICAL**	**MARKS : 100**
SEMESTER : V	**CREDITS : 2**	**TOTAL No. OF HOURS : 75**

COURSE OBJECTIVES:

- To help students in developing small projects that should be useful for small scale industries.
- At the end of this course, students will be confident in creating and working with projects.

SOFT SKILL - 5
GROUP DISCUSSION

SUBJECT CODE : 19PGSL408M	**SOFT SKILL**	**MARKS : 100**
SEMESTER : V	**CREDITS : 2**	**TOTAL No. OF HOURS : 15**

COURSE OBJECTIVES:

- To help students to understand about the skills required for group discussion.
- At the end of this course, students will be able to discuss about the problems in a group efficiently.

1. FDI in higher education: a boon or bane?
2. Is Wikileaks release of US diplomatic cables good for democracy and transparency?
3. Does India need a super regulatory body for higher education?
4. Role of government in monitoring the economy in relation to recession
5. Will a caste census help in bringing better development of depressed classes?
6. Is a little corruption acceptable in developing countries?
7. Your opinion on Women reservation bill
8. Weather developing countries should control the emission of carbon?

INTERNSHIP

SUBJECT CODE : 19PINT401	**INTERNSHIP**	**MARKS : 100**
SEMESTER : V	**CREDITS : 3**	**DURATION: 6 to 8 Weeks (During Summer Vacation of IV Semester)**

COURSE OBJECTIVES:

- Students will be able to understand the working aspects and important features of organizations.
- At the end of this course, students will have awareness in practices that are followed in the corporate environment.

Internship Program :

During summer vacation of second year each student should undergo training in software or software related industry for 30 working days and they have to present their learning soon after the college is reopened.

SOFT SKILL - 6
CONTENT WRITING

SUBJECT CODE : 19PGSL409N	**SOFT SKILL**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 2**	**TOTAL No. OF HOURS : 30**

COURSE OBJECTIVES:

- Students are trained to document software project development and write the report of the work done.
- At the end of this course students will be proficient in content writing.

UNIT-I : **(6 Hours)**

Introduction, Problem Analysis

UNIT-II : **(6 Hours)**

Design, Filter Module

UNIT-III : **(6 Hours)**

Stemming Module, Parser Module

UNIT-IV : **(6 Hours)**

Testing Documentation

UNIT-V : **(6 Hours)**

Conclusion

PRESCRIBED BOOKS :

1. Thomas Jund, Andrew Mustun , Laurent Cohn, “Quaneko, Find the Stuff on your Local Harddisc”.

PROJECT
PROJECT AND VIVA-VOCE

SUBJECT CODE : 19PMCA333	**PROJECT**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 18**	**TOTAL No. OF HOURS : 28**

COURSE OBJECTIVES:

- Students are expected to work in real time projects. The project work is to be carried out either in a software industry or in an academic institution for the entire semester.
- Project work shall be carried out individually in an R&D section of any Industry or University or in the Institute in which the candidate is studying. The Project Work/Dissertation report shall be submitted through the guides/supervisors to the Head of the Department.

1580

SEMESTER SYSTEM WITH CREDITS

(Effective from the Academic year 2019-2020 and thereafter)

RULES AND REGULATIONS

I. CHOICE BASED CREDIT SYSTEM (CBCS) WITH GRADING

The College follows the CBCS with grades under the semester pattern. Every course paper is provided with a credit point based on the quantum of subject matter, complexity of the content and the hours of teaching allotment. This is done after a thorough analysis of the content of each subject paper by the members of the Board of studies and with the approval of the Academic Council. Students are also offered a variety of Job-oriented courses, Elective courses and courses involving Soft-skills as the part of curriculum. Students can earn extra credits by opting for Massive Open Online Courses (MOOCs) and Certificate Courses.

The evaluation method under CBCS involves a more acceptable grading system that reflects the personality of the student. This is represented as Cumulative Grade Point Average (CGPA) and Grade Point Average (GPA) which are indicators of Academic Performance of the student. It provides students scope for horizontal mobility and empowers them with the flexibility of learning at their convenience.

II. ELIGIBILITY FOR ADMISSION

Candidates admitted to the first year of the UG programme should have passed the higher secondary examinations (Academic or Vocational Stream) conducted by the Government of Tamil Nadu or an examination accepted as equivalent thereof by the Syndicate of the University of Madras. Students applying for the PG programme should have taken the UG degree in the concerned subject from a recognized university as per the norms of the University of Madras.

III. DURATION OF THE COURSE

The UG course is of three-year duration with six semesters and the PG course is of two-year duration with four semesters excluding MCA – three-year duration with six semesters. The odd semester includes the period from June to November and the even semester from December to April. There shall not be less than 90 working days for each semester.

IV. COURSE OF STUDY

The main subject of study for Bachelor's Degree shall consist of the following:

1. **FOUNDATION COURSES**
   a) PART – I Tamil or Classical Language (Hindi / Sanskrit / French)
   b) PART – II English

2. **CORE COURSES**
   a) PART – III consisting of (a) Main subjects, (b) Allied Subjects, (c) Elective subjects related to the main subject of study and project work.
   b) PART–IV
      I. Those who have not studied Tamil / Hindi up to XII standard and have taken a non-Tamil / non - Hindi language under Part – I shall opt for Basic Tamil / Basic Hindi in the first two semesters.
      II. Those who have studied Tamil up to XII standard, and taken a non - Tamil language under Part – I shall opt for Advanced Tamil in the first two semesters.
      III. Others, who do not come under either of the clauses mentioned above, can choose a Non-Major Elective (NME) in the first two semesters.
      IV. Soft Skills. (I, II, III & IV Semesters)
      V. Environmental Studies (IV Semester)
      VI. Value Education (V Semester)
   c) PART –V Compulsory Extension Service

A candidate shall be awarded one credit for compulsory extension service.

All the students shall enroll for NSS / NCC /Sports & Games/ Rotaract/ Youth Red Cross / Citizen Consumer Club / Enviro Club or any other service organization in the College and shall have to put in compulsory minimum attendance of 40 hours which shall be duly certified by the Principal of the College. If a student lacks 40 hours attendance in any Semester, he/she shall have to compensate the same during the subsequent Semesters. Literacy and population, educational field work shall be compulsory components in the above extension service activities.

V. COURSE STRUCTURE

The UG course consists of 15-18 Core papers, 3 Elective papers and 4 Allied papers. The Credit for each core paper shall be 3-4, while the elective and allied papers shall carry a credit of 5. The B. Com (Hons) course has 32 core papers of 4 credits each.

The PG course has 14-17 core papers with 4 credits, elective papers with 3-4 credits and a project work.

The MBA course has 13 core papers of 4 credits each, 8 elective and interdisciplinary papers of 3 credits each and a project work.

The MCA course has 26 papers of 2-4 credits, 6 elective papers of 3-4 credits and a project work.

Internship training is a compulsory component for all the PG courses.

- **The details of the course structure are given in the following table:**
-

CHOICE BASED CREDIT SYSTEM WITH GRADING

POST GRADUATE DEGREE

COMPONENTS	M.B.A.			M.Sc. Chemistry, M.Sc. Mathematics, MSW, M.Sc. Zoology, M.A.Economics, M.A Defence & Strategic Studies			M.C.A.			M. COM		
	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits
CORE COURSES INCLUDING PRACTICAL	13	4	52	14-17	4	60 - 70	26	2- 4	79	16	4	64
PROJECT	1	8	8	0 – 1	6	0 - 6	1	18	18	0	0	0
ELECTIVES INCLUDING EXTRA DISCIPLINARY COURSES	8	3	24	3-5	3 - 4	10 - 20	6	3 – 4	23	4	4	16
SKILL	4	2	8	4	2	8	6	2 – 3	13	4	2	8
INTERNSHIP	1	2	2	0 – 1	2	0 - 2	1	2	2	1	2	2
TOTAL			**94**			**90**			**135**			**90**

UNDER GRADUATE DEGREE

PART	COMPONENTS	B.Com (Gen.), B.Com (A&F), B.Com(B.M.), B.Com(M.M.), B.Com(ISM), B.B.A., B.C.A,B.Sc (IT)			B.Com (C.S)., B.Sc.(C.S.), B.Sc (Biotech), B.Sc. (Phy.), B.Sc.(Chem.), B.Sc.(Plant Bio.), B.Sc.(Adv.Zoo) B.Sc.(Mat.), B.Sc.(Viscom), B.A.(Eco.) & B.A.(Defence), B.A. (English).			B.Com (Honours)		
		No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits
Part I Foundation Course	Language (Tamil/ Hindi/ Sanskrit/ French)	2	3	6	4	3	12	2	3	6
Part II Foundation Course	English	2	3	6	4	3	12	2	3	6
Part III	Core Papers	18	4	72	15-18	3 – 4	60	32	4	132
	Allied Papers	4	5	20	4	5	20	-	-	-
	Elective Papers	3	5	15	3	5	15	-	-	-
Part IV	Non Major Electives/ Basic Tamil/ Advanced Tamil*	2	2	4	2	2	4	2	2	4
	Skill Based Elective	4	3	12	4	3	12	5	2 - 4	14
	Environmental Studies	1	2	2	1	2	2	1	2	2
	Value Education	1	2	2	1	2	2	-	-	-
Part-V	Extension Service	1	1	1	1	1	1	1	1	1
Total				140			140			165

Under Part IV of the Course, students should register separately for two Non-Major Elective papers, during the First and Second semester. The marks obtained under Part IV would not be included for classification of the candidate although a pass is mandatory. Students should have obtained the minimum credit under Part V to be eligible to receive the degree.

VI. EXAMINATIONS

Continuous Internal Assessment (CIA) will be for 50 percentage and End Semester Examination (ESE), will be for 50 percentage.

➢ CONTINUOUS INTERNAL ASSESSMENT (CIA)

Every semester has two centralized CIA examinations and one model examination for each paper. Each of the Continuous Assessment Tests (CAT) of one-and-a-half-hour duration will be conducted on completion of 30 and 60 working days respectively in each semester. A Model exam of three hours' duration will be conducted on completion of 80 working days in each semester. **The schedules for these tests are as follows:**

C.I.A.Test	Schedule	Syllabus Coverage
I	After 30 working days from the commencement of the Semester	40%
II	After 60 working days of the Semester	80%
III (Model Examination)	After 80 working days of the Semester	95%

The components for the CIA are as follows:

Internal Components			
Assessment Type	**Nature**	**Maximum marks**	**% of Weightage**
CIA	Written Test - 1	50	5
	Written Test – 2	50	5
Model	Model Examination	100	10
	Assignment		10
	Class activity		15
	Attendance		5
	Total		**50**

The class activity relates to a programme of accepted innovative techniques such as seminars, quiz, portfolio creation, MCQ, power point presentation, objective tests, role play etc. The mode of evaluation of the class activity will be fixed before the commencement of the semester and an approval will be obtained from the HOD. Once the classes begin, the student would be informed.

A record of all such assessment procedures will be maintained by the department and is open for clarification. Students will have the right to appeal to the Principal in case of glaring disparities in marking.

CIA marks for practical subjects will be awarded by the respective faculty based on the performance of the student in the model practical examination, observation notebook, submission of record books, regularity and attendance for the practical classes. The attendance particulars for practical classes will be maintained by the concerned faculty.

Marks for attendance will be awarded as per the following:

Percentage of General Attendance	Marks Awarded
90-100	5
75-89	4
60-74	3
<60	0

- **END SEMESTER EXAMINATIONS (ESE)**

Examinations will be conducted during each semester after the completion of a minimum of 90 working days. Examinations will be held for all papers of the course in Nov/Dec and April/May for all UG and PG courses.

Practical examinations will be conducted only during the end of the odd / even semester either before, during or after the commencement of the theory exam. The schedule for ESE Practical's will be notified by the Controller of Examinations in consultation with the Dean (Academics).

A candidate will be permitted to appear for the End of Semester examinations for any semester if:

a) He / She secures not less than 75% of attendance in the working days during the semester.
b) His / Her conduct has been satisfactory
c) He / She should have applied for the examination
d) He / She should have paid the requisite examination fee

The attendance requirements to appear for the ESE are as follows:

1. Students must have 75% of attendance in each part of the course of study to appear for the examination.
2. Students who have 65% to 74.9% of attendance shall apply for condonation in the prescribed form along with the prescribed fee after obtaining permission from the Principal. Students cannot claim condonation as a matter of right. Submission of Medical Certificate is normally not accepted to condone shortage of attendance.
3. Students who have 50% to 64.9% of attendance will fall under the—Withheld category. Such students cannot take up the ESE exams. They should apply to the Principal for permission to write the next supplementary examination and pay the requisite fee for this purpose. However, they can appear for previous semester supplementary paper.
4. Students who have less than 50% of attendance fall under the—detained **category would not be permitted to appear for the examination. They shall redo the semesters after completion of the course and appear for the examination after securing the required percentage of attendance. The decision of the Principal remains final and binding in all respects.**
5. Students who do not get the minimum marks to pass in the ESE shall compulsorily re-appear for the paper in the subsequent semester after paying the required fee.

A Student who for whatever reasons is not able to complete the program within the normal period (N) or the minimum duration prescribed for the programme, may be allowed two years period beyond the normal period to clear the backlog to be qualified for the degree. (Time Span = N +2 +1 years for the completion of programme).

In exceptional cases like Major accidents and child birth an extension of one year be considered beyond maximum span of time (Time Span = N + 2 + 1 years for the completion of programme)

If they fail to do so, they shall re-register their names and take the examination in the revised regulations/syllabus of the paper in force at the time of their reappearance. In the event of removal of that paper consequent to the change of regulation and/or curriculum after 5-year period, the candidate shall have to take up an equivalent paper in the revised syllabus as suggested by the Chairman of the concerned Board of Studies. Students qualifying during the extended period, shall not be eligible for **RANKING.**

- **INSTANT EXAMINATIONS (SPECIAL SUPPLEMENTARY EXAMINATION)**

In order to provide an opportunity to the final UG and PG students to obtain the degree in the same year and also to facilitate vertical mobility, special supplementary End Semester Examinations will be conducted in about 30 days from the date of publication of results every year for the final semester theory papers and also for the candidates who had failed in **ONLY ONE** theory paper of the previous semesters. Students, who wish to apply for special supplementary End Semester Examinations, can do so within 7 days from the date of publication of results.

Students involved in Malpractice will not be permitted to appear for Supplementary Examination. The details of the ESE are as follows:

External Component			
Assessment type	**Comprehensive Test**	**Maximum mark**	**% of Weightage**
External Exam	3 Hours examination	100	50
	Grand total(CIA+ESE)		100

VII. CONDUCT OF EXAMINATION

Chief Superintendent of Examinations will be the Principal or a person appointed by him. The conduct of End Semester Examinations lies with the team led by the Chief Superintendent.

The time-table for examinations will be finalized by the office of the Controller of Examinations and will be displayed well in advance i.e., 20 days prior to the commencement of examinations.

The Hall tickets for eligible students will be issued 3 days prior to the commencement of examinations. For Subjects like Environmental Studies / Value Education, End Semester Examinations may be conducted on-line or along with the regular ESE.

VIII. VALUATION

Valuation of the answer scripts are undertaken at the central valuation camp led by the Controller of Examinations or the Camp Officer appointed by the Controller of Examinations. Single valuation of answer scripts by external examiners is adopted for both UG and PG Courses.

IX. PUBLICATION OF RESULTS

The Examination results will be published on the web portal during the third / fourth week of May for the II, IV and VI semester examinations and during the third / fourth week of December for the I, III and V semester examinations

A. GUIDELINES FOR OBTAINING PHOTOCOPY OF THE ANSWER SCRIPT

Candidates seeking photocopy of the answer scripts are advised to go through these rules and regulations before they apply

1. Photocopy is allowed only for Regular theory papers in PART I, II and III. **(Supplementary excluded).**
2. Select the papers carefully in which you wish to get the photocopy. No second application for additional papers would be accepted.

B. GUIDELINES FOR APPLYING REVALUATION OF THE ANSWER SCRIPT

Candidates seeking revaluation are advised to go through these rules and regulations before they apply

1. Revaluation is allowed only for Regular theory papers in PART I, II and III. **(Supplementary excluded).**
2. Select the papers carefully in which you wish to get the revaluation. No second application for additional papers would be allowed.
3. The application is to be filled in by the candidate in his/her own hand-writing and not by anyone else on his/her behalf.
4. Entries made by the candidate are to be verified by the HOD and forwarded to the Principal for his endorsement.
5. Prescribed Fee payment receipt or challan to be attached with the Application Form and submitted to the Principal's Office, the candidate will be given an acknowledgement for submission mentioning date and time.
6. Candidate to be aware that when applying for revaluation, He/She SURRENDERS the original performance and will now accept the revised performance in which
   (a) There can be NO CHANGE in the marks (or)
   There can be INCREASE in the marks

❖ CLASSIFICATION OF PERFORMANCE – GRADING SYSTEM FOR THE SEMESTER

A candidate shall be declared to have qualified for the award of the Degree provided the candidate has successfully completed the Programme requirements and has passed all prescribed subjects of study in all the semesters.

Passing Minimum: UG CIA 40% AGGREGATE 40%
B. Com (Hons.) and PG CIA 50% ESE 50% AGGREGATE 50% OF THE MAXIMUM OF THE COMPONENT IN THAT PAPER / COURSE

P: Pass, U: Re-Appear, WH: Withheld, AAA: Absent, CIA: Continuous Internal Assessment, ESE: End Semester Examination, GPA: Grade Point Average. CGPA: Cumulative Grade Point Average

UNDER GRADUATE DEGREE

PART – I TAMIL / OTHER LANGUAGES
PART – II ENGLISH
PART – III CORE, ALLIED AND ELECTIVE
PART – IV TAMIL / NON MAJOR ELECTIVE, SKILL BASED ELECTIVES, ENVIORNMENTAL STUDIES AND VALUE EDUCATION
PART – V EXTENSION ACTIVITIES

POST GRADUATE DEGREE

PART – A: CORE, ELECTIVE, and MAJOR PROJECT PART – B: SOFT SKILL COURSE, INTERNSHIP Grade Points and Letter Grade (Performance in a paper / course)

RANGE OF MARKS FOR GRADES UG Also for Certificate / Diploma			
Range of Marks	**Grade Points**	**Letter Grade**	**Description**
90 - 100	9.0 - 10.0	O	Outstanding
80 - 89	8.0 - 8.9	D+	Excellent
75 - 79	7.5 - 7.9	D	Distinction
70 - 74	7.0 - 7.4	A+	Very Good
60 - 69	6.0 - 6.9	A	Good
50 - 59	5.0 - 5.9	B	Average
40 - 49	4.0 - 4.9	C	Satisfactory
00 - 39	0.0 - 3.9	U	Re - appear
ABSENT	0	AAA	Absent

RANGE OF MARKS FOR GRADES UG B.Com. (Hons.), PG and also for PG Diploma			
Range of Marks	**Grade Points**	**Letter Grade**	**Description**
90 - 100	9.0 - 10.0	O	Outstanding
80 - 89	8.0 - 8.9	D+	Excellent
75 - 79	7.5 - 7.9	D	Distinction
70 - 74	7.0 - 7.4	A+	Very Good
60 - 69	6.0 - 6.9	A	Good
50 - 59	5.0 - 5.9	B	Average
40 - 49	4.0 - 4.9	U	Re – appear
ABSENT	0	AAA	Absent

C*i* = Credits earned for course / in any semester
G*i* = Grade Point obtained for course / in any semester /year.
n refers to the semester / year in which such courses were credited.

- **CGPA Grades:**

CGPA		GRADE		CLASSIFICATION OF FINAL RESULT	
9.5-10.0		O+		First Class –Exemplary*	
9.0 and above but below 9.5		O			
8.5 and above but below 9.0		D++		First Class with Distinction*	
8.0 and above but below 8.5		D+			
7.5 and above but below 8.0		D			
7.0 and above but below 7.5		A++		First Class	
6.5 and above but below 7.0		A+			
6.0 and above but below 6.5		A			
5.5 and above but below 6.0		B+		Second Class	
5.0 and above but below 5.5		B			
B.Com(Hons)	**UG**	**B.Com(Hons.)**	**UG**	**B.Com(Hons.)**	**UG**
	4.5 and above but below 5.0		C+		

0.0 and above but below 5.0	4.0 and above but below 4.5	U	C	Re – Appear	Third
	0.0 and above but below 4.0		U		Re-appear

The candidates who have passed in the first appearance and within the prescribed semester of the UG/PG Programme (Core, Allied and Elective) alone are eligible.

- **Grading for a Semester:**

For a Semester :

GRADE POINT AVERAGE [GPA] = $\sum i$ Ci Gi / $\sum i$ Ci

$$\text{GPA} = \frac{\text{Sum of the multiplication of grade points by the credits of the courses}}{\text{Sum of the credits of the courses (passed) in a semester,}}$$

For the entire programme:

CUMULATIVE GRADE POINT AVERAGE [CGPA] =$\sum n \sum i$ Cni Gi / $\sum n \sum i$ Cni

$$\text{CGPA} = \frac{\text{Sum of the multiplication of grade points by the credits of the entire programme}}{\text{Sum of the credits of the courses of the entire programme}}$$

(CGPA is calculated only if the candidate has passed in all the courses in the entire programme)

X. INTERDISCIPLINARY ELECTIVE (IDE)

It has been proposed that the UG students admitted from the academic year 2019 – 2020 onwards would take up an Interdisciplinary Elective (IDE) Paper in their Fifth Semester for the students admitted in the year 2019 onwards.

❖ **The following Departments functioning in Shift I will be offering IDE Papers to students only from Shift I:**

S.NO	DEPARTMENT	IDE(TITLE OF THE PAPER)
1	Mathematics	Business Mathematics
2	Physics	Integrated Electronics
3	Chemistry	Chemistry in Everyday Life
4	Plant Biology and Plant Biotechnology	Horticulture and Mushroom Cultivation
5	Advanced Zoology and Biotechnology	Wildlife Conservation
6	Commerce (General)	Entrepreneurial Development
7	Corporate Secretaryship	Entrepreneurial Development
8	Economics	Economics of Insurance
9	Defence and Strategic Studies	An Introduction to Defence Journalism
10	Department of Hindi	Communication Hindi : Oral and Written

❖ **The following Departments functioning in Shift II will be offering IDE Papers to students only from Shift II:**

S.NO	DEPARTMENT	IDE(TITLE OF THE PAPER)
1	Commerce (General)	Entrepreneurial Development
2	Commerce (A&F)	Indian Constitution and Human Rights
3	Commerce (BM)	Personal Investment Planning
4	Commerce (MM)	Tourism Management

5	Commerce (Hons)	Business Venture
6	Corporate Secretaryship	Entrepreneurial Development
7	BBA	Managerial Skill Development
8	BCA	Introduction to Web Designing(HTML & CSS) -Practical
9	Computer Science	Internet And Its Applications
10	Visual Communication	Film Appreciation

- **The following Departments from Shift II, functioning in Shift I timings can only offer IDE Papers to the students functioning within the same Shift I timings:**

S.NO	DEPARTMENT	IDE(TITLE OF THE PAPER)
1	Commerce (ISM)	Essentials of office Automation Tools and E-Mail Etiquette
2	B.Sc. IT	Web Designing
3	B.Sc. Biotechnology	Intellectual Property Rights
4	B.A. English	Travel Writing

XI. OPTION TO EARN ADDITIONAL CREDITS

A. MOOCs (Massive open Online Courses)

- UG students can opt for a minimum of one Course and a maximum of 6 Credits can be earned by only three courses during their three-year period of study.
- PG students can opt for a minimum of one Course and a maximum of 4 Credits can be earned by only two courses during their two-year period of study.
- This is completely optional.

B. CERTIFICATE COURSES

The Certificate courses are offered by the departments for a duration of 30 hours which will enable the students to earn 2 additional credits.

REQUIREMENT FOR PROCEEDING FOR SUBSEQUENT SEMESTER

1. Candidates shall register their names for the first semester examination after admission in the UG / PG courses.
2. Candidates shall be permitted to proceed from the first semester up to final semester irrespective of their failure in any of the semester examinations subject to the condition that the candidate had registered for all the arrear subjects of earlier semesters along with current semester subjects.

XII. ISSUE OF CERTIFICATES

A Statement of Marks will be issued to every student who has written the examination.

❖ Consolidated Mark Sheet

Consolidated mark sheets will be given to final year students along with total credits earned only to those who have passed in all the papers prescribed for the respective degree.

❖ Transcript

Students who are desirous to obtain any Transcript certificate for joining courses of study in other Universities in India or abroad or for obtaining scholarships, can obtain these certificates from the office of the Controller of Examinations. A requisition letter duly signed by the Student and forwarded by the Principal along with fee challan is to be submitted to the office of the Controller of Examinations. The Certificate will be provided within 15 working days in a sealed envelope.

❖ Provisional Certificate

A copy of the results of the successful final year students will be sent to the University of Madras in the prescribed format in July/August and the University will issue a Provisional Certificate through the College. A soft copy can be downloaded from the University of Madras website and a hard copy will be provided by them within 90 days of the issue of soft copy.

❖ **Corrections in the Certificates**

Any corrections like name, date of birth etc., can also be made in the certificate. A letter of request duly signed by the student, HOD and Principal along with the prescribed fee paid challan is to be forwarded to the office of the Controller of Examinations. The time line to update will be 15 working days. The amount once paid will not be refunded under any circumstances.

❖ **Duplicate Mark Sheet**

In case of loss of mark sheet / certificate, a duplicate will be provided after submitting a non-traceable certificate issued from the Police station duly signed by an Inspector or Sub Inspector. A letter of request duly signed by the student, HOD and Principal along with the prescribed fee paid challan is to be forwarded to the office of the Controller of Examinations.

❖ **Duplicate Provisional Certificate / Degree Certificate:**

Students have to apply directly to the University of Madras for duplicate provisional certificate and degree certificate.

❖ **Verification of Qualification**

Agencies which request for verification of educational qualification of students under autonomous mode of this college and students who opt for higher studies / employment and who require verification of educational qualification, shall verify online through the QR code in the consolidated mark sheet through online payment. They can also apply to the Principal to this effect along with the prescribed fees which has to be forwarded to the OCOE. The relevant certificate will be issued within 15 working days from the receipt of the forwarded request of the Principal and the same office.

XIII. CONVOCATION AND NOTICE

❖ Convocation

Every year after the Convocation is conducted by the University of Madras, the College will hold a Graduation day / Convocation in which the Degree Certificates will be distributed to the students who are present. For others it will be issued by the College Office. Students should collect the same within 30 days of convocation after which a search fee will be charged. **Students are responsible to collect their Certificates and the College shall not be liable for the same.**

❖ Notice

Candidates, who have completed the duration of the course and left the College, can get information regarding Supplementary Examinations, issue of examination application forms, certificates and application for Graduation day through the college web site and general notice board. Regular students will however be informed of the examinations by circulation, in addition to the modes mentioned above.

No candidate will be communicated individually.

Modus Operandi for the Syllabus

1) The department will finalize the syllabus.
2) Finalization implies a change in the existing syllabus or a revamp of entire syllabus
3) They will place it on the BOS meeting. After approval of the syllabus in the BOS, the concerned department will submit the minutes along with the modified syllabus book / sheet (five copies) to the Deans office within ten days of the BOS meeting
4) A Soft copy of the batch-wise syllabus approved by the BOS in PDF format is to be sent to the Deans mail ID within ten days of the BOS meeting.

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M.Sc., DEGREE COURSE IN CHEMISTRY

FIRST SEMESTER

S.No.	Course Components	Subjects	Semester	Credits	Hrs.	Max. Marks	
						CIA	External
1	Core-1	Stereochemistry and Reaction Mechanism	I	4	5	**50**	50
2	Core-2	Chemical kinetics	I	4	4	**50**	50
3	Core-3	Coordination Chemistry	I	4	4	**50**	50
4	Core-4	Analytical Chemistry	I	4	4	**50**	50
5	Core practical-1	Organic Chemistry Practical	I	*	5	*	*
6	Core practical-2	Inorganic Chemistry Practical	I	*	4	*	*
7	Core practical-3	Physical Chemistry Practical	I	*	4	*	*
8		Soft skill	I	2		**50**	50

SECOND SEMESTER

S.No.	Course Components	Subjects	Semester	Credits	Hrs.	Max. Marks	
						CIA	External
9	Core-5	Quantum Chemistry and Group theory	II	4	5	**50**	50
10	Core-6	Organometallics and Bioinorganic chemistry	II	4	4	**50**	50
11	Core-7	Chemistry of Aromatic compounds and Concerted reactions.	II	4	4	**50**	50
12	Core practical-1	Organic Chemistry Practical	II	4	5	**50**	50
13	Core practical-2	Inorganic Chemistry Practical	II	4	4	**50**	50
14	Core practical-3	Physical Chemistry Practical	II	4	4	**50**	50
15	Elective - 1	Chemistry of Natural Products	II	3	4	**50**	50
16	-	Soft Skill	II	2		**50**	50

THIRD SEMESTER

S.No	Course Components	Subjects	Semester	Credits	Hrs.	Max. Marks	
						CIA	External
17	Core-8	Spectroscopy- I	III	4	5	**50**	50
18	Core-9	Synthetic Methodology	III	4	5	**50**	50
19	Core-10	Thermodynamics and Electrochemistry	III	4	5	**50**	50
20	Core practical-4	Electro Analytical Practical	III	*	5	*	****
21	Elective Practical-1	Analytical Chemistry Practical	III	*	5	****	*
22	Elective –II	Solid State and Nano Chemistry	III	3	5	**50**	50
23		Soft Skill	III	2	--	**50**	50
24		Summer Internship **	III	2	--	**50**	50

FOURTH SEMESTER

S. No.	Course Components	Subjects	Semester	Credits	Hrs.	Max. Marks	
						CIA	External
25	Core-11	Photochemistry	IV	4	5	**50**	50
26	Core-12	Spectroscopy - II	IV	4	5	**50**	50
27	Core practical-4	Electro Analytical Practical	IV	4	5	**50**	50
28	Elective practical-1	Analytical Chemistry Practical	IV	4	5	**50**	50
29		Group Project	IV	6	10	**50**	50
30		Soft skill	IV	2		**50**	50
				90			

NOTE:

* The practical examinations to be conducted at the end of even semester.

** The students should undergo summer internship for three weeks after the second semester theory/practical examination and the reports to be submitted at the end of third semester examination.

MOOC [Optional]

Students can opt for Massive Open Online Courses during odd semesters.
Two credits will be given for each course.
Students can choose a maximum of two courses.

CORE THEORY - 1: STEREOCHEMISTRY AND REACTION MECHANISM

SEMESTER I	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

OBJECTIVES:

- This course aims to explain basic concepts in stereochemistry and methods of determining reaction mechanisms.
- To explain synthetic application of aliphatic nucleophilic substitution, elimination reactions in organic synthesis.

UNIT - I: Stereochemistry - I **(15 hrs)**

Optical activity - chirality- conditions for optical activity-asymmetry and dissymmetry-dissymmetry of allenes, biphenyls, paracyclophanes, ansa compounds and molecules with helical structures - absolute configuration- D/L and R/S notation of acyclic chiral molecules, allenes, biphenyls and spiro compounds-molecules with more than one asymmetric centre - erythro/threo and meso / dl configuration - Fischer Projection - Newmann and Sawhorse projection-interconversion of projection formulae- prochiral centre- - Crams rule and Prelogs rule-optical purity – enantiomeric excess – stereospecific and stereoselective reactions.

Geometrical isomerism: E-Z nomenclature of olefins and oximes - Geometrical and optical isomerism of mono and disubstituted cyclopropane, cyclobutane, cyclopentane and cyclohexane derivatives - homotopic, enantiotopic and diastereotopic hydrogen - prochiral carbon (up to 10 carbons only) - pro R and pro S & Re and Si face- determination of configuration.

UNIT - II: Stereochemistry – II **(10 hrs)**

Conformation and conformational analysis - conformation of simple 1,2- disubstituted ethane derivatives - cyclopropane, cyclobutane, cyclopentane and cyclohexane derivatives-conformational free energy – conformational analysis of mono and disubstituted cyclohexanes and their stereochemical feature (geometrical and optical isomerism)-conformation and stereochemistry of decalin and 9 - methyl decalin- conformation of glucose.

Conformation and reactivity: steric and product development control – reduction of tertiary butyl cyclohexanone by hydride – stereo chemistry of oxidation of cis and trans tertiary butyl

cyclohexanols by Cr (VI) – stereochemistry of the reaction between nitrous acid and α-amino cyclohexanols.

Asymmetric synthesis: Evans and Enders

UNIT - III: Methods of Determining Reaction Mechanisms (15 hrs)

Kinetic and non-kinetic methods of determining reaction mechanisms-Thermodynamic and kinetic aspects - spectroscopic studies – Hammond's postulate - isotope effects – energy profile diagrams – intermediate *vs* transition state – product analysis and its importance – cross over experiments.

Quantitative treatment of structure and reactivity – Hammett and Taft equations Classification of solvents, solvent effects in organic chemistry – solute – solvent interactions – specific and non-specific selective solvation.

S_N1, S_N2 and S_Ni mechanism – neighbouring group participation – reactivity, structural and solvent effects – substitution in norbornyl and bridgehead systems– substitution by ambident nucleophiles such as cyano, nitro, phenoxide and ambident dianions – substitution at carbon doubly bonded to oxygen and nitrogen – alkylation and acylation of amines, halogen exchange, Von-Braun reaction, alkylation and acylation of active methylene carbon compounds, hydrolysis of esters, Claisen and Dieckmann condensations.

UNIT - IV: Organic Reaction Mechanisms - Addition to carbon-carbon and carbon-hetero multiple bonds (10 hrs)

Mechanism - Electrophilic, nucleophilic and free radical addition. Addition of halogen, nitrosyl chloride to olefins, Hydration of olefins and acetylenes. Hydroboration, Hydroxylations and Michael addition. Diels-Alder reaction, 1,3 -dipolar additions. Carbene and their addition to double bonds- Simmon Smith reaction, Mannich, Stobbe, Darzen,Wittig, Wittig-Horner and Benzoin reactions. Nitrene: Methods for generating nitrenes and their reactions. (Stereochemical aspects to be studied wherever applicable).

UNIT – V: Elimination Reactions (10 hrs)

E_1, E_2 and E_1CB mechanism – spectrum, orientation of the double bond - Hoffman and Saytzeff rule – competition, elimination and substitution. Typical eliminations to be studied – dehydration, dehydro-halogenation and similar reactions. Stereochemistry of E_2 eliminations in

cyclohexanes and bicyclic systems. Mechanism of pyrolytic elimination. Examples: Chugaev and Cope elimination.

TEXT BOOKS:

1. E. Eliel, S.H.Wilen and L.N.Mander, Stereochemistry of Carbon Compounds, John Wiley & Sons, New York, second edition,1994.
2. D.Nasipuri, Stereochemistry of Organic Compounds, Wiley Eastern Ltd, New Delhi, second Edition, 1994.
3. P.S. Kalsi, Stereochemistry, Conformation and Mechanism, New Age International Ltd, sixth edition, 2006.
4. P.S. Kalsi, Stereochemistry and Mechanism Through Solved Problems, New Age International Ltd, third edition, 2001.
5. J. March, Advanced Organic Chemistry; Reactions, Mechanisms and Structure, Wiley interscience, sixth edition, 2007.
6. R.T. Morrison, R.N. Boyd and S.K. Bhattacharjee, Organic chemistry, Pearson Prentice hall, seventh edition, 2012.
7. P.S. Kalsi, Organic reactions and their Mechanism, New Age International Ltd, third edition, 2012.

REFERENCE BOOKS:

1. K. Mackie, M. Smith, P. Aitken, Guide Book to Organic Synthesis, ELBS, England, third edition, 2000.
2. R. Bruckner, Advanced Organic Chemistry Reaction Mechanism, Elsevier, New Delhi, 2002.
3. T.L. Gilchrist and C.W. Rees, Carbenes, Nitrenes and Arynes, Thomas Nelson and Sons Ltd., London, 1967.
4. J. Clayden, N. Greeves, S. Warren and P. Wothers, Organic Chemistry, Oxford University Press, second edition, 2014.
5. F. A. Carey and R. J. Sundberg, Advanced Organic Chemistry, Parts A and B. Springer, fifth edition, 2015.

CORE THEORY – 2: CHEMICAL KINETICS

SEMESTER I	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

OBJECTIVES:

To learn the basic concepts in chemical kinetics, enzyme kinetics, surface reactions and fast reactions.

UNIT – I **(15 hrs)**

Effect of temperature on reaction rates-collision theory of reaction rates-molecular beams-collision cross sections-effectiveness of collisions-probability factors-potential energy surfaces-partition functions-and activated complex. Eyring equation-estimation of free energy and entropy of activation and their significance.

UNIT - II **(10 hrs)**

Reactions in solutions-effect of pressure, dielectric constant and ionic strength on reactions in solutions-kinetic isotope effects –linear free energy relationships-Hammett and Taft equations.

UNIT – III **(10 hrs)**

Acid base catalysis-mechanism of acid base catalyzed reactions-Bronsted catalysis law. Catalysis by enzymes-rate of enzyme catalyzed reactions-effect of substrate concentration, pH and temperature on enzyme catalyzed reactions-Inhibition of enzyme catalyzed reactions.

UNIT - IV **(10 hrs)**

Langmuir and BET adsorption isotherms-adsorption coefficient and its significance. Kinetics and mechanism of surface reactions-surface reactions catalyzed by metals, semi conductor oxides.

UNIT – V **(15 hrs)**

Kinetics of complex reactions-reversible reactions-consecutive reactions-parallel reactions-Chain reactions-general treatment of chain reactions-Rice - Herzfeld mechanism and explosion limits. Study of fast reactions-relaxation methods-temperature and pressure jump methods-stopped flow and flash photolysis methods.

TEXT BOOKS:

1. J.Rajaram and J.C.Kuriacose, Kinetics and Mechanism of Chemical Transformations, McMillan India Ltd., third edition, reprint, 2009.
2. K.J.Laidler, Chemical Kinetics. Harper and Row, Pearson Pvt. Ltd, New York, third edition, 2011.
3. K. L. Kapoor, A text book of Physical Chemistry, Macmillan India Ltd, reprint, 2010.

REFERENCE BOOKS:

1. W.J. Moore, Physical Chemistry, Orient Longman, London, fourth edition, 1963.
2. G.M. Barrow, Physical Chemistry, Tata McGraw Hill, fifth edition, 2008.
3. R.G. Frost and Pearson, Kinetics and Mechanism, Wiley, New York, third edition, 1981.
4. W.J. Moore and R.G. Pearson, Kinetics and Mechanism, Wiley New York, third edition, 1981.
5. I.Amdur and G.G.Hammes, Chemical Kinetics, Principles and selected topics, McGraw Hill, New York, 1968.
6. G.M. Harrus, Chemical Kinetics, D.C. Health and Co.,1966.

CORE THEORY – 3: COORDINATION CHEMISTRY

SEMESTER I	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

OBJECTIVES:

To impart the theories about bonding structure and important properties of various coordination complexes.

UNIT - I: Bonding and Properties of complexes (15 hrs)

Crystal Field Theory (CFT) - crystal field effects in tetrahedral, octahedral & square-planar symmetries, CFSE, spectrochemical series and applications. High spin and low spin complexes-Magnetic properties of coordination compounds. Nephelauxetic effect, Molecular orbital theory-Based on group theoretical approach, Symmetry of molecular orbitals formed from atomic orbital overlap, LCAO-MO model, TASO, LUMO and HOMO concepts in bonding. M.O. diagrams of octahedral, tetrahedral and square planar complexes. Calculation of Δ_o and Δ_τ and their relationship, Jahn-Teller tetrahedral distortion.

Unit II: Stability and Stereo isomerism of Coordination Complexes (10 hrs)

Stability of complexes-Thermodynamic stability-stepwise and overall stability constants and their relationships. Factors affecting the stability of the complexes, HSAB approach, Chelate effect, importance of chelates. Determination of stability constants by spectrophotometric, polarographic and potentiometric methods.

Stereoisomerism in inorganic complexes, Optical rotatory dispersion (ORD) and circular dichroism (CD), Stereo chemical aspects of substitution reaction of Octahedral Complexes, Stereochemical changes in dissociation (S_N2) and displacement (S_N2) mechanism through various geometries of coordination compounds. Isomerization and racemization reactions in octahedral complexes.

UNIT - III: Coordination Chemistry - Reaction Mechanisms (15 hrs)

Electron transfer reactions; outer and inner sphere processes; atoms transfer reactions. Key ideas concerning electron transfer between transition metals. Chemical activation and electron transfer, mechanism of electron transfer reactions- nature of the bridging ligand and its role in rate of reaction. Two electron transfer reactions and non-complementary reactions. Cross reactions and thermodynamics - Marcus –Hush theory and equation.

UNIT - IV: Substitution Reactions in Coordination compounds (10 hrs)

Substitution reactions in square planar complexes - the rate law - influences of entering, leaving and other groups, the trans effect - theories - mechanism of nucleophilic substitution in square planar complexes and octahedral complexes (cobalt and chromium)-replacement of coordinated water, solvolytic (acids and bases) reactions, applications in synthesis (platinum and cobalt complexes only). Kinetics of octahedral substitution - ligand fields effects and reaction rates. Rearrangement in 4 and 6 coordinate complexes: reaction at coordinated ligands-template effect.

UNIT - V: Coordination Chemistry of Special Compounds (10 hrs)

Clusters: Boranes, carboranes, metalloboranes and metallocarboranes- synthesis and structure of neutral boron hydrides, polyhedral borane anions and dianions, Capping rules, PSEPT (Wade's rules). Low nuclearity metal-carbonyl clusters and 14n+2 rule, high nuclearity metal-carbonyl clusters with internal atoms. Isopoly and heteropoly acids and salts (Mo, W, V, Nb and Ta), Heteropoly anions-structure and reactivity; heteropoly blues.

Boron-nitrogen compounds: azaboranes, pyrazaboles, borazines and B-N clusters. P-N and P-S compounds: polyphosphazene and cyclic aminophosphanes, phosphorus-oxide and phosphorus-sulfide cages. Sulfur-nitrogen compounds. Macrocyclic ligands; types- Schiff bases; crown ethers and cryptands.

TEXT BOOKS:

1. J.E. Huheey, Inorganic Chemistry - Principles, Structure and Reactivity; Harper Collins, NY, fourth edition, 1993.
2. F.A. Cotton and G. Wilkinson, Advanced Inorganic Chemistry - A Comprehensive Text, John Wiley & Sons, fifth edition, 1988.
3. K.F. Purcell and J.C. Kotz, Inorganic Chemistry, Sengage Learning India Pvt. Ltd, first edition, 2010.
4. M.C. Day and J. Selbin, Theoretical Inorganic Chemistry, Literary Licensing, LLC, 2012.
5. A.E. Martell, Coordination Chemistry, Vol. I, Van Nostrand-Reinhold, 1971.

REFERENCE BOOKS:

1. R.L. Carlin, Transition metal Chemistry, Vol. 1 to 5, Academic Press, London, 1968.

2. D.F. Shriver, P.W. Atkins and C.H. Langford, Inorganic Chemistry, Oxford Univ. press, New York, second edition.1994.
3. I. G.Wilkinson, Comprehensive coordination Chemistry, Vol.1, Elsevier, 1987.
4. F.Basolo and R.G. Pearson, Inorganic reaction mechanism, John Wiley, New York, second edition, 1967.
5. R.A. Henderson, Mechanisms of Reactions at transition metal sites, Oxford Scientific. Publication, 1995.

CORE THEORY – 4: ANALYTICAL CHEMISTRY

SEMESTER I	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

OBJECTIVES:

- To create the better understanding of "Analytical Chemistry"; to evolve proper analytical data and practice to report the result with uncertainty.
- To initiate the better understanding in the analysis of complex materials and also the finished products of chemical manufacturing units.
- To introduce the instrumental based chemical analysis in all the arena of chemical processes.
- To establish the competency of chemical analysis in the applied research, chemical processes and testing/quality control laboratories.
- To eliminate the gap between academic and industry and also the basic and applied science.

UNIT - I: Fundamentals in Chemical Analysis and Analytical Laboratory Functioning(10 hrs)

Concepts and perspectives of analytical chemistry; Errors and treatment of analytical data: Accuracy, Precision, Errors and types, minimization of errors, significant figures, mean, median, regression analysis - Standard deviation - Comparison of results- F, T and Q tests. Calibrations – General idea of calibration, calibration of glasswares, balance, instruments and other equipment. Uncertainty in chemical analysis: theory, significance, sources of uncertainty for simple volumetric analysis.

Details on method development and method validation in chemical analysis, essentials of quality control and quality assurance systems in chemical processes; Basic idea and necessity of accreditations/certification such as GLP, ISO (NABL) and FDA. Role of ISI and Agmark on the consumer products.

UNIT - II: Instrumental Methods of Analysis and Analysis of Complex Materials

(15 hrs)

Theory, instrumentation and applications of Atomic absorption spectroscopy, ICP-MS; Flame emission spectrometry and ICP-OES. Application of these techniques in water and food analysis. Moisture analyzer (KFR method) and C, H, N analysis (instrumental methods).

Sampling of solid, liquid and gases – primary sample, laboratory sample, analytical sample, handling, collection, transport, storage. Physico-chemical analysis of medicines (formulated),

ores, fertilizers, alloys, packed foods, water and air. [Note: Any one representative example in each category and testing of important parameters only]

UNIT - III: Separation Techniques **(15 hrs)**

Chromatographic techniques: General aspects, classification, principle, instrumentation (if applicable) and applications of column, ion-exchange, electrophoresis, TLC, paper chromatography, GLC and HPLC (with different detectors) and GPC. Special emphasis on GC-MS, GC-MS/MS, LC-MS, LC-MS/MS. Role of chromatographic techniques in R & D and quality control laboratories.

UNIT - IV: Electroanalytical Methods **(12 hrs)**

Polarography – Theory, Instrumentation, type of currents (includes kinetic & catalytic currents), advantages of DME. Ilkovic equation (No derivation) and its significance. Qualitative and quantitative applications to the analysis of inorganic compounds and determination of dissolved oxygen. Derivative Polarography – Amperometry and biamperometry (theory, equipment and applications).

Cyclic voltammetry – theory, instrumentation and applications to inorganic and organic compound. Application of CV in applied research viz., prediction of reaction mechanism, redox behavior of chemical compounds and identification of number of electrons in the electrochemical processes.

UNIT - V: Thermal, Radio-analytical Methods **(8 hrs)**

Principle, instrumentation and applications of TGA, DTA and DSC. Radio analytical methods - Principle, instrumentation and applications of neutron activation and isotopic dilution analysis. Radiometric titrations, determination of age of fossils, radiometric methods in diagnosis of diseases.

TEXT BOOKS:

1. David Harvey; Modern Analytical Chemistry; McGraw-Hill, first edition, 2000.
2. J. Mendham, R.C. Denney, J.D. Barnes and M.Thomas, Vogel's Text book of quantitative Chemical Analysis; Pearson Education Pvt.Ltd. sixth edition, 2004.

REFERENCE BOOKS

1. E Prichard, Quality in the analytical chemistry laboratory, John Wiley and sons, 1997.
2. W Funk, V Dammann, G. Donnevert, Quality assurance in analytical, VCH Weinheim, 1995.
3. Douglas A. Skoog, Donald M. West and F.James Holler, Fundamentals of Analytical Chemistry; ninth edition, Harcourt Asia Pvt., Ltd., 2001.
4. Douglas A. Skoog, Donald M. West and F. James Holler, Analytical Chemistry: An Introduction; seventh edition, Saunders College Publishers, 2000.
5. Dean, John A. Merritt, Lynne L., Jr. Settle, Frank A., Jr. Willard, Hobart H; Instrumental Methods of Analysis, Wadsworth Publishing, seventh Edition, 1988.
6. D.A. Skoog, Principles of Instrumental Analysis, 5th ed., Saunders College Publishing, Philadelphia, London, 1998.
7. A. J. Bard and L.R. Faulkner, Electrochemical Methods, John Wiley, 1980.
8. S. M. Khopkar, Environmental Pollution Analysis, New Age International publication, 2011.
9. Seonard'lCiacere, Water and water pollution (hand book), Vol I to IV, Marcel Dekkerinc. N.Y.1972.
10. Guidelines for drinking-water quality, third edition, (incorporating first and second addenda), WHO report.
11. Martin Hocking, Handbook of chemical technology and pollution control, AP Publication, third edition, 2005.
12. Chemical analysis of metals; Sampling and analysis of metal bearing ores: American Society for Testing and Materials Technology & Engineering, 1980.
13. Manual of Procedures for Chemical and Instrumental Analysis of Ores, Minerals, and Ore Dressing Products. Government of India Ministry of Steel & Mines, Indian Bureau of Mines, 1979.
14. Yeshajahu Pomeranz, Clifton E. Meloan, Food Analysis: Theory and practice, Springer, third edition, 2002.
15. George Charalanbous, Analysis of food and beverages, Academic press, 1978.
16. Connor's Text book of Pharmaceuticals Analysis, Johnwiley, third edition, 2001.
17. Encyclopaedia of industrial chemical analysis, Snell et al; Inter science, 1966.

Visits to:

i. GLP, ISO & FDA certified R&D and QC laboratories.
ii. Various chemical industries with established laboratories.
iii. BIS & FSSAI approved establishments.

CORE THEORY – 5: QUANTUM CHEMISTRY AND GROUP THEORY

SEMESTER II	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

OBJECTIVES:

To learn the basic concepts in group theory and the need for quantum mechanics and appreciate their significance.

UNIT – I: Quantum Chemistry–I **(10 hrs)**

Inadequacy of classical theory-black body radiation-photo electric effect- Compton effect-Bohr's Quantum theory and subsequent developments-wave particle duality-de Broglie equation-Heisenberg's uncertainty principle.

Quantum mechanical postulates - The Schrodinger equation- elementary applications of Schrodinger equation- the particle in a box (one, two and three dimensional cases) – particle in a ring.

UNIT – II: Quantum Chemistry–II **(10 hrs)**

The harmonic oscillator- the rigid rotor-the hydrogen atom-the Schrodinger equation for hydrogen atom– the solution – the origin of quantum numbers (angular momentum and spin)-their physical significance.

UNIT – III: Quantum Chemistry–III **(15 hrs)**

Approximation methods – perturbation and variation method- Application to hydrogen, helium atoms- R-S coupling, j-j coupling and term symbols for atoms in ground state- Slater rules, Slater orbital and HFSCF methods- Born - Oppenheimer approximation- Valence Bond theory for hydrogen molecule – LCAO – MO theory for di and poly atomic orbitals - concepts of hybridization- Huckel theory for conjugated molecules (ethylene, butadiene and benzene) semi empirical methods.

UNIT – IV: Group Theory-I **(10 hrs)**

Symmetry elements and symmetry operations-point groups-identification and determination.

Reducible and irreducible representations-direct product representation - Orthogonality theorem-its consequences-character table

UNIT – V: Group theory –II **(15 hrs)**

Hybrid orbitals in non-linear molecules-(CH_4, XeF_4, BF_3, SF_6 and NH_3). Symmetry based selection rules for infrared, Raman and electronic spectra of ethylene and formaldehyde-application of group theory.

TEXT BOOKS:

1. D.A. McQuarrie, Quantum Chemistry, University Science books, viva books Pvt. Ltd, second edition, reprint, 2007.
2. I.N. Levine, Quantum Chemistry, Pearson Education Pvt. Ltd, fifth edition, 2004.
3. R. Anantharaman, Fundamentals of Quantum Chemistry, Macmillan India Limited, first edition, 2000.
4. R.K. Prasad, Quantum Chemistry, New Age India, fourth edition, 2010.
5. V.Ramakrishnan and M.S.Gopinathan, Group theory in Chemistry, Vishal publications.1988.
6. K.V.Raman, Group theory and its applications in Chemistry, Tata McGraw Hill, 1990.
7. S.Swarnakakshmi, T.Saroja, R.M.Ezhilarasi, A Simple approach to group theory in Chemistry, Universities Press, first edition 2008.
8. R.K. Prasad Quantum Chemistry-theory solved problems and solutions, New Age International Pvt. Ltd, 2009.

REFERENCE BOOKS:

1. F.A. Cotton, Chemical application of group theory, John Wiley & Sons Inc., New Delhi, third edition, 2009.
2. Alan Vincent, Molecular Symmetry and Group theory-Programmed introduction to chemical applications, Wiley, New Delhi, 2010.
3. H.Eyring, J.Walter and G.Gimball, Quantum Chemistry, John Wiley & Sons Inc., NewYork, 1944.
4. L.S. Pauling and F.B. Wilson, Introduction to quantum mechanics, McGraw Hill Book Company, NewYork, 1935.
5. P.W. Atkins, Molecular quantum mechanics, Oxford University Press, Oxford, third edition, 1997.
6. David J. Griffiths, Introduction to Quantum mechanics, dorling kinderly Pvt.Ltd, second edition, fifth reprint, 2008.

CORE THEORY – 6: ORGANOMETALLICS AND BIOINORGANIC CHEMISTRY

SEMESTER II	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

OBJECTIVES:

This paper exposes the student to the basics of organo metallic chemistry, reactions of organo metallic complexes and their industrial applications.

UNIT – I: Introduction to Organometallics (15 hrs)

Valence electron count and 16/18 electron rules for organometallic compounds; structure and bonding in mono and polynuclear metal carbonyls; back bonding and synergic effect - π acids, vibrational spectra of metal carbonyls; dinitrogen as ligand in organometallic compounds. Synthesis, structure and reactivity of metal alkyls, carbenes, alkenes, alkynes, and arene complexes;

UNIT – II: Reactions of organometallic complexes (10 hrs)

Synthesis, structure and bonding of metallocenes and bent metallocenes; organometallic reactions: association, substitution, addition, oxidative addition, reductive elimination, insertion and deinsertion, electrophilic and nucleophilic attack on ligands and fluxional isomerism.

UNIT – III: Industrial Application of Organometallic Compounds (8 hrs)

Catalytic applications of organometallics: Hydrogenation of olefins, Wacker-Smidt synthesis, oxo process, Repp's catalyst, Monsanto acetic acid process, Zeigler-Natta polymerization of alkenes and oligomerisation, Enantioselective functional group interconversions. Transmetallation and cyclization reaction of organometallics. Bio organometallic chemistry and surface organometallic chemistry.

UNIT – IV: Introduction of Bio-inorganic chemistry (15 hrs)

General properties of biological molecules. Physical methods in bio-inorganic chemistry. Metal Storage, Transport and Biomineralisation; Ferritin, Transferrin and siderophores, sodium and potassium ion balance. Essential and trace metal ions. Metallo enzymes-Zinc enzymes -

carboxypeptidase and carbonic anhydrase, Vitamin B_{12}, catalase, peroxidase, superoxide dismutase and copper proteins. Application of Coordination compounds in medicinal applications. – Cisplatin – antirheumatoid - gold compound –anti diabetic - anti cancer agents – role of metal ion diagnosis and treatment.

UNIT – V: Transport Proteins (12 hrs)

Oxygen Carriers – Haemoglobin, myoglobin – structure – function - Oxygenation and stereochemistry – Bohr effect, Non – heme oxygen carriers – Hemerythrin and Haemocyanin. Biological redox systems: cytochromes – classification, cytochrome a, b and c. Cytochrome P-450, Iron – sulphur proteins – rubredoxin and ferridoxin. Chlorophylls and photosynthesis – structure, function and mechanism. Nitrogen fixation – introduction – types of nitrogen fixing microorganisms, Nitrogenase enzyme –Metal clusters in nitrogenase – redox property – Dinitrogen complexes – nitrogen fixation via nitride formation and reduction of dinitrogen to ammonia.

TEXT BOOKS:

1. Ram C. Mehrotra and A. Singh, Organometallic Chemistry, A Unified Approach, New Age International, second edition, 2004.
2. B.D. Gupta and A.J. Ellas, Basic Organometallic Chemistry, Concepts, Syntheses and Applications, Universities press, 2010.
3. K. Hussain Reddy, Bio inorganic chemistry, New Age International private Ltd, reprint 2005.
4. William W. Porterfield, Inorganic Chemistry, An unified approach, academic press inc, 1993.

REFERENCE BOOKS:

1. G.N.Mukherjee and Arabinda Das, Elements of Bioinorganic Chemistry, U. N. Dhar & Sons Pvt. Ltd., Kolkata [ISBN 81- 85624-37-2].
2. M. Satake and Y. Mido, Bioinorganic Chemistry, Discovery Publishing House, New Delhi, 2011.
3. Asim K. Das – Bio inorganic Chemistry, Books & Allied (p) Ltd, first edition, 2004.

CORE THEORY – 7: CHEMISTRY OF AROMATIC COMPOUNDS AND CONCERTED REACTIONS.

SEMESTER II	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

OBJECTIVE:

This paper explains the concepts of aromatic compounds, their electrophilic and nucleophilic substitution reactions. In addition, mechanism of some of the important rearrangements and pericyclic reactions in organic chemistry will be discussed. The first part of the course brings forth the salient features of oxidation and reduction reactions in organic synthesis.

UNIT - I: Oxidation and Reduction (15 hrs)

Mechanism – study of the following oxidation reactions – use of chromium(VI), MnO_4^-, MnO_2, TPAP, Moffatt, Oppenauer and Swern oxidation of alcohol –oxidative cleavage of glycols and their related compounds, Oxidative cleavage of ketones, aldehydes and acohols, Ozonolysis - oxidation of methylene to carbonyl, oxidation of aryl methane – allylic oxidation of olefins. Reductions: catalytic hydrogenation – Hydrides – Nucleophilic and Electrophilic - MPV reduction- Selectivity in reduction of 4-t-butyl cyclohexanones using selectrides- Synthetic importance of Clemmensen and Wolf-Kishner reductions- Modifications of Wolf-Kishner reduction-Birch reduction.

UNIT – II: Aromaticity (10 hrs)

Concept of aromaticity, Huckel's rule, Craig's rule – Huckel MO theory of aromaticity – frost cycle - Alternant and Non-alternant hydrocarbons –Aromaticity of benzenoid, heterocyclic and non-benzenoid compounds –systems with 2, 4, 8 and 10 electrons – Annulenes (up to C18) - Concept of homoaromaticity – Hetero aromatic molecules.

UNIT – III: Aromatic Electrophilic, Nucleophilic substitution (15 hrs)

The arenium ion mechanism. Orientation and reactivity of mono nuclear, poly nuclear aromatic hydrocarbons (Naphthalene, Anthracene) and Heterocyclic compounds (Quinoline and Isoquinoline) nitration, halogenations, sulphonation, alkylation, acylation and diazonium coupling. Formylation reactions (Gattermann, Gattermann-Koch, Vilsmeyer-Haack and Riemer-

Tiemann Reaction)- Synthesis of di and tri substituted benzenes (symmetrical tribromobenzene, 2-Amino-5-methylphenol, 3-nitro-4-bromobenzoicacid, 3,4-dibromo nitrobenzene, 1,2,3-trimethylbenzene) starting from benzene or any mono substituted benzene.

Aromatic nucleophilic substitution: Methods for the generation of benzyne intermediate and reactions of aryne intermediate - Nucleophilic substitution involving diazonium ions. Aromatic nucleophilic substitution of activated halides. Ziegler alkylation. Chichibabin reaction and Von-Richter rearrangement.

UNIT – IV: Molecular Rearrangements (10 hrs)

Rearrangement to electron deficient carbon- Pinacol-Pinacolone, Wagner – Meerwein rearrangement, Benzil-Benzilic acid rearrangement, Arndt-Eistert synthesis.

Rearrangement to electron deficient nitrogen- Hoffman, Curtius, Schmidt, Lossen, Beckmann.

Rearrangement to electron deficient oxygen- Baeyer-Villiger, Dakin reaction. Rearrangement to electron rich carbon- Favorski, Wittig, Neber, Steven, Sommelet-Hauser.

UNIT – V: Pericyclic Reactions (10 hrs)

Introduction-Construction of π molecular orbitals of ethylene and 1,3-Butadiene, Symmetry in π molecular orbitals – Classification - Electrocyclic reactions – Woodward Hoffmann rule- (4n π) and (4n+2) π systems- Ring opening and ring closing reactions - Interconversion of cyclobutene-butadiene system and interconversion of cyclohexadiene- hexatriene, FMO analysis , Correlation diagram method.

Cycloaddition- Woodward Hoffmann rule in (π2s + π2s) and (π4s + π2s) cycloaddition reactions - FMO analysis and Correlation diagram method. Diels-Alder reaction- Retro Diels-Alder reactions.

Cheleotropic Reactions- [2+2] Cheleotropic cycloaddition, Cheleotropic Elimination (Basic idea only)

Sigmatropic rearrangements – Classification- Woodward- Hoffmann rule – FMO analysis of [1,3], [1,5] and [1,7] hydrogen shift reactions – carbon shift reactions. [3,3] sigmatropic shifts –Cope and Claisen Rearrangement – Degenerate Cope reaction. Fluxional isomerism – semibullvalene and bullvalene.

TEXT BOOKS:

1. R. Bruckner, Advanced Organic Chemistry, Reaction Mechanism, Elsevier, New Delhi.2002
2. J. March, Advanced Organic Chemistry, John Wiley & Sons Singapore, fourth edition, 2009.
3. T.L. Gilchrist and C.W. Rees, Carbenes, Nitrenes and Arynes, Thomas Nelson and Sons Ltd., London, 1967.
4. Niel Issac, Physical Organic Chemistry, Prentice Hall, second edition, 1996.
5. Jagdamba Singh and Jaya Singh, Photochemistry and Pericyclic reaction, New Age International (P) Limited publisher, third edition, 2014.
6. P.S. Kalsi, Organic Reaction and Mechanism, New Age International Pvt Ltd, third edition, 2012.

REFERENCE BOOKS:

1. F. A. Carey and R.J. Sundberg, Advanced Organic Chemistry, Part A and Part-B, Springer (INc), fifth edition, 2015.
2. J. Clayden, N. Greeves, S. Warren and P. Wothers, Organic Chemistry, Oxford University Press, second edition, 2014.
3. R.O.C. Norman and J.M. Coxon, Principles of organic synthesis, CRC Press, third edition, 2012.
4. W. Carruthers and Goldham, Some Modern Methods of Organic Synthesis, Cambridge University Press, fourth edition, 2012.
5. H.O. House, Modern Synthetic Reactions, The Benjamin Cummings Publishing Company, London, 1972.

CORE PRACTICAL – 1: ORGANIC CHEMISTRY PRACTICAL

SEMESTER I &II	SUBJECT CODE	PRACTICAL	MARKS 100	CREDITS 4	HOURS 60

OBJECTIVES

- The practical is designed to give an exposure to lab techniques in analysis of organic molecules and synthesis of simple organic compounds.
- To provide the basic training for extraction of compounds from natural products and chromatographic separation.

I. Analysis of a mixture of the organic compunds.

Identification of components in a two component mixture and preparation of their derivatives. Determination of b.p./m.p. for components and m.p. for the derivatives.

II. Preparation of an organic compounds

a. Single stage (Any five)

1. Preparation of o-benzylbenzoic acid
2. p-Nitrobenzoic acid from p-Nitrotoluene
3. Anthroquinone from anthracene
4. Benzhydrol from benzophenone
5. m-Nitroaniline from m-dinitrobenzene
6. 1, 2, 3, 4-Tetrahydrocarbozole from cyclohexanone
7. p-chlorotoluene from p-toluidine
8. 2, 3-Dimethylindole from phenyl hydrazine and 2-butanone (boiling acetic acid)
9. Methyl orange from sulphanilic acid
10. Diphenyl methane from benzyl chloride

b. Two stage* (any three):

1. Sym-Tribromobenzene from aniline.
2. p-nitro aniline from acetanilide
3. m-Nitrobenzoic acid from methyl benzoate.
4. 2, 4-Dinitrobenzoic acid from p-nitro toluene.
5. m-Nitro benzoic acid from benzaldehyde
6. p-bromoaniline from acetanilide

III A) Extraction of natural products * (any two)

1. Caffeine from tea leaves
2. Lactose from milk
3. Citric acid from lemon
4. Pipierine from black pepper

B) Chromatographic Separations:*

1. Column chromatography - separation of anthracene and acid from antharacene picrate.
2. Thin layer chromatography separation of green leaf pigments.
3. Paper chromatography
4. Identification of amino acids

C) Quantitative estimation of common drugs*

1. Estimation of vitamin C in tablets by Iodimetry.
2. Estimation of Aspirin by spectrophotometry

Only for Internal Assessment

RECOMMENDED BOOKS:

1. Brian S.Furniss, Antony J. Hannaford, Peter W.G. Smith, Austin R. Tatchell, Vogel's Text Book of Practical Organic Chemistry; Dorling Kindersley (India) Pvt. Ltd., fifth edition, 2011.
2. Raj K. Bansal, Laboratory Manual of Organic Chemistry, New Age Intl. Pvt. Ltd., fifth edition, reprint 2013.
3. Mann and Saunders, Laboratory manual of Organic Chemistry, Orient-Longmana, fourth edition, 2004.

CORE PRACTICAL – II: INORGANIC CHEMISTRY PRACTICAL

SEMESTER I&II	SUBJECT CODE	PRACTICAL	MARKS 100	CREDITS 4	HOURS 60

OBJECTIVES:

- To train the candidate in inorganic compound preparation, separation of the two metal ions by chromatographic method and deduction identification of cations by semi micro method.

EXPERIMENTS

a. **Semi micro qualitative analysis:** A mixtures containing two common and two rare cations. The following are the rare cations to be included: W, Mo, Ti, Te, Se, Ce, Th, Zr, V, U and Li.

b. Complexometric titrations (EDTA) - Estimation of Ca, Mg and Zn.

c. Preparation of the following:

1. Potassium tris (oxalato) aluminate (III) trihydrate.
2. Tris (thiourea) copper (I) chloride
3. Potassium tris (oxalato) chromate (III) trihydrate
4. Sodium bis (thiosulphato) cuprate (I)
5. Tris (thiourea) copper (I) sulphate
6. Sodium hexanitrocobaltate (III)
7. Chloropentammine cobalt (III) chloride
8. Bis (acetylacetanato) copper (II)
9. Hexaminenickel (II) chloride
10. Bis (thiocynato) pyridine manganese, (ll)

d. Separation of a mixture of two metal ions by paper chromatography. Separation of zinc and magnesium on a cation exchanger.

TEXT BOOKS:

1. A.L. Vogel, Text book of Inorganic quantitative analysis, ELBS, Third edition, 1976.
2. G.S.Vehla, Vogel's textbook of Macro and Semimicro Qualitative Inorganic Analysis, fifth edition, Revised, 1979.
3. Dougles A. Skoog, F. James Holler. Stanley R Crouch, Principles of Instrumental Analysis, third edition 2007.

CORE PRACTICAL – III: PHYSICAL CHEMISTRY PRACTICAL

SEMESTER I&II	SUBJECT CODE	PRACTICAL	MARKS 100	CREDITS 4	HOURS 60

OBJECTIVES:

To understand and verify the concepts and equations in physical chemistry by carrying out suitable experiments. Typical list of possible experiments are given. A minimum of 10 – 12 experiments have to be performed.

1. Study of the adsorption of acetic acid or oxalic acid on charcoal, verification of Freundlich isotherm and determination of concentration of given acetic acid or oxalic acid.
2. Construction of phase diagram for a simple binary system; naphthalene – biphenyl, naphthalene –p-dichlorobenzene, naphthalene-diphenylamine.
3. Construction of phase diagram for the three component system (partially miscible liquid system) acetone – chloroform – water; chloroform –acetic acid – water.
4. Determination of the equilibrium constant of the reaction between iodine and potassium iodide by partition method.
5. Determination of the concentration of given potassium iodide solutions by partition method.
6. Determination of molecular weight of benzoic acid in benzene and the degree of association of benzoic acid in benzene using partition method.
7. Kinetic study and comparison of rate constant for the inversion of cane sugar in presence of acid using polarimeter.
8. Kinetic study of the reaction between acetone and iodine in acidic medium and determination of the order with respect to iodine and acetone.
9. Kinetic study of saponification of ethyl acetate by sodium hydroxide conductometrically and determination of order of the reaction.
10. Kinetic study and comparison of acid strengths using acid catalysed hydrolysis of methyl acetate.
11. Determination of temperature coefficient and energy of activation for the acid catalyzed hydrolysis of methyl acetate.

12. Determination of the rate constant and order for the reaction between potassium persulphate and potassium iodide.
13. Study of the primary salt effect on the kinetics of oxidation of iodide by persulphate
14. Kinetic study of the decomposition of sodium thiosulphate by mineral acid.

REFERENCE

1. B.Viswanathan and P.S.Raghavan, Practical Physical Chemistry, Published by viva books, 2012.
2. B.D.Khosla, V.C. Garg and A. Khosla, Senior Practical Physical chemistry, R.Chand & Co New Delhi, 2011.
3. P.S.Sindu, Practical Physical chemistry- A modern Approach, MacMillan India Ltd, first edition, 2006.
4. C.W. Garland, J.W.Nibler and D.P. Shoemaker Experiments in Physical Chemistry, Tata McGraw-Hill, NewYork, eighth edition, 2003.
5. A.M. Halpern, G.C. McBane, Experiments in Physical Chemistry, W.H. Freeman & Co, New York. Third edition, 2003.

ELECTIVE - I: NATURAL PRODUCTS

SEMESTER II	SUBJECT CODE	THEORY	MARKS 100	CREDITS 3	HOURS 45

OBJECTIVES:

To create awareness about the chemistry of biomolecules and their reactions.

UNIT – I: Nucleic acids **(9 hrs)**

Pyrimidine and purine bases- synthesis of Adenine, Cytosine, Thymine, Guanine and Uracil - structure and role of nucleic acid – nucleotide, nucleoside and poly nucleotides – DNA and RNA – structure, types – biological functions – genetic code.

UNIT – II: Proteins and Steroids **(9 hrs)**

Proteins-classification-Merrifield synthesis-end group analysis-structure-biological function. Steroids-Diel's hydrocarbon, synthesis of bile acid. Structural elucidation of cholesterol - Conversion of cholesterol into estrone, testosterone and progestrone

UNIT – III: Terpenoids and Carotenoids **(9 hrs)**

Classification, occurrence, general methods of determining structure - isoprene rule. Synthesis of the following molecules – camphor, terpeneol, α and β-Carotene, lycopene.

UNIT – IV: Alkaloids and Anthocyanins **(9 hrs)**

Total synthesis of cocaine, morphine and reserpine.

Flavones, isoflavones, anthocyanins (Synthesis only)

UNIT – V: Biosynthesis **(9 hrs)**

General principles involved in the biosynthesis of amino acids, alkaloids, steroids and terpenoids. Biosynthesis of cholestrol, phenanthrene alkaloids and bile acids.

TEXT BOOKS:

1. I.L. Finar, Organic chemistry, Vol- II, ELBS Publication, fifth edition, 1986.
2. O.P. Agarwal, Organic Chemistry of Natural Products, Krishna Prakashan Media Pvt. Ltd, forty second edition, 2011.
3. Gurdeep R. Chatwal, Organic chemistry of Natural products, Himalaya Publishing House, 2005.
4. L.A. Pacquette, Principles of Modern Heterocyclic Chemistry, Benjamin Cummings Publishing Co, London, 1978.

CORE THEORY – 8: SPECTROSCOPY-I

SEMESTER III	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

OBJECTIVES:

- **To introduce the concept of interaction of matter with electromagnetic radiations leading to rotational, vibrational, electronic transitions.**
- **To learn the structural determination of both organic and inorganic compounds.**

UNIT – I: Rotational, Vibrational and Raman Spectroscopy (15 hrs)

Interaction of radiation with matter, Einstein coefficients, transition probability, Beer-Lambert law and absorbance. Rotational spectroscopy of rigid rotor, non-rigid rotor- diatomic and polyatomic molecules – Stark effect. Vibrational spectroscopy-harmonic oscillator-anharmonicity- vibrational spectra of polyatomic molecules- overtones, combination of bonds - vibrational coupling- Fermi resonance. IR spectra of poly atomic molecules-factors affecting the vibrational frequencies– Effect of hydrogen bonding and solvent effect - finger print region - identification of functional groups. FTIR, Raman spectra – rotational and vibrational Raman spectra – selection rules – Polarization of transitions – resonance Raman spectra.

UNIT – II: Applications of IR, Raman Spectroscopy (10 hrs)

Determination of bond length, force constant, vibrational frequency. Applications involving isotopic substitution. Determination of structure of organic compounds using IR absorptions. Applications of Infrared and Raman spectroscopy to inorganic systems -metal complexes, organometallic and simple inorganic compounds with special reference to coordination sites, isomerism etc., inorganic structure determination.

UNIT – III: Electronic spectroscopy (10 hrs)

Electronic spectra of diatomic and polyatomic molecules- Frank-Condon principle – determination of dissociation energy – pre dissociation spectra - selection rules-types of electronic transitions – effect of conjugation and solvent - chromophores, auxochromers, Bathochromic and Hypsochromic shifts. Term symbols for electronic states of H_2 molecule. Applications in organic structure determination – Woodward- Fieser rule for conjugate systems and unsaturated

ketones – Scott rules for aromatic ketones. Optical rotatory dispersion and its application. Cotton effect, axial haloketone rule and octant rule.

UNIT – IV: Applications of Electronic Spectra (15 hrs)

Term states of d^n ions - Term Symbols - Characteristics of d-d transitions - electronic spectra of coordination compounds - selection rules - band intensities and band widths - energy level diagrams of Orgel and Tanabe - Sugano - spectra of Ti^{3+}, V^{3+}, Ni^{2+}, Cr^{3+}, Co^{2+}, Cr^{2+} and Fe^{2+} - calculation of 10Dq and B for V^{3+}(oct) and Ni^{2+}(oct) complexes. Charge transfer spectra - classification, mechanisms and interpretation with suitable examples. Applications of UV-Visible spectroscopy to inorganic and organometallic compounds with regard to structural elucidation.

UNIT V: Photoelectron and NQR Spectra (10 hrs)

Photoelectron spectroscopy – basic principles UPS and XPS – photoelectron spectra- Koopmann's theorem- fine structure in PES, applications of UPS and ESCA- Introduction – Chemical shift and Correlation with electronic charges. ESCA - satellite peaks, spectral splitting, instrumentation, applications; Auger electron spectroscopy. Determination of dip ole moment, NQR spectroscopy – theory of NQR – instrumentation – nuclear quadrupole coupling constants – applications.

REFERENCE BOOKS:

1. R. S. Drago, Physical Methods in Chemistry, Thomson learning, 1977.
2. Drago R.S, Physical Methods for Chemists, Saunders, (W.B), Co.Ltd, second edition, 1992.
3. Ebsworth E.A.V, DWA Rankin and C. Craddock, Structural methods in inorganic chemistry, Blackwell Science Inc. second edition, 1987.
4. Kemp. W,Organic Spectroscopy, Palgrave third edition, 2008.
5. Kalsi P. S., Spectroscopy of Organic compounds, New Age International Publication, fourth edition, 1999.
6. Pavia D. L. and Chapman G. M. Introduction to Spectroscopy, Books/Cole, fourth edition, 2008.
7. Christian G. D., Analytical Chemistry, Wiely, sixth edition, 2004.
8. Silverstein, Basseler and Morrill, Spectroscopic Identification of Organic Compounds, John Wiley & Sons, New York, fifth edition, 1991.
9. Sharma B. K., Instrumental methods of analysis, Goel Publication, twenty fourth edition, 2005.
10. Skoog D. A., Instrumental methods of analysis - Saunders College Publication, third edition, 2007.
11. R.M. Silverstein, Francis X-Webster,Spectroscopic Identification of Organic Compounds, Wiley student edition, New York. sixth edition, 2014.

CORE THEORY – 9: SYNTHETIC METHODOLOGY

SEMESTER III	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

OBJECTIVES:

To introduce the basic methodology for the synthesis of organic compounds.

UNIT – I: Modern Synthetic Methodology (15 hrs)

Retro synthetic analysis- disconnections-Synthons : Donors & acceptor and their synthetic equivalent- FGI-FGA-UMPOLUNG. Formation of C-C bond using alkylation and acylation of enamines, enolates, active methylene compounds and Organometallic compounds-RMgX, R_2LiCu, RLi with special reference to synthesis of 1,2 - 1,3 - 1,4 - 1,5- and1,6 - dicarbonyl compounds. Synthesis of unsaturated carbonyl compounds using aldol condensation, Claisen reaction and Michael reaction - Cyclisation methods- Robinson annulations. Formation of C=C bond using Wittig and modified Wittig reactions. Role of sulphur ylides and rearrangements (Pinacol-Pinacolone and Favorski rearrangement) in organic synthesis. Protection and deprotection of functional groups (-OH, $-NH_2$, C=O, -COOH).

UNIT – II: Synthetic Reagents (15 hrs)

Reagents used for oxidation- TPAP, Dess-martin, silver carbonate / molecular seives and CAN. Reagents used for Reductions-$(PPh_3)_3RhCl$, Lindlar catalyst, 9-BBN, chiral boranes, $NaBH_3CN$, DIBAL and selectrides - Birch reduction (Hetero cyclic compound). Role of Bu_3SnH, trimethylsilyl chloride, LDA and dithiane in organic synthesis.

UNIT – III: Synthetic Applications of Name Reactions (10 hrs)

Sandmeyer reaction, Ullmann reaction, Gomberg reaction, Pschorr reaction, Hunsdicker reaction. Heck reaction, Suzuki coupling, McMurry olefination, Prins reaction, Ritter reaction, Mitsunobu reaction, Sharpless asymmetric epoxidation, Kumada coupling, Negishi coupling, Stille coupling and Sonogashira coupling.

UNIT - IV: Synthesis of Target Molecules (10 hrs)

Retero synthetic analysis, donor and acceptor synthons- examples and synthesis of target molecules - 5-hexenoic acid, bicyclo (4, 1, 0) heptane-2-one, trans-9-methyl-1-decalone, Cubane, longifolene, cis - jasmone and onocerin.

UNIT – V: Green Chemistry **(10 hrs)**

Green chemistry and atom economy principle- Use of ionic liquids and molten salts in organic synthesis – role of Microwave irradiation and ultrasound waves in organic synthesis (microwave assisted reactions – Hofmann elimination, Hydrolysis reactions, Fries rearrangement, Diels-alder reaction, Oxidation reactions, Decarboxylation, Reactions without using solvents)– zeolites in synthesis.

REFERENCE BOOKS:

1. William Caruthers and Coldham, Modern methods of organic synthesis, Cambridge Univ, Press, fourth Edition, 2010.
2. Ratan Kumar Kar, Frontier Orbital and Symmetry Controlled Pericyclic reaction, Books & allied Pvt. Ltd, first Edition, 2010.
3. I.L. Finar, Organic chemistry Vol-II, Pearson Education Pvt. Ltd, fifth edition, 2005.
4. Stuart Warren, Organic synthesis- The Dissconnection approach, John Wiley (P) Ltd, Reprint 2011.
5. F.A. Carey and R.J. Sundberg, Advanced Organic Chemistry, Part-A and Part-B, Plenum Press, New York, fifth edition, 2015.
6. J. March, Advanced Organic Chemistry, John Wiley & sons, Singapore, fourth edition, 1992.
7. J. Clayden, N. Greeves and S. Warren, Organic Chemistry, Oxford University Press, second edition, 2014.
8. Rashmi Sanghi and M.M. Srivastava, Green Chemistry, Narosa Publishing House Pvt. Ltd, fifth edition, 2012.
9. V.K. Ahluwalia, Green Chemistry- Greener alternative to synthetic organic transformation, Narosa publishing house Pvt. Ltd, first edition, 2011.
10. J.P. Tierney and P. Lidstrom, Microwave Assisted Organic Synthesis, Wiley India Pvt. Ltd, first edition, reprint, 2009.
11. R.O.C Norman and J.M. Coxon, Principles of organic synthesis, CRC press, third edition, 2012.
12. Ratan Kumar Kar, Fundamentals of organic synthesis –the retro synthetic analysis vol-2, New central book agencies first reprint, 2008.
13. Michael B.Smith, Organic synthesis, McGraw Hill, (Singapore) second edition, 2002.

CORE THEORY – 10: THERMODYNAMICS AND ELECTROCHEMISTRY

SEMESTER III	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

OBJECTIVE:

To understand and appreciate the significance and applications of classical, statistical thermodynamics and solution electrochemistry.

UNIT - I: Thermodynamics – I (10 hrs)

Partial molar properties – Partial molar free energy (chemical potential)- Partial molar volume- partial molar heat content- their significance and determination of these quantities- variation of chemical potential with temperature and pressure.

Thermodynamics of real gases- gas mixture- fugacity definition- determination of fugacity – variation of fugacity with temperature and pressure- thermodynamics of ideal and non ideal binary solutions- dilute solutions- excess functions for non ideal solutions and their determination- the concepts of activity and activity co-efficient- determination of standard free energies- choice of standard states- determination of activity and activity coefficient for non electrolytes.

UNIT - II: Thermodynamics- II (10 hrs)

Concept of thermodynamic probability- distribution of distinguishable and non distinguishable particles. Maxwell-Boltzmann, Fermi-Dirac and Bose - Einstein statistics- Modes of contribution to energy. Partition function – Translational, vibrational and rotational partition functions for mono, diatomic and poly atomic ideal gases.

UNIT - III: Thermodynamics – III (10 hrs)

Thermodynamic functions in terms of partition functions- equilibrium constant for isotope exchange and dissociation of diatomic molecules- heat capacity of solids (Einstein and Debye models) -ortho and para hydrogen- Planck's radiation law – electron in metals.

UNIT – IV: Electrochemistry of Solutions (15 hrs)

Ion-solvent interaction- Born's treatment (structureless continuum model only, no derivation); ion- ion interaction-Mean ionic activity and activity coefficient-concept of ionic strength-Debye - Huckel theory of strong Electrolytes- Derivation of Debye-Huckel limiting law - validity of the equation-Debye - Huckel limiting law at low and appreciable concentration of the electrolytes-qualitative and quantitative verification-Deby-Huckel- Bronsted equation.

Ion transport -theory of strong electrolytes for electrolytic conductance-derivation of Onsager equation-validity of the equation-modification of Onsager equation. Ion association-Bjerrum treatment of association-Bjerrum ion association constant-factors influencing ion association-effect of ion association on conductivity and activity coefficient of electrolytes in solution.

UNIT – V: Dynamic Electrochemistry (15 hrs)

The electrode-electrolyte interface-electrical double layer-IHP-OHP-contact adsorption-surface excess and its importance-Thermodynamics of electrified interface-electro capillary phenomenon - Lippmann equation, Lippmann potential-polarizable and non-polarizable interface. Structure of double layer- Helmholtz- Perrin, Guoy-Chapmann and Stern models of electrical double layer. Electro kinetic phenomena (Electrophoresis, electro osmosis, sedimentation potential and streaming potential – concepts only) derivation of Butler-Volmer equation for one step electron transfer reactions, Tafel equation - significance of exchange current density and symmetry factor. Polarization and over potential-A brief account of Hydrogen overpotential- factors affecting Hydrogen over potential-mechanism of hydrogen evolution and oxygen evolution-concentration polarization.

Corrosion: Theories, types, prevention and applications of corrosions. Fuel Cells-hydrogen- oxygen fuel cell, construction and applications.

TEXT BOOKS:

1. J.O. M. Bokris and A.K.N. Reddy, Electrochemistry, Vol 1&2, Kluwer academic/Plenum publishers, New York, Second edition.2002.
2. S. Glasstone, Introduction to Electrochemistry, Liton educational Publishing INC, reprint2010.
3. D. R. Crow, Principles and Applications of Electrochemistry, Chapman and Hall, fourth edition, 1994.
4. M. C. Gupta, Statistical thermodynamics, Wiley, Eastern, New Delhi, reprint, 2009.
5. B.C McClellan and Statistical thermodynamics, Chapman and Hall, London.1973.
6. Nester Perez, Electro chemistry and corrosion science, Springer London, reprint, 2010.
7. K.L. Kapoor, Physical chemistry, MacMillan India Ltd, third edition, 2009.

ELECTIVE – II: SOLID STATE AND NANO CHEMISTRY

SEMESTER III	SUBJECT CODE	THEORY	MARKS 100	CREDITS 3	HOURS 45

OBJECTIVES:

Intended to reveal the thorough learning of solid state chemistry and Nanomaterials and their applications.

UNIT - I: Solid State Chemistry **(15 hrs)**

Classification of crystals and elements of symmetry (including glide planes and screw axis) Bravais lattices; planes and indices, packing of crystals – bcc, fcc and hcp -volume occupied in bcc, fcc and hcp. X-ray diffraction and Bragg's law, powder diffraction - Debye Scherrer method, refinement and structure solution of some compounds, Indexing with JCPDS, FWHM and its application. Miller Indices, Point groups, stereographic projection of 32 point groups and space groups, isogonal symmetry groups and reciprocal lattice. Single Crystal Analysis and its Applications. - Structural aspects of rock salt, rutile, fluorite, antifluorite, zinc blende, wurtzite, crystobalite, spinels, inverse spinels and silicates.

Electronic structure of solids - band theory, doping of semiconductors and conduction mechanism, the band gap, temperature dependence of conductivity, synthesis and purification of semiconducting materials. Inorganic phosphors-synthesis and applications. LED, FED –an introduction, Photoconductors, photovoltaic cells, solar batteries. Lasers-introduction and types, Inorganic laser- Ruby, Nd: YAG laser - instrument and principle.

UNIT – II: Imperfection in Crystals **(10 hrs)**

Perfect and imperfect crystals, lattice defects -types of defects. Order anddisorder phenomena, thermodynamics of Schottky and Frenkel defect formation, Determination of defects. Nonstiochiometric defect and incorporation of stiochometric excess defects (structural and thermodynamic aspects). Phase transitions, diffusion, diffusion coefficient, diffusion mechanisms, vacancy and interstitial diffusion.

UNIT - III: Magnetic Properties of Solids **(15 hrs)**

Introduction, magnetization, electron spin and magnetic moment, types of magnetism and materials – examples and applications. Theory of diamagnetism and paramagnetism. Langevin's theory (Derivation not required) - paramagnetic susceptibility of solids. temperature independent paramagnetism - spin cross over phenomena. determination of magnetic susceptibility by Gouy and Faraday method.

Domain theory – Hysteresis Loop – applications. Properties of perovskite and magneto-plumbites- Hard and Soft magnetic materials- Superconductors – superconductivity in metals, alloys and ceramics materials (mixed oxides)- BCS theory, Meissner effect, type I and II superconductors, application-Fullerenes as superconductors.

UNIT - IV: Nanomaterials-Synthesis, Characterization and Properties (10 hrs)

Introduction to Carbon based nanomaterials, Metal based materials, dendrimers and composites. Classification of nanomaterials based on dimensions. Properties of nano materials-size dependent properties - mechanical, physical and chemical properties. Quantum effects. Synthesis of nanomaterials: bottom up and top down method. Introduction on synthesis of nanomaterials via thermal, ball milling, Laser ablation, colloidal, sol-gel, chemical vapour deposition and electrochemical method. Characterization methods of nanomaterials: Scanning electron microscopy (SEM) for morphology, Atomic Force microscopy (AFM), Transition Electron Microscopy (TEM) - Crystallite size and SAED pattern.

UNIT - V: Application of Nanomaterials – basic introduction (10 hrs)

Energy-fuel cells, Microbial fuel cell, hydrogen storage, nano phosphors for High-Definition TV, Next-Generation Computer Chips, Quantum electronic devices - CNT based applications and Field Emission Display - Biochemical sensor. Environmental - Membrane based water purification. Catalysis - organic transformation and photo catalysis. Biological applications –diagnostic and imaging, targeted drug delivery, theranostic reagents, Nano coatings and paintings. Cosmetic applications. Disadvantages of Nanomaterials – Nanotoxicity. Green Nanochemistry.

REFERENCE BOOKS:

1. A.R. West, Basic Solid State Chemistry, John Wiley, second edition,1999
2. W.E. Addison, Structural Principles in Inorganic Chemistry, Longman, 1961,
3. M. Adams, Inorganic Solids, John Wiley Sons,1974
4. M. Wilson, K. Kannangara, G Smith, M. Simmons, B. Raguse, Nanotechnology: Basic science and Emerging technologies, Overseas Press India Pvt. Ltd, New Delhi, First Edition, 2005.
5. C.N.R. Rao, A. Muller, A.K.Cheetham (Eds), The chemistry of nanomaterials: Synthesis, properties and applications, Wiley VCH, Weinheim, 2004.
6. Kenneth J. Klabunde (Eds), Nanoscale Materials Science, John Wiley & Sons, Inc., 2001.
7. C.S.S.R.Kumar, J.Hormes, C.Leuschner, Nanofabrication towards biomedical applications, Wiley –VCH Verlag GmbH & Co, Weinheim, 2004.
8. W. Rainer, Nano Electronics and information Technology, Wiley, 2003.
9. K.E. Drexler, Nano systems, Wiley, 1992.
10. G.Cao, Naostructures and Nanomaterials: Synthesis, properties and applications, Imperical College Press, 2004.

CORE THEORY – 11: PHOTOCHEMISTRY

SEMESTER IV	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

OBJECTIVES:

To deal with the theory and the applications of photochemistry in explaining various organic and inorganic reactions.

UNIT – I: Fundamentals (15 hrs)

Absorption and emission of radiation-Frank-Condon principle- Physical properties of electronic excited molecules - Spin multiplicity - Singlet and triplet excited states - decay of electronically excited states - radiative and non radiative processes-fluorescence and phosphorescence- Spin forbidden non-radiative transitions-internal conversion and inter system crossing-energy transfer process- excimers and exciplexes-delayed fluorescence and phosphorescence - Triplet-Triplet annihilation -static and dynamic quenching-Stern - Volmer analysis. Quantum efficiency-quantum yield - sensitization and sensitizer - allowed- forbidden process - Molecular structure and photo physical and photo chemical reactivity

UNIT – II: Techniques and Photochemical Reactions (10 hrs)

Quantum yield measurements-Flash photolysis techniques- Actinometry-quantum yield of photo physical process and photochemical reactions. Life time measurements – steady state and non steady state methods. Fluorescence spectroscopy – principle- instrumentation and applications – fluorescence based sensors.

UNIT – III: Organic Photochemistry (10 hrs)

Photo chemistry of ketones – Norrish Type-I, Norrish type –II - Photo reduction, - photo chemistry of olefins - cis –trans isomerisation - Photocycloaddition, - Paterno –Buchi reaction – photo chemistry of aromatic compounds – photo rearrangements - Di-π methane rearrangement, Barton reaction and Photo Fries reaction – Photochemistry of cyclohexadienones – photo chemistry of santonin - synthesis of Vitamin D.

UNIT – IV: Photochemistry of Co-ordination Compounds (10 hrs)

Types of Photochemical reaction – photo isomerisation, photo substitution and photo redox reactions of Cobalt, Chromium, Platinum and Ruthenium complexes. - photo voltaic cells and photo galvanic cells- solar energy conversion- photo electro chemistry- Role of Ruthenium bipyridine [$Ru(bpy)_3$] complexes in solar energy conversion- photosynthesis.

UNIT – V: Applied Photochemistry (15 hrs)

The solar spectrum, antennae, reaction centers, photoprocesses in organic, inorganic, and sensitized solar cells- Excitons, polarons, solitons, semiconductor junctions, photocurrent and photovoltage, photocatalysis, photodamage and repair, DNA photodynamic therapy , photochemical process in the environment, photochemical process in medicine and in the pyrotechnics- photo degradation of polymers - photochemistry of vision.

TEXT BOOKS:

1. N. J. Turro, Modern Molecular Photochemistry (MMP), University Press, Menlo Park, CA, 1978.
2. A. Gilbert and J. Baggott, Essentials of Molecular Photochemistry, CRC Press, London, UK, 1991.
3. J. Mattay and A. Griesbeck, eds., Photochemical Key Steps in Organic Synthesis, VCH, New York, 1994.
4. J. D. Coyle, ed., Photochemistry in Organic Synthesis, Royal society of Chemistry, London, 1986.
5. K.K. Rohatgi Mukherjee, Fundamentals of photochemistry, New Age International Pvt. Ltd, reprint 2008.

REFERENCE BOOKS:

1. W. H. Horspool, ed., Synthetic Organic Photochemistry, Plenum, New York, 1984.
2. I. Ninomiya and T. Naito, eds., Photochemical Synthesis, Academic Press, Londaon, 1989.
3. J. C. Scaiano, ed., CRC Handbook of Organic Photochemistry, vol. 1 and 2, CRC Press, Boca Raton, Florida, 1989.

CORE THEORY – 12: SPECTROSCOPY-II

SEMESTER IV	SUBJECT CODE	THEORY	MARKS 100	CREDITS 4	HOURS 60

OBJECTIVES:

To learn the principles of NMR, ESR and mass spectrometry and its applications to organic and inorganic compounds.

UNIT – I: Magnetic Resonance Spectroscopy (10 hrs)

Nuclear magnetic resonance spectra: Theory- the nuclear spin, Larmor frequency, NMR isotopes, population of nuclear spin levels - relaxation processes. Chemical shift- shielding constant, diamagnetic anisotropic influence - ring currents – diatropy and paratropy. Spin-spin interaction - low and high resolution spectra. Nuclear magnetic double resonance - nuclear overhauser effect- Fourier transform technique - ^{13}C- NMR (elementary treatment).

UNIT – II: Applications of NMR Spectroscopy to Organic Compounds (10 hrs)

Proton NMR applications to structure elucidation of simple organic molecules - chemical shift values of various chemically non-equivalent protons and correlation to protons bonded to carbon and protons bonded to other nuclei - chemical exchange, effect of deuteration. First order PMR spectra - complex spin-spin interaction between two, three, four and interacting nuclei, virtual coupling, simplification of complex spectra using shift reagents - coupling constant - variation of coupling constant with dihedral angle, Karplus curve. ^{13}C-NMR applications to structure elucidation of simple organic molecules – complete decoupled CMR – off resonance spectra- chemical shift values. Elementary treatment of two-dimensional NMR spectroscopy, NOESY, COSY, and DEPT.- Conjunct problems based on IR, Mass and NMR data.

UNIT – III: Applications of NMR Spectroscopy in Inorganic Chemistry (10 hrs)

Applications of ^{31}P, ^{19}F, ^{119}Sn and ^{195}Pt NMR spectroscopy in the structural assessment of simple inorganic compounds. Inter and intramolecular exchange studies using NMR. Applications of NMR in the study of co-ordination complexes and organo metallic derivatives. Applications of NMR in the study of trans effect and fluxional behavior of inorganic molecules and complexes.

UNIT – IV: Applications of ESR Spectra and Mossbauer Spectra (15 hrs)

ESR spectra of transition metal complex -copper, manganese and vanadyl complexes. Applications of ESR spectroscopy based on number of ESR signals, multiplicity, anisotropy, magnitude of **g** values and A values – Covalency of complexes. Applications of ESR in the study of bio-inorganic molecules. Mossbauer spectroscopy – principle – instrumentation – recoil energy – Doppler effect- number of MB signals – isomer shift – quadrapole splitting – magnetic splitting. Applications of ^{57}Fe, Sn^{119} and I^{129} Mossbauer spectra.

UNIT – V: Mass Spectrometry (15 hrs)

Principle – instrumentation – isolation techniques - EI, CI, FD, FAB, SIMS - presentation of spectral data – molecular ions- determination of molecular mass - Isotopic peaks - determination of molecular formula – Meta stable peaks. Fragmentation - nitrogen rule, McLafferty rearrangement – Retro Diels– Alder fragmentation – interpretation of mass spectra of hydrocarbons, alcohols, phenols, aldehydes, ketones, carboxylic acids, amines and their derivatives. Identification of organic compounds using mass spectrometry – problems.

REFERENCE BOOKS:

1. C. N. Banwell and E. M. McCash, Fundamentals of Molecular Spectroscopy, Tata McGraw-Hill, New Delhi, fourth edition, 2010.
2. D. A. McQuarrie and J.D. Simon, Physical Chemistry- Molecular approach, Viva students Ed, reprint, 2010.
3. K. Nakamoto, Infrared and Raman Spectra of Inorganic and Coordination Compounds, John Wiley, fifth edition, 1997.
4. R. S. Drago, Physical Methods in Chemistry, Saunders College Publishers, 1977.
5. R. V. Parish, NMR, NQR, EPR and Mossbauer Spectroscopy in Inorganic Chemistry, Ellis Horwood, New York, 1990.
6. E.A.V. Ebsworth and D.W.H. Rankin and S. Cradock, Structural Methods in Inorganic Chemist Blackwell scientific, Oxford, 1987.
7. D. L. Pavia, G. M. Lampman, G. S. Kriz and J.R.Vyan, Introduction Spectroscopy, Cengage Learning, Indian edition, 2008.
8. R. M. Silverstein, F. X. Webster, Spectrometric Identification of Organic Compounds Wiley India, sixth edition, reprint, 2011.
9. G. C. Levy, R. L. Lichter, G. L. Nelson, ^{13}C NMR Spectroscopy, Wiley, 1992.
10. D. H. Williams and I. Fleming, Spectroscopic Methods in Organic Chemistry, McGraw Hill, 2008.
11. Anees A. Siddiqui, Mass Spectrometry, CBS Pbulishers, first edition, 2011.
12. R. J. Abraham, J. Fisher and P Loftus, Introduction to NMR spectroscopy- Wiley, 2005.
13. John. R. Dyer, Application of absorption spectroscopy of organic compounds, Prentice –Hall of India Pvt.Ltd, fifth edition, 1984.

CORE PRACTICAL – 4: ELECTRO ANALYTICAL PRACTICAL

SEMESTER III & IV	SUBJECT CODE	PRACTICAL	MARKS 100	CREDITS 4	HOURS 60

OBJECTIVES:

To help the students to understand and apply the concepts of electroanalytical chemistry.

UNIT – I: Conductometric Experiments

1. Determination of equivalent conductance of strong electrolytes and verification of Debye-Huckel-Onsager equation.
2. Determination of dissociation constant of weak electrolyte using Ostwald's dilution law.
3. Conductometric Titration between simple and mixture of strong and weak acids and base and precipatation titration involving a single halide.

UNIT – II: Potentiometric Experiments

1. Determination of pH and calculation of pKa.
3. Determination of solubility product of sparingly soluble salt.
4. Potentiometric titrations between simple and mixture of strong and weak acids and Base.
5. Redox Titrations by EMF measurements
6. Precipitation titration of mixture of halides by EMF measurements.

UNIT – III: Colorimetric Experiments

1. Photoelectric method: Estimation of Iron, Nickel, Manganese and Copper.
2. Determination of Cr^{2+} and Mn^{2+} ions present in water sample by Colorimetry.

REFERENCE

1. B.Viswanathan and P.S.Raghavan, Practical Physical Chemistry, Viva books, 2012.
2. B.D.Khosla, V.C. Garg and A. Khosla, Senior Practical Physical chemistry, S.Chand and Co., New Delhi, 2011.
3. P.S.Sindu, Practical Physical Chemistry- A modern Approach, MacMillan India Ltd, first edition, 2006.
4. C.W. Garland, J.W.Nibler and D.P. Shoemaker, Experiments in Physical Chemistry, Tata McGraw-Hill, NewYork, eighth edition, 2003.
5. A.M. Halpern, G.C. McBane, Experiments in Physical Chemistry, W.H. Freeman & Co, New York. Third edition, 2003.

ELECTIVE PRACTICAL – I: ANALYTICAL CHEMISTRY PRACTICAL

SEMESTER III & IV	SUBJECT CODE	PRACTICAL	MARKS 100	CREDITS 4	HOURS 60

OBJECTIVES:

To impart the quantitative estimation of organic compounds, mixture of inorganic metal ions and spectral interpretations of organic compound and inorganic complexes.

A. ESTIMATIONS (ANY FOUR):

1. Estimation of aniline
2. Estimation of phenol
3. Estimation of glucose (Bertrand's Method)
4. Saponification of fat or oil.
5. Iodine value of an oil.

B. **SPECTRAL INTERPRETATION OF ORGANIC COMPOUNDS - UV, IR, PMR AND MASS SPECTRA**

1. 1, 3, 5-Trimethylbenzene
2. Pinacolone
3. Benzyl bromide
4. Phenyl acetone
5. Isopropyl alcohol
6. 2-N, N-Dimethylamino ethanol
7. 4-Picoline
8. Cinnamaldehyde

C. SPECTRAL INTERPRETATION OF INORGANIC COMPOUNDS

1. ^{31}P NMR Spectra of methylphosphate
2. ^{31}P NMR Spectra of HPF_2
3. ^{19}F NMR Spectra of CIF_3
4. ^{1}H NMR Spectra of Tris (ethylthioacetoacetanato) cobalt (III)
5. Expanded high resolution NMR spectra of

(N-propylisonitrosoacetylacetoneiminato) (acetylacetoneiminato) Nickel(II)

6. ESR Spectra of the aqueous ON $(SO_3)_2^{2-}$ ion.
7. ESR Spectra of the H atoms in CaF_2
8. ESR Spectra of the $[Mn (H_2O)_6]^{2+}$ ion
9. ESR Spectra of the bis (salicyladiminato) copper (II)
10. IR Spectra of the sulphato ligand
11. IR Spectra of the nitro and nitritopentaminecobalt (III) chloride
12. IR Spectra of the dimethylglyoxime ligand and its Nickel (II) complex.
13. IR Spectra of carbonyls
14. Mossbauer spectra of $FeSO_4.7H_2O$
15. Mossbauer spectra of $FeCl_3$
16. Mossbauer spectra $[Fe (CN)_6]^{3-}$
17. Mossbauer spectra $[Fe (CN)_6]^{4-}$

D. QUANTITATIVE ANALYSIS OF COMPLEX MATERIALS

To impart the techniques of analysis of alloys; preparation and analysis inorganic complexes.

a) Analysis of Alloys:

1. Analysis of copper and nickel from cupro-nickel alloy.
2. Estimation of copper and zinc in brass.
3. Estimation of iron and nickel in stainless steel.
4. Estimation of iron and magnesium from the mixture.

b) Analysis of Inorganic Complex Compounds: (for internal assessment only)

1. Preparation of cis and trans potassium bis(oxalato)diaquochromate and analysis of each of these for chromium.
2. Preparation of potassium tris(oxalato) aluminate (III) and analysis for iron and oxalate.

REFERENCE BOOKS:

1. J. Mendham, R.C. Denney, J. Basset and G.H. Jeffery, Vogel's Text book of quantitative Inorganic Analysis, fourth edition ELBS, Longmann, 1978.
2. A. I. Vogel, Text Book of Practical Organic Chemistry, ELBS, London, fifth edition, l989.

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A - Grade' by NAAC
(Affiliated to the University of Madras)

MASTER OF SCIENCE
(MATHEMATICS)

Regulations and Syllabus

(For the Candidates admitted in 2019 - 2020 and thereafter)

COURSE STRUCTURE

Semester	Course Title		No. of Hours per week	Exam Hours	Credits	Marks		Total
						CIA	UE	
I	Core Paper-I	Algebra-I	5	3	4	50	50	100
	Core Paper-II	Real Analysis-I	6	3	4	50	50	100
	Core Paper-III	Ordinary Differential Equations	6	3	4	50	50	100
	Core Paper-IV	Graph Theory	6	3	4	50	50	100
	Elective paper –I	Fuzzy sets and their Applications	5	3	3	50	50	100
	Soft skill Paper-I	Personality Enrichment Skills	2	3	2	50	50	100
II	Core Paper-V	Algebra-II	5	3	4	50	50	100
	Core Paper-VI	Real Analysis-II	6	3	4	50	50	100
	Core Paper-VII	Partial Differential Equations	6	3	4	50	50	100
	Core Paper-VIII	Probability Theory	5	3	4	50	50	100
	Extra Disciplinary-I	Object Oriented Programming with C++	3	3	3	50	50	100
	Extra Disciplinary-II	Practical for Programming with C++	3	3	3	50	50	100
	Soft Skill Paper-II	Computing Skills	2	3	2	50	50	100
III	Core Paper-IX	Complex Analysis –I	5	3	4	50	50	100
	Core Paper-X	Topology	5	3	4	50	50	100
	Core Paper-XI	Operations Research	5	3	4	50	50	100
	Core Paper-XII	Mechanics	5	3	4	50	50	100
	Elective paper –II	Difference Equations	3	3	3	50	50	100
	Elective paper -III	Number theory and Cryptography	5	3	3	50	50	100
	Soft Skill Paper-III	Self & Time Management Skills	2	3	2	50	50	100
		Summer Internship	-	-	2	-	-	-
IV	Core Paper-XIII	Complex Analysis-II	6	3	4	50	50	100
	Core Paper-XIV	Differential Geometry	6	3	4	50	50	100
	Core Paper-XV	Functional Analysis	6	3	4	50	50	100
	Elective paper -IV	Calculus of Variations and Integral Equations	5	3	3	50	50	100
	Elective paper -V	Stochastic Processes	5	3	3	50	50	100
	Soft Skill paper-IV	Spoken and Presentation Skills	2	3	2	50	50	100
				Total	91			

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR THEORY PAPERS

ALLOTMENT OF QUESTIONS	**MAXIMUM : 100 MARKS** **PASSING MINIMUM : 50 MARKS** **DURATION : 3 HOURS**
QUESTION NUMBERS 1-12 Answer any 10 Questions out of 12 Questions	PART- A (10×3=30MARKS) Each Question carries 3 Marks.
QUESTION NUMBERS 13-19 Answer any 5 Questions out of 7 Questions	PART- B (5×6=30MARKS) Each Question carries 6 Marks.
QUESTION NUMBERS 20-25 Answer any 4 Questions out of 6 Questions	PART- C (4×10=40MARKS) Each Question carries 10 Marks.

SEMESTER - I

CORE I
PAPER TITLE: Algebra – I

SUBJECT CODE :17PMATC01	**THEORY**	**100 MARKS**
SEMESTER: I	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

UNIT-I **(15 hrs)**
Another counting principle, Sylow theorems - Applications of Sylow theorems.
Recommended Chapter 2: Section 2.11 and 2.12 of I.N. Herstein

UNIT-II **(15 hrs)**
Direct products: Internal direct product, External direct product, Finite abelian groups : Invariants of groups, Modules : Direct sum of modules, cyclic module, finitely generated module.
Recommended Chapter 2: Sections 2.13 and 2.14,
Chapter 4: Section 4.5 of I.N. Herstein

UNIT-III **(15 hrs)**
Linear Transformations - Canonical forms-Triangular form: Similar Transformation, Invariant under Linear Transformations – Nilpotent transformations.
Recommended Chapter 6: Sections 6.4 , 6.5 of I.N. Herstein

UNIT-IV **(15 hrs)**
Jordan form - rational canonical form: companion matrix of f(x).
Recommended Chapter6: Sections 6.6 and 6.7 of I.N. Herstein

UNIT-V: **(15 hrs)**
Trace and transpose - Hermitian, unitary, normal transformations, real quadratic form.
Recommended Chapter 6 : Sections 6.8, 6.10 and 6.11 (Omit6.9) of I.N. Herstein

PRESCRIBED BOOK:

N. Herstein. Topics in Algebra (II Edition) Wiley, 2002.

REFERENCE BOOKS:

1. M. Artin, Algebra, Prentice Hall of India, 1991.
2. P. B. Bhattacharya, S. K. Jain, and S.R. Nagpaul, Basic Abstract Algebra (II Edition) Cambridge University Press, 1997. (Indian Edition)
3. I. S. Luther and I. B. S. Passi, Algebra, Vol. I - Groups(1996); Vol. II Rings(1999), Narosa Publishing House , New Delhi
4. D. S. Dummit and R. M. Foote, Abstract Algebra, 2nd edition, Wiley, 2002.
5. N. Jacobson, Basic Algebra, Vol. I & II W. H. Freeman (1980); also published by Hindustan Publishing Company, New Delhi.

CORE II
PAPER TITLE: Real Analysis –I

SUBJECT CODE : 17PMATC02	**THEORY**	**100 MARKS**
SEMESTER: I	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

UNIT-I **(18 hrs)**

Functions of bounded variation - Introduction - Properties of monotonic functions - Functions of bounded variation - Total variation - Additive property of total variation - Total variation on [a, x] as a function of x - Functions of bounded variation expressed as the difference of two increasing functions - Continuous functions of bounded variation.
Recommended Chapter 6: Sections 6.1 to 6.8 of Tom M. Apostol Infinite Series: Absolute and conditional convergence - Dirichlet's test and Abel's test.
Recommended Chapter 8 : Sections 8.8, 8.15 of Tom M. Apostol

UNIT-II **(18 hrs)**

The Riemann - Stieltjes Integral - Introduction - Notation - The definition of the Riemann - Stieltjes integral - Linear Properties - Integration by parts- Change of variable in a Riemann - Stieltjes integral - Reduction to a Riemann Integral – Euler's summation formula - Monotonically increasing integrators, Upper and lower integrals - Additive and linearity properties of upper and lower integrals - Riemann's condition - Comparison theorems.
Recommended Chapter 7: Sections 7.1 to 7.14 of Tom M. Apostol

1.

UNIT-III **(18 hrs)**

The Riemann-Stieltjes Integral - Integrators of bounded variation-Sufficient conditions for the existence of Riemann-Stieltjes integrals-Necessary conditions for the existence of Riemann-Stieltjes integrals- Mean value theorems for Riemann- Stieltjes integrals - The integrals as a function of the interval - Second fundamental theorem of integral calculus-Change of variable in a Riemann integral-Second Mean Value Theorem for Riemann integral-Riemann-Stieltjes integrals depending on a parameter-Differentiation under the integral sign- Lebesguecriteriaon for the existence of Riemann integrals.
Recommended Chapter - 7: 7.15 to 7.24, 7.26 of Tom M. Apostol

UNIT-IV **(18 hrs)**

Infinite Series and infinite Products - Multiplication of series –Cesarosummability - Infinite products.Power series - Multiplication of power series - The Taylor's series generated by a function - Bernstein's theorem - Abel's limit theorem - Tauber's theorem
Recommended Chapter 8: Sec, 8.20, 8.21 to 8.26
Recommended Chapter 9: Sections 9.14, 9.15, 9.19, 9.20, 9.22, 9.23 of Tom M. Apostol

UNIT-V **(18 hrs)**

Sequences of Functions - Pointwise convergence of sequences of functions - Examples of sequences of real - valued functions - Definition of uniform convergence - Uniform convergence and continuity - The Cauchy condition for uniform convergence - Uniform convergence of infinite series of functions- Uniform convergence and Riemann - Stieltjes integration – Non- uniform Convergence and Term-by-term Integration - Uniform convergence and differentiation - Sufficient condition for uniform convergence of a series.
Recommended Chapter 9: Sec 9.1 to 9.6, 9.8, 9.9, 9.10, 9.11 of Tom M. Apostol

PRESCRIBED BOOK:

Tom M. Apostol: Mathematical Analysis, 2nd Edition, Narosa,1989.

REFERENCE BOOKS:

1. Bartle. R. G, Real Analysis, John Wiley and Sons Inc., 1976.
2. Rudin. W, Principles of Mathematical Analysis, 3rd Edition. McGraw Hill Company, New York, 1976.
3. Malik. S. C, and SavitaArora. Mathematical Analysis, Wiley Eastern Limited. New Delhi, 1991.
4. Sanjay Arora and BansiLal, Introduction to Real Analysis, SatyaPrakashan, New Delhi, 1991.
5. Gelbaum. B. R, and J. Olmsted, Counter Examples in Analysis, Holden day, San Francisco, 1964.
6. A. L. Gupta and N. R. Gupta, Principles of Real Analysis, Pearson Education, (Indian print) 2003.

CORE III
PAPER TITLE: Ordinary Differential Equations

SUBJECT CODE :16PMATC03	**THEORY**	**100 MARKS**
SEMESTER: I	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

UNIT-I **(18 hrs)**

Linear equations with constant coefficients: Second order homogeneous equations-Initial value problems- Linear dependence and independence-Wronskian and a formula for Wronskian-Non-homogeneous equation of order two.

Recommended Chapter 2: Sections 1 to 6 of E.A.Coddington

UNIT-II **(18 hrs)**

Linear equations with constant coefficients: Homogeneous and non-homogeneous equation of order n –Initial value problems- Annihilator method to solve non-homogeneous equation.

Chapter 2 : Sections 7 to 11.

UNIT-III **(18 hrs)**

Linear equation with variable coefficients Initial value problems -Existence and uniqueness theorems – Solutions to solve a non- homogeneous equation – Wronskian and linear dependence– Reduction of the order of a homo geneous equation –Homogeneous equation with analytic coefficients-The Legendre equation.

Recommended Chapter: 3 Sections 1 to 8(omit section 9) of E. A. Coddington

UNIT-IV **(18 hrs)**

Linear equation with regular singular points: Second order equations with regular singular points –Exceptional cases – Bessel equation.

Recommended Chapter 4: Sections 3, 4 and 6 to 8 (omit sections 5 and 9) of E. A. Coddington.

UNIT-V **(18 hrs)**

Existence and uniqueness of solutions to first order equations:Equation with variable separated – Exact equation – Method of successive approximations – the Lipschitz condition – Convergence of the successive approximations and the existence theorem.

Recommended Chapter 5: Sections 1 to 6 (omit Sections 7 to 9) of E. A. Coddington

PRESCRIBED BOOK:

Coddington, An introduction to ordinary differential equations (3rd Printing) Prentice-Hall of India Ltd.,New Delhi, 1987.

REFERENCE BOOKS:

1. Williams E. Boyce and Richard C. Di Prima, Elementary differential equations and boundary value problems,John Wiley and sons, New York, 1967.
2. George F Simmons, Differential equations with applications and historical notes, Tata McGraw Hill, New Delhi, 1974.
3. N.N. Lebedev, Special functions and their applications, Prentice Hall of India, New Delhi, 1965.
4. W. T. Reid. Ordinary Differential Equations, John Wiley and Sons, New York, 1971
5. M. D. Raisinghania, Advanced Differential Equations, S.Chand& Company Ltd. New Delhi 2001.

CORE IV
PAPER TITLE: Graph Theory

SUBJECT CODE : 17PMATC04	**THEORY**	**100 MARKS**
SEMESTER: I	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

UNIT-I **(18 hrs)**

Graphs, subgraphs and Trees :Graphs and simple graphs–Graph Isomorphism – The Incidence and Adjacency Matrices – Subgraphs – Vertex Degrees – Paths and Connection– Cycles.
Recommended Chapter 1:(Sec 1.1 – 1.7) of J. A. Bondy and U.S.R. Murty Omit Sec.:1.8,1.9

UNIT-II **(18 hrs)**

Cut Vertex and Connectivity: Trees – Cut Edges and Bonds-Cut Vertices– Connectivity - Blocks.
Recommended Chapter 2:(Section 2.1 - 2.3) and Chapter 3 (Section 3.1 – 3.2) of J.A.Bondy and U.S.R. Murty . Omit Sections 2.4 & 2.5, Omit Sections 3.3

UNIT-III **(18 hrs)**

Euler Tours, Hamilton Cycles and Edge Colourings: Euler Tours, Hamilton Cycles, Edge Chromatic Number
Recommended Chapter 4: (Section 4.1 – 4.2) and Chapter 6 (Section 6.1) of J.A.Bondy and U.S.R. Murty . Omit Sections 4.3 & 4.4, Omit Sections 6.2 & 6.3

UNIT-IV **(18 hrs)**

Independent sets and Cliques, Vertex Colourings : Independent sets – Ramsey's Theorem – Chromatic Number – Brooks' Theorem – Chromatic Polynomials.
Recommended Chapter 7: (Section 7.1 – 7.2) and Chapter 8 (Section 8.1 – 8.2, 8.4) of J.A.Bondy and U.S.R. Murty. Omit Sections 7.3, 7.4 & 7.5, Omit Sections 8.3, 8.5 & 8.6

UNIT-V **(18 hrs)**

Planar graphs : Plane and planar Graphs – Dual graphs – Euler's Formula – The Five- Colour Theorem and the Four-Colour Conjecture.
Recommended Chapter 9: (Section 9.1 – 9.3, 9.6) of J.A.Bondy and U.S.R. Murty Omit Sections 9.4, 9.5, 9.7 & 9.8

PRESCRIBED BOOK:

J. A. Bondy and U.S.R. Murty , Graph Theory and Applications, Macmillan, London, 1976.

REFERENCE BOOKS:

1. J. Clark and D. A. Holton A First look at Graph Theory, Allied Publishers, New Delhi, 1995.
2. R. Gould. Graph Theory, Benjamin/Cummings, Menlo Park, 1989.
3. R. J. Wilson and J. J. Watkins, Graphs,An Introductory Approach, John Wileyand Sons, New York, 1989.
4. R.J. Wilson, Introduction to Graph Theory, Pearson Education, 4th Edition,2004, Indian Print.
5. S. A. Choudum, A First Course in Graph Theory, MacMillan India Ltd. 1987

ELECTIVE I
PAPER TITLE: Fuzzy sets and their Applications

SUBJECT CODE :16PMATE01	**THEORY**	**100 MARKS**
SEMESTER: I	**CREDITS: 3**	**NO. OF HOURS PER WEEK: 5**

UNIT-I **(15 hrs)**

Fundamental Notions: Review of the notion of membership, The concept of a fuzzy subset, Dominance relations, Simple operations on fuzzy subsets, Set of fuzzy subsets for E and M finite, Properties of the set of fuzzy subsets, Product and algebraic sum of two fuzzy subsets.
Recommended Chapter 1: Sec. 1 to 8 of A. Kaufman

UNIT-II **(15 hrs)**

Fuzzy Graphs: Fuzzy relations, composition of Fuzzy relations, Fuzzy subsets induced by a mapping, conditioned Fuzzy subsets, Properties of Fuzzy binary relations, Transitive closure of a Fuzzy binary relations, Paths in a finite Fuzzy graphs.
Recommended Chapter 2: Sec. 10 to 18 of A. Kaufman

UNIT-III **(15 hrs)**

Fuzzy Relations: Fuzzy preorder relations, Similitude relations, Similitude subrelations in a fuzzy preorder, Antisymmetry, Fuzzy order relations, Antisymmetric relations without loops. Ordinal relations. Ordinal functions in a fuzzy order relation, Dissimilitude relations, Resemblance relations, Various properties of similitude and resemblance, Various properties of fuzzy perfect order relations.
Recommended Chapter 2: Sec. 19 to 29 of A. Kaufman

UNIT-IV **(15 hrs)**

Fuzzy Logic: Characteristic function of a fuzzy subset. Fuzzy variables, Polynomial forms, Analysis of a function of fuzzy variables. Method of Marinos, Logical structure of a function of fuzzy variables, Composition of intervals, Fuzzy propositions and their functional representations, The theory of fuzzy subsets and the theory of probability.
Recommended Chapter 3: Sec.31 to 40 (omit Sec. 37, 38, 41) of A. Kaufman

UNIT-V **(15 hrs)**

The Laws of Fuzzy Composition: Review of the notion of a law of composition, Laws of fuzzy internal composition. Fuzzy groupoids, Principal properties of fuzzy groupoids, Fuzzy monoids, Fuzzy external composition, Operations on fuzzy numbers.
Recommended Chapter 4: Sec.43 to 49 of A. Kaufman

PRESCRIBED BOOK:

A. Kaufman, Introduction to the theory of Fuzzy subsets, Vol. I, Academic Press, New York, 1975.

REFERENCE BOOKS:

1. H. J. Zimmermann, Fuzzy Set Theory and its Applications, Allied Publishers, Chennai, 1996
2. George J. Klir and Bo Yuan, Fuzzy sets and Fuzzy Logic-Theory and Applications, Prentice Hall India, New Delhi, 2001.

SEMESTER - II

CORE V
PAPER TITLE: Algebra – II

SUBJECT CODE : 16PMATC05	**THEORY**	**100 MARKS**
SEMESTER: II	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

UNIT-I (15 hrs)

Extension fields: Degree of extension fields, algebraic element, algebraic extension - Transcendence of e.
Recommended Chapter 5: Section 5.1 and 5.2 of I. N. Herstein

UNIT-II (15 hrs)

Roots of Polynomials: Simple roots, multiplicity roots, Splitting field- More about roots: derivative of f(x), simple extension
Recommended Chapter 5: Sections 5.3 and 5.5 of I. N. Herstein

UNIT-III (15 hrs)

Elements of Galois theory: Fixed field, Group of automorphisms relative to field, Splitting field of the polynomials, Normal extension of field, Galois group.
Recommended Chapter 5: Section 5.6 of I. N. Herstein

UNIT-IV (15 hrs)

Finite fields - Wedderburn's theorem on finite division rings
Recommended Chapter 7: Sections 7.1 and 7.2 (Theorem 7.2.1 only) of I. N. Herstein

UNIT-V (15 hrs)

Solvability by radicals–Galois groups over the rational –A theorem On Frobenius.
Recommended Chapter 5: Sections 5.7 and 5.8 Chapter 7: Sections 7.3 of I. N. Herstein

PRESCRIBED BOOK:

I. N. Herstein. Topics in Algebra (II Edition) Wiley 2002

REFERENCE BOOKS:

1. M. Artin, Algebra, Prentice Hall of India, 1991.
2. P. B. Bhattacharya, S. K. Jain, and S. R. Nagpaul, Basic Abstract Algebra (II Edition) Cambridge University Press, 1997. (Indian Edition)
3. S. Luther and I. B. S. Passi, Algebra, Vol. I - Groups(1996); Vol. II Rings, (1999) Narosa Publishing House , New Delhi.
4. S. Dummit and R. M. Foote, Abstract Algebra, 2nd edition, Wiley, 2002.
5. N. Jacobson, Basic Algebra, Vol. I & II Hindustan Publishing Company, New Delhi.

CORE VI
PAPER TITLE: Real Analysis – II

SUBJECT CODE : 16PMATC06	**THEORY**	**100 MARKS**
SEMESTER: II	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

UNIT-I (18 hrs)
Measure on the Real line - Lebesgue Outer Measure - Measurable sets - Regularity - Measurable Functions - Borel and Lebesgue Measurability
Recommended Chapter 2: Sec 2.1 to 2.5 of de Barra

UNIT-II (18 hrs)
Integration of Functions of a Real variable - Integration of Non- negative functions - The General Integral - Riemann and Lebesgue Integrals
Recommended Chapter 3: Sec 3.1,3.2 and 3.4 of de Barra

UNIT-III (18 hrs)
Fourier Series and Fourier Integrals - Introduction - Orthogonal system of functions - The theorem on best approximation - The Fourier series of a function relative to an orthonormal system - Properties of Fourier Coefficients - The Riesz-Fischer Thorem - The convergence and representation problems in for trigonometric series - The Riemann - Lebesgue Lemma - The Dirichlet Integrals - An integral representation for the partial sums of Fourier series - Riemann's localization theorem - Sufficient conditions for convergence of a Fourier series at a particular point - Cesarosummability of Fourier series- Consequences of Fejes's theorem - The Weierstrass approximation theorem
Recommended Chapter 11 : Sections 11.1 to 11.15 of Apostol

UNIT-IV (18 hrs)
Multivariable Differential Calculus - Introduction - The Directional derivative - Directional derivative and continuity- The total derivative - The total derivative expressed in terms of partial derivatives - The matrix of linear function - The Jacobian matrix - The chain rule - Matrix form of chain rule - The mean - value theorem for differentiable functions - A sufficient condition for differentiability - A sufficient condition for equality of mixed partial derivatives - Taylor's theorem for functions of Rn to R1
Recommended Chapter 12 : Section 12.1 to 12.14 of Apostol

UNIT-V (18 hrs)
Implicit Functions and Extremum Problems: Functions with non-zero Jacobian determinants– The inverse function theorem-The Implicit function theorem-Extrema of real valued functions of severable variables-Extremum problems with side conditions.
Recommended Chapter 13 : Sections 13.1 to 13.7 of Apostol

PRESCRIBED BOOKS:

1. G. de Barra, Measure Theory and Integration, New Age International, 2003 (for Units I and II)
2. Tom M. Apostol : Mathematical Analysis, 2nd Edition, Narosa 1989 (for Units III, IV and V)

REFERENCE BOOKS:

1. Burkill,J.C. The Lebesgue Integral, Cambridge University Press, 1951.
2. Munroe,M.E. Measure and Integration. Addison-Wesley, Mass.1971.
3. Royden,H.L.Real Analysis, Macmillan Pub. Company, New York, 1988.
4. Rudin, W. Principles of Mathematical Analysis, McGraw Hill Company, New York, 1979.
5. Malik,S.C. and SavitaArora. Mathematical Analysis, Wiley Eastern Limited. New Delhi, 1991.

CORE VII
PAPER TITLE: Partial Differential Equations

SUBJECT CODE : 16PMATC07	**THEORY**	**100 MARKS**
SEMESTER: II	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

UNIT-I (18 hrs)

Fundamental Concepts :Introduction – Classification of Second Order PDE – Canonical Forms: Canonical Form for Hyperbolic Equation , Canonical Form for Parabolic Equation , Canonical Form for Elliptic Equation.

Recommended Chapter 1: Section: 1.1 to 1.3 of K. Sankara Rao

UNIT-II (18 hrs)

Elliptic Differential Equations :Occurrence of the Laplace and Poisson Equations: Derivation of Laplace Equation, Derivation of Poisson Equation. Boundary Value Problem (BVPs) – Some important Mathematical tools - Separation of Variables – Dirichlet Problem for a Rectangle - The Neumann Problem for a rectangle - Interior Dirichlet Problem for a Circle – Exterior Dirichlet Problem for a Circle – Interior Neumann Problem for a Circle- Solution of Laplace equation in cylindrical coordinates.

Recommended Chapter 2 :Section: 2.1 to 2.3, 2.5 to 2.11of K. Sankara Rao

UNIT-III (18 hrs)

Parabolic Differential Equations: Occurrence of The Diffusion Equation –Boundary Conditions – Elementary Solutions of the Diffusion Equation – Dirac Delta Function – Separation of Variables Method – Solution of diffusion equation in cylindrical coordinates.

Recommended Chapter 3 :Section: 3.1 to 3.6 of K. Sankara Rao

UNIT-IV (18 hrs)

Hyperbolic Differential Equations : Occurrence of the Wave Equation – Derivation of One-dimensional Wave Equation – Solution of One-dimensional Wave Equation by Canonical Reduction – The Initial Value Problem ; D'Alembert's Solution – Vibrating String : Variables Separable Solution - Forced Vibrations: Solution of Non- homogeneous Equation – Boundary and Initial Value Problem for Two-dimensionalWave Equations:Method of Eigenfunction.

Recommended Chapter 4 :Section: 4.1 to 4.7 of K. Sankara Rao

UNIT-V (18 hrs)

Green's Function: Introduction – Green's function for Laplace equation – the methods of Images – the eigenfunction method – Green's function for the wave equation: Helmholtz theorem – Green's function for the Diffusion equation.

Recommended Chapter 5 :Section: 5.1.to 5.6. of K. Sankara Rao

PRESCRIBED BOOK:

Introduction to Partial Differential Equations" by K. SankaraRao , Third Edition, PHI Learning Private Limited.

REFERENCE BOOKS:

1. R.C Mc.Owen, Partial Differential Equations, II ed., Pearson Education. New Delhi, 2005.
2. I.N.Sneddon, Elements of Partial Differential Equations, McGraw Hil, News Delhi, 1983.
3. R. Dennemeyer, Introduction to Partial Differential Equations and BoundryValue Problems , McGraw Hill, New York, 1968.
4.T.Amarnath, Partial Differential Equations, Narosa publishing House

CORE VIII
PAPER TITLE: Probability Theory

SUBJECT CODE : 16PMATC08	**THEORY**	**100 MARKS**
SEMESTER: II	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

UNIT-I **(15 hrs)**

Random Events and Random Variables: Random events Probability axioms – Combinatorial formulae – conditional probability – Bayes Theorem – Independent events – Random Variables – Distribution Function – Joint Distribution – Marginal Distribution – Conditional Distribution – Independent random variables – Functions of random variables.
Recommended Chapter 1: Sections 1.1 to 1.7 Chapter 2 : Sections 2.1 to 2.9 of M. Fisz

UNIT-II **(15 hrs)**

Parameters of the Distribution : Expectation- Moments – The Chebyshev Inequality – Absolute moments – Order parameters – Moments of random vectors – Regression of the first and second types.
Recommended Chapter 3 : Sections 3.1 to 3.8 of M. Fisz

UNIT-III **(15 hrs)**

Characteristic functions : Properties of characteristic functions – Characteristic functions and moments – semi0invariants – characteristic function of the sum of the independent random variables– Determination of distribution function by the Characteristic function– Characteristic function of multidimensional random vectors – Probability generating functions.
Recommended Chapter 4 : Sections 4.1 to 4.7 of M. Fisz

UNIT-IV **(15 hrs)**

Some Probability distributions: One point , two point , Binomial – Polya – Hypergeometric – Poisson (discrete) distributions – Uniform – normal gamma – Beta – Cauchy and Laplace (continuous) distributions.
Recommended Chapter 5 : Section 5.1 to 5.10 (Omit Section 5.11) of M. Fisz

UNIT-V **(15 hrs)**

Limit Theorems : Stochastic convergence – Bernaulli law of large numbers – Convergence of sequence of distribution functions – Levy-Cramer Theorems – de Moivre-Laplace Theorem – Poisson, Chebyshev, Khintchine Weak law of large numbers – Lindberg Theorem – LapunovTheroem – Borel-Cantelli Lemma – Kolmogorov Inequality and Kolmogorov Strong Law of large numbers.
Recommended Chapter 6 : Sections 6.1 to 6.4, 6.6 to 6.9 , 6.11 and 6.12. (Omit Sections 6.5, 6.10,6.13 to 6.15) ofM. Fisz

PRESCRIBED BOOK:

M. Fisz, Probability Theory and Mathematical Statistics, John Wiley and Sons, New York, 1963.

REFERENCE BOOKS:

1. R.B. Ash, Real Analysis and Probability, Academic Press, New York, 1972
2. K.L.Chung, A course in Probability, Academic Press, New York, 1974.
3. R.Durrett, Probability : Theory and Examples, (2nd Edition) Duxbury Press, New York, 1996.
4. V.K.Rohatgi ,An Introduction to Probability Theory and Mathematical Statistics, Wiley Eastern Ltd., New Delhi, 1988(3rd Print).
5. S.I.Resnick, A Probability Path, Birhauser, Berlin,1999.
6. B.R.Bhat , Modern Probability Theory (3rd Edition), New Age International (P)Ltd, New Delhi, 1999

EXTRA DISCIPLINARY- I
PAPER TITLE: Object Oriented Programming with C++

SUBJECT CODE:19PMATED01	**THEORY**	**100 MARKS**
SEMESTER: II	**CREDITS: 3**	**NO. OF HOURS PER WEEK: 3**

UNIT-I **(9 hrs)**

Basic concepts of object oriented programming –Structure of C++ Program. Variables – Operators – Manipulators – Expressions and their types – Control Structures – Functions – Main Function – Function Prototyping– Default Arguments – Function Overloading.

Recommended Chapter 1: Section 1.5, Chapter 2: Section 2.6, Chapter 3: Sections 3.12, 3.13, 3.17, 3.19, 3.24 and Chapter 4: Sections 4.2, 4.3, 4.7, 4.9 of (Balagurusamy)

UNIT-II **(9 hrs)**

Classes and Objects – Specifying a Class – Defining Member Functions – A C++ Program with Class – Static Members – Arrays of Objects – Objects as Function Arguments – Friend Functions – Returning Objects.

Recommended Chapter 5: Sections 5.3, 5.4, 5.5, 5.11, 5.12, 5.13, 5.14, 5.15, 5.16 of (Balagurusamy)

UNIT-III **(9 hrs)**

Constructors and Destructors – Parameterized Constructors – Multiple Constructors in a Class – Copy constructors – Destructors – Defining Operator Overloading – Overloading Unary Operators – Overloading Binary Operators – Using Friend Function – Rules for Overloading Operators

Recommended Chapter 6: Sections 6.3, 6.4, 6.7, 6.11 and Chapter 7: Sections 7.2, 7.3, 7.4, 7.5, 7.7 of (Balagurusamy)

UNIT-IV **(9 hrs)**

Inheritance – Defining Derived Classes – Single Inheritance – Multilevel Inheritance – Multiple inheritance – Virtual Base Classes – Pointers to Objects – this pointer – Pointer to Derived Classes – virtual Functions and Polymorphism – Pure Virtual Function

Recommended Chapter 8: Sections 8.2, 8.3, 8.5, 8.6, 8.9 and Chapter 9: Sections 9.3, 9.4, 9.5, 9.6, 9.7 of (Balagurusamy)

UNIT-V **(9 hrs)**

Managing Console I/O Operations – C++ Streams – C++ Stream Classes —– Working with Files – Classes for File Stream Operations – Opening and Closing a File – Detecting End – of File – File Modes.

Recommended Chapter 10: Sections 10.2, 10.3 and Chapter 11: Sections 11.2, 11.3, 11.4, 11.5 of (Balagurusamy)

PRESCRIBED BOOK:

Balagurusamy, Object Oriented Programming with C++ (4th Edition), Tata McGraw Hill, New Delhi, 1999.

REFERENCE BOOK:

Ravichandran, Programming with C++, Tata McGraw Hill, New Delhi, 1996

EXTRA DISCIPLINARY- II
PAPER TITLE: Practical for Programming with C++

SUBJECT CODE :19PMATED02	**PRACTICAL**	**100 MARKS**
SEMESTER: II	**CREDITS: 3**	**NO. OF HOURS PER WEEK: 3**

1. Write a C++ program to display prime numbers in a given range.
2. Write a C++ program to find the sum of cubes of odd numbers upto n.
3. Write a C++ program to find the sum of cubes of even numbers upto n.
4. Write a C++ program to check whether the given number is Armstrong or not.
5. Write a C++ program for finding factorial of a number using function.
6. Write a C++ program for displaying Fibonacci series using function.
7. Write a C++ program for implementation of class and object.
8. Write a C++ program for implementation of function overloading.
9. Write a C++ program for implementation of constructor
10. Write a C++ program for implementation of destructor
11. Write a C++ program for implementation of constructor overloading.
12. Write a C++ program to add two numbers using operator overloading.
13. Write a C++ program for implementation of single inheritance
14. Write a C++ program for implementation of multiple inheritance
15. Write a C++ program for implementation of multilevel inheritance

SEMESTER - III

CORE IX
PAPER TITLE: Complex Analysis – I

SUBJECT CODE : 16PMATC09	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

UNIT-I **(15 hrs)**

Cauchy's Integral Formula:
The Index of a point with respectto a closed curve - The Integral formula - Higher derivatives. Local Properties of Analytical Functions: Removable Singularities-Taylors's Theorem-Zeros and poles-The local Mapping - The Maximum Principle .
Recommended Chapter 4 : Section 2 : 2.1 to 2.3, Section 3 :3.1 to 3.4
of Lars V. Ahlfors

UNIT-II **(15 hrs)**

The general form of Cauchy's Theorem: Chains and cycles- Simple Connnectivity -Homology - The General statement of Cauchy's Theorem - Proof of Cauchy's theorem – Locally exact differentials-Multilply connected regions – Residue theorem - The argument principle.
Recommended Chapter 4 : Section 4 : 4.1 to 4.7, Section 5: 5.1 and 5.2ofLars V. Ahlfors

UNIT-III **(15 hrs)**

Evaluation of Definite Integrals and Harmonic Functions:
Evaluation of definite integrals - Definition of Harmonic functions and basic properties - Mean value property - Poisson formula.
Recommended Chapter 4 : Section 5 : 5.3, Section 6 : 6.1 to 6.3of Lars V. Ahlfors

UNIT-IV **(15 hrs)**

Harmonic Functions and Power Series Expansions: Schwarz theorem - The reflection principle - Weierstrass theorem - Taylor Series - Laurent series.
Recommended Chapter 4 : Sections 6.4 and 6.5 Chapter 5 : Sections 1.1 to 1.3
of Lars V. Ahlfors

UNIT-V **(15 hrs)**

Partial Fractions and Entire Functions:
Partial fractions–Infinite products - Canonical products - Gamma Function -Jensen's formula
Recommended Chapter 5 : Sections 2.1 to 2.4, Section 3.1of Lars V. Ahlfors

PRESCRIBED BOOK:

Lars V. Ahlfors, Complex Analysis, (3rd edition) McGraw Hill Co., New York, 1979

REFERENCE BOOKS

1. H.A. Priestly, Introduction to Complex Analysis, Clarendon Press,Oxford, 2003.
2. J.B.Conway, Functions of one complex variable, Springer International Edition, 2003.
3. T.WGamelin, Complex Analysis, Springer International Edition, 2004.
4. D.Sarason, Notes on Complex function Theory, Hindustan Book Agency, 1998

CORE X

PAPER TITLE: Topology

SUBJECT CODE : 16PMATC10	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

UNIT-I **(15 hrs)**

Topological spaces, Basis for a topology, Product topology on X x Y, Subspace topology, Closed sets and Limit points, Continuous functions.
Recommended Chapter 2: Sections 12, 13, 15, 16, 17, 18.
of James R. Munkres

UNIT-II **(15 hrs)**

Connected spaces, Connected subspaces of the real line, Components and Localconnectedness, Compact spaces, Compact subspaces of the real line.
Recommended Chapter 3: Sections 23, 24, 25, 26, 27. of James R. Munkres

UNIT-III **(15 hrs)**

Countability axioms, Separation axioms, Normal spaces, UrysohnLemma, Urysohnmetrization theorem, Tietze extension theorem.
Recommended Chapter 4: Sections 30, 31, 32, 33, 34, 35. of James R. Munkre

UNIT-IV **(15 hrs)**

Product topology: J-tuple of elements, Cartesian product, box topology, product topology, Tychonoff theorem.
Recommended Chapter 2: Sections 19. ofJames R. Munkres Chapter 5 - Section 37.

UNIT-V **(15 hrs)**

Homotopy of paths: homotopic, null homotopic, path homotopic, product of two paths, Fundamental group: loop, fundamental group, simply connected set, homomorphism induced by a map.
Recommended Chapter 9: Sections 51, 52. Of James R.Munkres

PRESCRIBED BOOK:

James R. Munkres “Topology” (Second edition) PHI, 2015.

REFERENCE BOOKS

1. T. W. Gamelin and R.E. Greene, Introduction to Topology, The Saunders Series, 1983.
2. G. F. Simmons, Introduction to Topology and Modern Analysis, Mcgraw-Hill
3. J. Dugundji, Topology, Prentice Hall of India.
4. J. L. Kelly, General Topology, Springer.
5. S. Willard, General Topology, Addison-Wesley.

CORE XI

PAPER TITLE: Operations Research

SUBJECT CODE : 18PMATC11	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS: 4**	**NO. OF HOURS PER WEEK:5**

UNIT-I **(15 hrs)**

Integer Programming: Illustrative Applications- Integer programming algorithm – Branch and Bound algorithm – Cutting plane algorithm.

Recommended Chapter 9: sec. 9.1 and 9.2.

UNIT-II **(15 hrs)**

Dynamic Programming: Recursive nature of computation in DP – Forward and Backward recursion. Selected DP application – Cargo Loading model – Work force size model – problem of dimensionality.

Recommended Chapter 12: Sections 12.1, 12.2, 12.3: 12.3.1, 12.3.2, 12.4.

UNIT-III **(15 hrs)**

Deterministic Inventory Control Models: General inventory model – static EOQ model – classical EOQ model – EOQ with price breaks – multi item EOQ with storage limitation.

Recommended Chapter 13: Sec. 13.1 and 13.3

UNIT-IV **(15 hrs)**

Queueing Systems: Elements of a queueing model – Specialized Poisson Queues – Steady state measures of performance – Single server models – Multiple server models.

Recommended Chapter 18: Sec. 18.2, 18.6: 18.6.1, 18.6.2, 18.6.3.

UNIT-V **(15 hrs)**

Nonlinear programming algorithm: Unconstrained algorithm – Direct search method – Gradient method – Constrained algorithm – Separable programming – Quadratic programming.

Recommended Chapter 21: Sec. 21.1, 21.2: 21.2.1, and 21.2.2.

PRESCRIBED BOOK:

1. H.A. Taha, *Operations Research*, 6th edition, Prentice Hall of India
2. For Unit 1 : J.K.Sharma, *Operations Research* ,MacMillan India, New Delhi, 2001.

REFERENCE BOOKS

1. F.S. Hiller and J.Lieberman -,Introduction to Operations Research (7th Edition), Tata McGraw Hill Publishing Company, New Delhui, 2001.
2. Beightler. C, D.Phillips, B. Wilde ,Foundations of Optimization (2nd Edition) Prentice Hall Pvt Ltd., New York, 1979
3. Bazaraa, M.S; J.J.Jarvis, H.D.Sharall , Linear Programming and Network flow, John Wiley and sons, New York 1990.
4. Gross, D and C.M.Harris, Fundamentals of Queueing Theory, (3rd Edition), Wiley and Sons, New York, 1998.

CORE XII

PAPER TITLE: Mechanics

SUBJECT CODE 16PMATC12	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

UNIT-I (15 hrs)

Mechanical Systems : The Mechanical system- Equations of motion, Units. Generalised coordinates – Degrees of freedom, Generalised coordinates, configuration space. Constraints – Holonomic constraints, non holonomic constraints, Unilateral constraints. Virtual work – Virtual displacement, Virtual work, principle of virtual work, D'Alembert's principle, Generalised force. Energy and Momentum - Potential energy, work and kinetic energy, conservation of energy, equilibrium and stability, kinetic energy of a system, angular momentum, Generalised momentum.

Recommended Chapter 1: Sections 1.1 to 1.5 of D.Greenwood

UNIT-II (15 hrs)

Lagrange's Equations: Derivation of Lagrange's equations- Kinetic energy, Lagrange's Equations, Form of the equations of motion, non-holonomic systems. Examples- Spherical pendulum, Double pendulum, Lagrange multipliers and constraint forces, Particle in whirling tube, particle with moving support, rheonomic constrained system. Integrals of motion- Ignorable coordinates,Example-the Kepler problem. Routhian function, conservative systems, Natural systems, Liouville's system.

Recommended Chapter 2 : Sections 2.1 to 2.3 (Omit Section 2.4) of D. Greenwood

UNIT-III (15 hrs)

Hamilton's Equations : Hamilton's Principle – Stationary values of a function, constrained stationary values, stationary value of a definite integral. Examples – geodesic path, case of n dependent variables, Hamilton's principle, non holonomic systems, multiplier rule. Hamilton's Equation – Derivation of Hamilton's equations, the form of the Hamiltonian function, Legendre transformation. Other variational principles – Modified Hamiltons principle, principle of least action.

Recommended Chapter 4 : Sections 4.1 to 4.3 (Omit section 4.4) of D. Greenwood

UNIT – IV (15 hrs)

Hamilton-Jacobi Theory : Hamilton Principle function – The canonical integral, Ptaffian differential forms. Hamilton-Jacobi Equation

Recommended Chapter 5 : Sections 5.1 to 5.2of D. Greenwood

UNIT-V (15 hrs)

Canonical Transformation : Differential forms and generating functions - canonical transformations, principal forms of generating functions, Further comments on the Hamilton-Jacobi method. Special Transformations– some special transformations, Homogeneous canonical transformations, point transformations, momentum transformations. Lagrange and Poisson brackets- Legendre brackets, Poisson brackets, The bilinear covariant.

Recommended Chapter 6 : Sections 6.1, 6.2 and 6.3 (omit sections 6.4, 6.5 and 6.6) of D. Greenwood

PRESCRIBED BOOK:

Greenwood, Classical Dynamics, Prentice Hall of India, New Delhi, 1985.

REFERENCE BOOKS:

1. H. Goldstein, Classical Mechanics, (2nd Edition) Narosa Publishing House, New Delhi.
2. N.C.Rane and P.S.C.Joag, Classical Mechanics, Tata McGraw Hill, 1991.
3. J.L.Synge and B.A.Griffth, Principles of Mechanics (3rd Edition) McGraw Hill Book Co., New York, 1970.

ELECTIVE II

PAPER TITLE: Difference Equations

SUBJECT CODE : 19PMATE02	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS: 3**	**NO. OF HOURS PER WEEK: 3**

UNIT I **(9 hrs)**

Difference Calculus - First order equations - General results for linear equation - Solving linear equation.
Recommended Chapter-II: Sec 2.1 to 2.3 of W.G. Kelly and A.C. Petersan
Recommended Chapter-III: Sec 3.1 to 3.3 of W.G. Kelly and A.C. Petersan

UNIT II **(9 hrs)**

Equations with variable coefficients - Nonlinear equations that can be linearized.
Recommended Chapter-III: Sec 3.5, 3.6 of W.G. Kelly and A.C. Petersan

UNIT III **(9 hrs)**

z - transform - solving linear difference equation using z - transform.
Recommended Chapter-III: Sec 3.7 of W.G. Kelly and A.C. Petersan

UNIT IV **(9 hrs)**

Second order linear equation - Sturmian Theory - Green's function.
Recommended Chapter-VI: Sec 6.1 to 6.3 of W.G. Kelly and A.C. Petersan

UNIT V **(9 hrs)**

Disconjugacy - Riccati equation - Oscillation.
Recommended Chapter-VI: Sec 6.4 to 6.6 of W.G. Kelly and A.C. Petersan

PRESCRIBED BOOK:

W.G. Kelly and A.C. Petersan, Difference Equations: An introduction with Applications Acad. New York, 1991.

REFERENCE BOOKS

1. S. Elayadi, An Introduction to Difference Equations, Springer New York 2005.
2. R.P. Agarwal Difference Equations and Inequalities, Marsel Dekker, New York, 2000.

ELECTIVE III
PAPER TITLE: Number Theory and Cryptography

SUBJECT CODE : 16PMATCE03	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS: 3**	**NO. OF HOURS PER WEEK: 5**

UNIT-I **(15 hrs)**

Elementary Number Theory: Time Estimates for doing arithmetic – divisibility and Euclidean algorithm – Congruences – Application to factoring.
Recommended Chapter 1: of Neal Koblitz.

UNIT-II **(15 hrs)**

Introduction to Classical Crypto systemsSome simple crypto systems – Enciphering matrices DES
Recommended Chapter 3: of Neal Koblitz.

UNIT-III **(15 hrs)**

Finite Fields, Quadratic Residues and Reciprocity
Recommended Chapter 2: of Neal Koblitz.

UNIT-IV **(15 hrs)**

Public Key Cryptography The idea of public key Cryptography – RSA – Discrete log – Knapsack - Zero-knowledge protocols and oblivious transfer
Recommended Chapter 4: of Neal Koblitz.

UNIT-V **(15 hrs)**

Primality , Factoring, Elliptic curves and Elliptic curve crypto systems Pseudoprimes – The Rho method – Fermat factorization and factor bases - The continued fraction method - The quadratic sieve method
Recommended Chapter 5: sections 1, 2, 3 & 5, Chapter 6, sections 1& 2 of Neal Koblitz.

PRESCRIBED BOOK:

Neal Koblitz, A Course in Number Theory and Cryptography, Springer-Verlag, New York,1987

REFERENCE BOOKS

1. I. Niven and H.S.Zuckermann, An Introduction to Theory of Numbers (Edn. 3), Wiley Eastern Ltd., New Delhi,1976
2. David M.Burton, Elementary Number Theory, Brown Publishers, Iowa,1989 K.Ireland and M.Rosen, A Classical Introduction to Modern Number Theory, Springer Verlag, 1972
3. N.Koblitz, Algebraic Aspects of Cryptography, Springer 1998

SEMESTER - IV

CORE XIII
PAPER TITLE: COMPLEX ANALYSIS - II

SUBJECT CODE : 16PMATC13	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

UNIT-I **(18 hrs)**

Riemann Zeta Function and Normal Famalies : Product development – Extension of $\zeta(s)$ to the whole plane – The zeros of zeta function – Equicontinuity – Normality and compactness – Arzela's theorem – Families of analytic functions – The Classcial Definition
Recommended Chapter 5 : Sections 4.1 to 4.4, Sections 5.1 to 5.5 of Lars V. Ahlfors

UNIT-II **(18 hrs)**

Riemann mapping Theorem: Statement and Proof –Boundary Behaviour –Use of the Reflection Principle.Conformal mappings of polygons :Behaviour at an angle
Schwarz - Christoffel formula – Mapping of a rectangle. Harmonic Functions : Functions with mean value property – Harnack's principle.
Recommended Chapter 6 : Sections 1.1 to 1.3 (Omit Section 1.4) Sections 2.1 to 2.3 (Omit section 2.4),Section 3.1 and 3.2 of Lars V. Ahlfors

UNIT-III **(18 hrs)**

Elliptic functions : Simply periodic fnctions – Doubly periodic functions Recommended Chapter 7 : Sections 1.1 to 1.3, Sections 2.1
to 2.4 of Lars V. Ahlfors

UNIT-IV **(18 hrs)**

Weierstrass Theory : The Weierstrass $\wp$-function – The functions $\zeta(s)$ and $\sigma(s)$ – The differential equation – The modular equation $\lambda(\tau)$ – The Conformal mapping by $\lambda(\tau)$.
Recommended Chapter 7 : Sections 3.1 to 3.5 of Lars V. Ahlfors

UNIT-V **(18 hrs)**

Analytic Continuation : TheWeiesrtrass Theory – Germs and Sheaves – Sections and Riemann surfaces – Analytic continuation along Arcs – Homotopic curves – The Monodromy Theorem – Branch points.
Recommended Chapter 8 : Sections 1.1 to 1.7 of Lars V. Ahlfors

PRESCRIBED BOOK:

Lars V. Ahlfors, Complex Analysis, (3rd Edition) McGraw Hill Book Company, New York, 1979.

REFERENCE BOOKS

1. H.A. Priestly, Introduction to Complex Analysis, Clarendon Press,Oxford, 2003.
2. J.B.Conway, Functions of one complex variable, Springer International Edition, 2003
3. T.WGamelin, Complex Analysis, Springer International Edition, 2004.
4. D.Sarason, Notes on Complex function Theory, Hindustan Book Agency, 1998

CORE XIV
PAPER TITLE: Differential Geometry

SUBJECT CODE : 16PMATC14	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 6**

UNIT-I (18 hrs)

Curves in the plane and in space :Curves, parametrisation, arc length, level curves, curvature, plane and space curves.
Recommended Chapters: 1 and 2 of A. Pressley

UNIT-II (18 hrs)

Surfaces in space: Surface patches, smooth surfaces, tangents, normals, orientability, examples of surfaces, lengths of curves on surfaces, the first fundamental form, isometries, surface area.
Recommended Chapter: 4 - 4.1, 4.2, 4.3, 4.4, 4.7 and Chapter 5 - 5.1, 5.2, 5.4of A. Pressley

UNIT-III (18 hrs)

Curvature of surfaces: The second fundamental form, Curvature of curves on a surface, normal, principal, Gaussian and mean curvatures, Gauss map.
Recommended Chapter: 6 - 6.1, 6.2, 6.3 and Chapter 7 -7.1, 7.5,7.6 of A. Pressley

UNIT-IV (18 hrs)

Geodesics :Geodesics, geodesic equations, geodesics as shortest paths, geodesic coordinates.
Recommended Chapter: 8 - 8.1, 8.2, 8.4, 8.5 of A. Pressley

UNIT-V (18 hrs)

Theorema Egregium of Gauss : Theorema, Egregium, isometries of surfaces, Codazzi-Mainardi equations, compact surfaces of constant Gaussian curvature.
Recommended Chapter: 10 of A. Pressley

PRESCRIBED BOOK:

Pressley, Elementary Differential Geometry, Springer- Indian Edition, 2004.

REFERENCE BOOKS

1. J.A. Thorpe, Elementary Topics in Differential Geometry, Springer-Indian edition.
2. E.D. Bloch, A First Course in Geometric Topology and Differential Geometry, Birkhauser, 1997.
3. M.P. doCarmo, Differential Geometry of Curvesand Surfaces, Prentice-Hall, 1976.

CORE XV
PAPER TITLE: Functional Analysis

SUBJECT CODE : 17PMATC15	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

UNIT-I (18 hrs)
Normed Spaces – Riesz lemma –Continuity of Linear Maps.
Recommended Chapter :II Sec 5.1 to 5.7, 6.1 to 6.5 of B.V. Limaye

UNIT-II (18 hrs)
Bounded Linear Maps – Hahn Banach Theorems – Hahn-Banachseparation theorem – Hahn-Banachextension theorems,Unique Hahn BanachExtensions – Banach Spaces. Recommended Chapter :II Sec 6.6 to 6.8, 7.1 to 7.11, 8.1 to 8.4 of B.V. Limaye

UNIT-III (18 hrs)
Uniform Boundedness Principle – Resonance theorem – Closed Graph Theorem– Open mapping Theorem – Bounded Inverse Theorem – Two-norm theorem.
Recommended Chapter :III Sec 9.1 to 9.3, 10.1 to 10.7, 11.1 to 11.3 of B.V. Limaye

UNIT-IV (18 hrs)
Spectrum of Bounded Operator – Weak and Weak* Convergence – Bolzano-Weierstrass Property –Reflexivity.
Recommended Chapter :III Sec 12.1 to 12.5 Chapter-IV: Sec 15.1 to 15.4, 16.1 to 16.4 of B.V. Limaye

UNIT-V (18 hrs)
Inner Product Spaces – Orthonormal Sets – Bessel's Inequality – Bounded Operators –Normal, Unitary and Self - Adjoint Operators.
Recommended Chapter: VI Sec 21.1 to 21.3, 22.1 to 22.2, 22.4 to 22.7,Chapter-VII: Sec 25.2, 26.1 to 26.3 of B.V. Limaye

PRESCRIBED BOOK:

B. V. Limaye, Functional Analysis, New Age International,1996.

REFERENCE BOOKS

1. W. Rudin Functional Analysis, Tata McGraw-Hill Publishing Company, New Delhi , 1973
2. G.Bachman & L.Narici, Functional Analysis Academic Press, New York, 1966.
3. Goffman and G.Pedrick, First course in Functional Analysis, Prentice Hall of India, New Delhi, 1987
4. Kreyszig, Introductory Functional Analysis with Applications, John wiley & Sons, New York., 1978.
5. M.Thamban Nair, Functional Analysis. A First Course, Prentice Hall of India, New Delhi, 2002

ELECTIVE IV

PAPER TITLE: Calculus of Variations and Integral Equations

SUBJECT CODE :19PMATE04	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 3**	**NO. OF HOURS PER WEEK: 5**

UNIT I **(15 hrs)**

Variational Problems with Fixed Boundaries : The Concept of Variation and Its properties – Euler's equation – Variational Problems for Functionals of the Form $\int F(x, y, y')dx$ - Functional a Dependent on Higher-Order Derivatives – Functional Dependent on Functions of Several Independent Variables – Variational Problems in Parametric Form.

Recommended Chapter-I: Sec 1.1 to 1.6 of A. S. Gupta

UNIT II **(15 hrs)**

Variational Problems with Moving Boundaries: Functional of the Form $[() = \int_1^2 F(x, y, y')dx$– Variational Problem with a x1 Movable Boundary for a Functional Dependent on Two Functions - One sided variations – Reflection and Refraction of Extremals – Diffraction of Light Rays.

Recommended Chapter-II: Sec 2.1 to 2.5 of A. S. Gupta

UNIT III **(15 hrs)**

Integral Equations: Introduction – Abel's Problem – Integral equation – Definition – Linear and non-linear integral equations – Fredholm integral equation of the first kind – Fredholm integral equation of the second kind - Fredholm integral equation of the third kind – Homogeneous Fredholm integral equation - Volterra integral equation of the first kind - Volterra integral equation of the third kind - Volterra integral equation of the second kind - Homogeneous Volterra integral equation – Singular integral equation – Special kinds of kernels – Symmetric kernel – Separable or degenerate kernel – Integral equation of the convolution type – Iterated kernels of functions – Resolvent kernel or reciprocal kernel – Eigenvalues – Eigenfunctions.

Recommended Chapter-I: Sec 1.1 to 1.12 of M. D. Raisinghania

UNIT IV **(15 hrs)**

Conversion of Ordinary Differential Equations into Integral Equations: Initial Value Problems – Methods of Converting an Initial Value Problem into a Volterra Integral Equation – Boundary Value Problems – Examples - Methods of Converting a Boundary Value Problem into a Fredholm Integral Equation.

Recommended Chapter-II: Sec 2.1 to 2.6 of M. D. Raisinghania

UNIT V **(15 hrs)**

Homogeneous Fredholm Integral Equations: Characteristic
Values – Characteristic Functions – Solution of Homogeneous Fredholm Integral Equations of the Second Kind with Separable Kernels.
Recommended Chapter-III: Sec 3.1 to 3.2 of M. D. Raisinghania

PRESCRIBED BOOKS:

1. A. S. Gupta, Calculus of Variations with Applications, Prentice-Hall of India, New Delhi, 1997. (for Units I and II)
2. M. D. Raisinghania, Integral Equations And Boundary Value Problems , S. Chand Publication (for Units III, IV and V)

REFERENCE BOOKS

1. Gupta. S, Calculus of Variations with Applications, Prentice- Hall of India, New Delhi, 2005.
2. Ram P. Kanwal, Linear Integral Equations, Theory and Techniques. Academic Press, New York, 2012.
3. Sudir K. Pundir and Rimple Pundir, Integral Equations and Boundary Value Problems Pragati Prakasam, Meerut, 2005.
4. Anadi Sankar Gupta, Calculus of variations, PHI Learning private Ltd

ELECTIVE V

PAPER TITLE: Stochastic Processes

SUBJECT CODE :17PMATE05	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 3**	**NO. OF HOURS PER WEEK: 5**

UNIT-I (15 hrs)

Introduction – Specification of stochastic processes – Stationary processes – Martingales– Markov chains: Definitions and examples –Higher transition probabilities.
Recommended Chapter II: Sections2.1 – 2.4, Chapter III:Sections3.1 – 3.2of J.MEDHI

UNIT-II (15 hrs)

Classifications of states and chains – Determination of higher transition probabilities.
Recommended Chapter III: Sections 3.4 – 3.5 of J.MEDHI

UNIT-III (15 hrs)

Poisson process - Poisson process and related distributions.
Recommended Chapter IV: Sections 4.1 – 4.2 of J.MEDHI

UNIT – IV (15 hrs)

Properties of generating functions of branching processes Probability of extinction– Distribution of the total number of progeny – Conditional limit laws.
Recommended Chapter IX :Sections 9.1 - 9.5.1of J.MEDHI

UNIT-V (15 hrs)

General concepts – M/M/1 steady state behavior – Transient behaviour (Method of generating function) – Birth and death processes in queuing theory : Multi channel models.
Recommended Chapter X :Sections10.1 – 10.2, 10.3.2, 10.4.1, 10.4.2 of J.MEDHI

PRESCRIBED BOOK:

Stochastic Processes by J. MEDHI, 2nd Edition, New Age International (P) Ltd., 1984.

REFERENCE BOOKS

1. Cinlar.E., Introduction to Stochastic Processes, Englewood Cliffs,Prentice -Hall
2. Srinivasan S.K. and Mehata K.M., Stochastic Processes, 2nd Edition, TataMcGraw Hill, New Delhi, 1988.
3. Taylor H.N. and Karlin S., An Introduction to Stochastic Modeling, Academic Press.

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A - Grade' by NAAC
(Affiliated to the University of Madras)

MASTER OF SCIENCE
(ZOOLOGY)

Syllabus
(For the Candidates admitted in 2019 -2020 and thereafter)

SEMESTER-I

FUNCTIONAL MORPHOLOGY AND PHYLOGENY OF INVERTEBRATES

Core Paper: 1 **Credits:** 4
Teaching Hours: **60**

Objective:
To relate the morphological adaptations with phylogenetic study of Invertebrates.

UNIT I **10 Hrs.**

Levels of organization: Unicellularity vs multicellularity Colonization and organization of germ layers Division of labour and organization of tissues (Brief fate of ectoderm, mesoderm and endoderm) - Development of coelom- Acoelomate- pseudocoelomate and coelomate organization - Radial and bilateral symmetry.

UNIT II **20 Hrs.**

Porifera and Coelenterata: Porifera – Reproduction in sponges and Division of labour (Cell differentiation) - Phylum Coelenterata -Structural Peculiarities of Metridium. Polymorphism; Coral and Coral Reefs and their Theories. Origin of Bilateria; Origin of Metamerism.

Platyhelminthes: Parasitism in Platyhelminthes; Reproduction in Platyhelminthes.

UNIT III **10 Hrs.**

Annelida: Nephridia and Coelomoducts – Adaptive Radiation in Polychaetes.

Arthropoda: Polymorphism; Crustacean larvae and their Significance; Pheromones in insects – Endocrine organs in Crustacea.

UNIT IV **10 Hrs.**

Mollusca: Filter Feeding in Mollusca; Advanced features of Cephalopods; Gastropoda; Adaptive Radiation in Mollusca.

Echinodermata: Larval forms and their Evolutionary Significance.

UNIT V **10Hrs.**

Minor Phyla: Rotifera, Acanthocephala, Ectoprocta, Entoprocta, Phoronida, Brachiopoda, Chaetognatha. Invertebrate fossils. Trilobites and cephalopods. Regeneration in invertebrates.

TEXTBOOK:

1. Barrington, E.J. W. 1969. Invertebrate Structure and Functions. English Language, Book Society.

REFERENCE BOOKS

1. Barnes: Invertebrate Zoology – Toppan International Co.,
2. Hyman L. H. The Invertebrata, Vol. I to IV.
3. Carter, G. S. A General Zoology of Invertebrates, (Sidewick and Jackson Ltd., (London)
4. Borradile, L. A. The Invertebrata. Cambridge University Press.
5. Gardinar, M. S. 1972 Biology of the Invertebrates, Mc Graw Hill Book Co., New York.
6. R. L. Kotpal: Protozoa, Porifera, Coelenterata, Helminthes, Annelida, Arthropoda, Mollusca, Echinodermata and Minor Phyla. Rastogi Publications.
7. Moore, R. C. Lalilcker, C.G. and Fisher, A. G. Invertebrate Fossils, Mc. Graw Hill Book Co., New York.

CELL AND MOLECULAR BIOLOGY

Core Paper: 2 **Credits:** 4
Teaching Hours: 60

Objective: To impart knowledge of genome and signaling concepts in cell and Molecular Biology.

UNIT I **10 Hrs.**

Molecular Techniques: Microscopy (Conventional and Confocal), Cytological techniques, Ultracentrifugation, X-ray diffraction, Chromatography, Electrophoresis, Blotting techniques, and Animal cell / tissue culture- Cell imaging.

UNIT II **15 Hrs.**

Structural organization and function of intracellular organelles: Structure of model membrane, Lipid bilayer and Membrane protein, Diffusion, Osmosis, Ion channels, Active transport, Ion pumps, Mechanism of sorting and Regulation of intracellular transport, Electrical properties of membranes. Structure and function of Cell wall, Nucleus, Mitochondria, Golgi bodies, Lysosomes, Endoplasmic reticulum, Peroxisomes, Plastids, Vacuoles, Chloroplast, Cytoskeleton and its role in motility.

UNIT III **15 Hrs.**

Informational macromolecules: Chemistry of DNA, Polymorphism of DNA, Mechanism and Enzymology of DNA Replication- Role of Helicases, Primases, Nucleases, Ligases and Telomerases. Chemistry of RNA, Different types of RNA- mRNA, tRNA, rRNA and their functions- Mechanism and Enzymology of RNA Replication.

UNIT IV **10 Hrs.**

Information transfer: Genetic code and its characteristic features. Information transfer in prokaryotes and eukaryotes. Transcription – promoters, initiators, terminators. RNA processing – trimming of introns, splicing of exons, Ribozyme.

UNIT V **10 Hrs.**

Cell Signaling: Signaling molecules and their receptors – functions of cell surface receptors – Pathways of intracellular signal transduction.

TEXT BOOK:

1. Cooper: The Cell, A Molecular approach.

REFERENCE BOOKS:

1. David Frifielder: Molecular Biology.
2. Gerald Karp: Cell Biology- Mc GrawHill.
3. Lodish, Berk, Zipursky, Matsudaria and Baltimore, Molecular cell biology IV edition.
4. W.H.Freeman and Company.George M. Malacinski, 2010. Essential of molecular biology Watson: Molecular Biology of the Gene, 4th edition, Narosa publication.

GENETICS – A MOLECULAR APPROACH

Core Paper: 3 **Credits:** 4
Teaching Hours: 60

Objective: To understand the modern concepts of gene, genome, mutation at the molecular level and its functions.

UNIT I **10Hrs.**

Gene Structure and Function: Fine structure of the gene, The Cis-trans test, Phage T4, rII locus, linear set of nucleotide pairs – Colinearity of gene. One gene- One enzyme hypothesis (Neurospora, Eye pigmentation in Drosophila), one gene - One polypeptide concept. The Lactose Operon in *E.coli*. Induction and Repression – Activator and Repressor proteins and their control, Regulatory components of the lac system. Chemical modification of histones - DNA Methylation and Genomic Imprinting, X- Chromosome inactivation in mammals and Mendelian principles.

UNIT II **10Hrs.**

Human Genetics: Cytogenetic mapping Karyotype, Preparation, Banding techniques and importance, Idiogram. Variations in human karyotypes, polygenic inheritance, Genetic counseling. Principles and methods of pedigree analysis.

UNIT III **15 Hrs.**

Molecular basis of Mutation: Radiation induced mutation, chemically induced mutation, mutagens, mutable, mutator genes and mutation frequency - Transposons as mutational elements – Oligonucleotide directed Mutagenesis – PCR directed mutagenesis. Biological repair mechanisms – Direct reversal of damaged DNA, Alkyl transferases and Photolyase. Excision repair and Post replication repair.

UNIT IV **15 Hrs.**

Gene Therapy: Human diseases treated for gene therapy. Virus as vectors, non-viral DNA delivery systems. Embryo therapy, *Ex vivo* therapy, *In vivo* therapy, antisense gene therapy. Target tissue of choice for gene delivery systems. Somatic gene therapy for genetic and acquired diseases. Nanotechnology for drug targeting.

UNIT V **10 Hrs.**

Genomes and Mapping: Human genome project, Goals, Structure of eukaryotic nuclear genome – The repetitive DNA, Microsatellites, minisatellites, Interspersed repeats. Linkage map, Physical map, Restriction map, FISH map – Radiation maps. Tetrad analysis, mapping with molecular markers, mapping by using somatic hybrids. QTL mapping, heritability and its measurements.

TEXT BOOK:

1. Peter J. Russel W.W. Genetics. Benjamin Cummings. 2002. **Website**: www.geneticsplace.com.

REFERENCE BOOKS:

1. Anna.C.Pai: Foundation Genetics, Mc Graw Hill BookCompany.
2. Burns, G.W. - The Sciences of Genetics, Mac millan publications.
3. Gardner: Principles of Genetics. 8th Edition, John Wiley and Sons.
4. Ursula Good enough: Genetics, Saunders College Publishing.
5. Benjamin Lewin Gene VII (2000). Oxford University press.
6 . Griffiths, Gelbart, Lewontin and Miller. Modern Genetic Analysis. W.H. Freeman and Company.
7. P.K.Gupta. Biotechnology and Genomics. Rastogi publications.

ELECTIVE – I – FISH BIOLOGY & FISHERIES

Teaching Hrs: 45 **Credits:** 3

Objective: This subject gives the in depth knowledge about fishes and fish farming.

UNIT I - Introduction of Fish: **10 Hrs.**

Definition – salient features of the fishes - classification- Berg's classification - evolution and phylogeny of fishes. Locomotion due to the Movement of appendages - General principles of locomotion - types of locomotion- special modes of locomotion- Migration in fishes - types of migration - factors influencing fish migration- advantages of fish migration.

UNIT II – Digestion & Respiration: **10 Hrs.**

Food and feeding-food quality-alimentary canal-digestive glands- physiology of digestion-adaptive modifications in digestive tract of fishes-types of gills-structure of gills - specialized cells of gills - mechanism of gill respiration, air bladder and Weberian apparatus.

UNIT III – Reproduction & Pathology: **10 Hrs.**

Role of hormones in reproduction and Induced breeding - maturity stages- morphological and histological observation of gonads - Age determination in fish. F i s h and shrimp (Viral and Bacterial) diseases.

UNIT IV – Fish Genetics & Immunology: **5 Hrs.**

Sex determination in fish – monosex production - hormonal and chromosomal methods - hybridization techniques in aquaculture, androgenesis and gynogenesis- Fish immune system.

UNIT V – Culture and Capture fisheries in India: **10 Hrs.**

Types of culture-Fresh water-Brackish water- Mariculture - Pond culture. Extensive- semi-intensive and intensive- Maintenance of fish hatchery – Live feed culture, larval rearing and nursery rearing-Integrated fish culture-Paddy cum fish - paddy cum prawn. Fresh water prawn culture.

REFERENCE BOOKS:

1. Gupta, S.M., 2010. Text book of fishery, Ann Backer, Mumbai.
2. Hanifa, M.A, 2011. Aquatic resources and aquaculture, Dominent, New Delhi.
3. Pandey.K and Shukla, J.P.2010. Fish and fisheries, Rastogi Publications, Meerut.
4. Parihar, R.P. 1996. A text book of fish biology and Indian fisheries, central publishing house, Allahabad, India.
5. Khanna, S.S., and Singh H.R.2012.A text book of fish biology & fisheries, Narendra publishing house.
6. Baluyut, E. A. (1989). Aquaculture systems and Practices. A selected review Publishing House, New Delhi.
7. Chondar. A (1970). Handbook of breeding of Indian major carps by pituitary harm one injection. Agra Satisdh Book Enterprise.
8. Day. F (1958). Fishes of India, Vol. I and Vol. II. William Sawson and Sons Ltd., London.
9. Jhingran, C. G. (1981). Fish and Fisheries of India. Hindustan Publilcating Co.,India.

PRACTICAL I – INVERTEBRATA, CHORDATA AND FISHERY BIOLOGY

Core Practical: 4 **Credits:**4

Teaching Hours: 60

INVERTEBRATA

1. Identification and study of selected Protozoans and Helminthes of medical importance.
2. Identification and study of sections of certain animals from Coelenterata, Aschelminthes and Annelida to understand the evolution of different types of coelom.
3. Identification and study of Larval Forms from all Major Phyla of Invertebrates.
4. Identification and study of Invertebrate Fossils (specimens).
5. Commercially important invertebrates: Crab, Lobsters, Pearl oyster, Edible Oyster, Mytilus, Sepia and Loligo – their economic importance.
6. Dissection and mounting of Digestive & Nervous system in 1.Gryllotalpa 2. Grasshopper and 3. Sepia (Digestive system)
7. Dissection of the Nervous system in P r a w n.
8. Mounting of Pedicellariae and Aristotle lantern in Sea Urchin.

CHORDATA

1. Identification of important Prochordates, South Indian Fishes, Amphibians, Reptiles, Birds and Mammals.
2. Dissection of aortic arches in Shark.
3. Dissection and Display of Arterial and Venous System, in Teleost fish

FISHERY BIOLOGY

1. Fish Morphology – Morphometric characters: Head Structure, Types of scales in fishes.
2. Identification of: a) Marine, fresh water and estuarine fishes up to species level.
   b) Cultivable prawns.
3. Age determination – Scale method.
4. Observation of maturity stages of gonads and determination of Gonadosomatic index and fecundity.
5. Gut content analysis of some important fishes in relation to feeding habits.
6. Observation of Gears and Crafts.
7. Observation of fish parasites.
8. Observation of Larvivorous fishes and Aquarium fishes.
9. Observation of seaweed species – their economic importance.
10. Observation of Live feed organisms.

STUDY TOUR - Report on field visit for studying the adaptation of animals.

PRACTICAL II: CELL AND MOLECULAR BIOLOGY, GENETICS, MICROBIOLOGY AND ANIMAL PHYSIOLOGY

Core Practical: 5 **Credits:** 4

Teaching Hours: 60

CELL AND MOLECULAR BIOLOGY

1. Cytological techniques

Micrometry: Microscopic calibration and Measurements of cell size using ocular and stage micrometers.

2. Study of different types of Blood cells - Differential count in Man and Fish.

3. Histochemical techniques

Demonstration: Fixation, Dehydration, Embedding, staining (vital staining) and Mounting**.**

Histochemical localization of

a. DNA
b. Lipids
c. Proteins

GENETICS

1. Preparation of culture medium and culture of Drosophila- methods of maintenance.
2. Identification of Drosophila species and mutants.
3. Identification of human blood groups and Rh- typing.
4. Preparation of Human karyotypes- Analysis of Normal and abnormal karyotypes (Down's syndrome, Turner's syndrome and Klinefelter's syndrome).

MICROBIOLOGY

1. Microscopic observation for identification and characterization of microorganisms relevant to theory syllabus.

a. Staphylococcus aureus
b. Escherischia coli
c. Rhizopus
d. Aspergillus niger
e. Aspergillus flavus

f. *Penicillium*
g. *Nostoc*
h. *Oscillatoria*
i. *Volvox*

2. Culture medium and preparation**.**

i. Preparation of peptone water
ii. Preparation of nutrient broth
iii. Preparation of solid media.
1. Slant
2. Stab
3. Plate

3. Simple and Differential staining of bacteria.

ANIMAL PHYSIOLOGY

1. Estimation of Respiratory Quotient in fish with reference to temperature.
2. Oxygen consumption in a terrestrial animal (Cockroach).
3. Salt loss and Salt gain in fish.
4. Estimation of carbohydrates in the tissues of meat.
5. Determination of amino acids in the tissues (Liver / Muscle) of fish/egg albumin (paper chromatography).
6. Principles and applications of the following instruments: Kymograph, Spectrophotometer, Sphygmomanometer and Electrophoretic Unit.

PERSONALITY ENRICHMENT

UNIT I- SELF DISCLOSURE

- Characteristics of self-disclosure
- Self-disclosure benefits and appropriateness
- Self-disclosure and self-awareness
- Self-disclosure and feedback.

UNIT II – ANGER, STRESS AND MANAGING FEELINGS

- The nature of stress
- Managing stress through social support systems
- The Nature of anger
- Guidelines for managing anger constructively
- Dealing with an angry person

UNIT III – INTERPERSONAL EFFECTIVENESS

- Managing anxiety and fear
- Breathing –an antidote to stress
- Progressive muscle relaxation
- Understanding your shyness
- Building one' self esteem
- Avoiding self blame
- Taking risks
- Tolerating failure
- Persisting and celebrating success
- Self talk.

UNIT IV- STUDY SKILLS

- Importance of study environment
- Using VCR3 to increase memory power: visualizing, concentrating, relating, repeating, reviewing
- Memory hindrances
- Memory helpers
- Knowing vs memorizing
- Memory and studying
- The SQ3R method; survey, write questions, read, recite, review
- Mnemonic devices – rhymes – acronyms – pegging
- Cooperative learning.

UNIT V- GOAL SETTING AND MANAGING TIME

- The basis of effective goals
- Steps to be followed to obtain optimum results from goal setting
- Identifying the reasons for procrastination
- Guidelines to overcome procrastination
- Priority management at home and college

REFERENCES

1. Johnson, D.W. *Reaching out – Interpersonal Effectiveness and Self Actualization*. 6th ed. Boston: Allyn and Bacon. 1997.

2. Sherfield, R. M. Montgomery, R.J. and Moody, P, G. *Developing Soft Skills.* 4th ed. New Delhi: Pearson. 2010.

3. Robbins, S. P. and Hunsaker, Phillip, L. *Training in Interpersonal skills. Tips for managing people at work.*5th ed. New Delhi: PHI Learning. 2009.

SEMESTER-II

FUNCTIONAL MORPHOLOGY AND PHYLOGENY OF CHORDATES

Core Paper: 6 **Credit:** 4

Teaching Hrs: 60

Objective: This subject gives the in depth knowledge about the chordates.

UNIT I **10 Hrs.**

Origin of Chordates- Theories. Broad classification of Chordates – Phylogenetic Affinities of Cephalo chordata and Urochordata. Brief account of physiology of digestion in vertebrates and symbiotic digestion in Ruminants.

UNIT II **20 Hrs.**

Evolutionary and structural peculiarities of Cyclostomata and affinities – Petromyzon - Myxine. Elasmobranch evolution – Dipnoi structural peculiarities, Discontinous distribution and their affinities. Coelocanth fishes. Economic importance of fishes. Parental care in fishes.

UNIT III **10 Hrs.**

Aves - Origin and evolution of Mammals critical account of Prototheria, Metatheria and Eutheria. Adaptive radiation in mammals.

UNIT IV **10 Hrs.**

Comparative anatomy- Comparative study of Integumental derivatives, Jaw suspension – Fate of visceral arches. Respiratory organs, External respiration and cellular respiration with reference to human.

UNIT V **10 Hrs.**

Vertebrate kidney, Urinogenital organs, Brain, Heart and Aortic arches. Circulation- Types of circulating fluids; Water, coelomic fluid, lymph and blood.

TEXT BOOK:

Newman, The Phylum Chordata, Mac Millan and Co.

REFERENCE BOOKS:

1. Colbert, E.H. Evolution of Vertebrates. Wiley Eastern Limited.
2. Hyman, L.H – Comparative Vertebrate Zoology. University of Chicago Press.
3. Romer, A.S. Vertebrate body. Saunders Company.
4. Young, J.A- Life of Vertebrates. Oxford press.
5. Waterman, A.J – Chordate structure and Function. Mac Millan and co.

COMPARATIVE ANIMAL PHYSIOLOGY

Core Paper: 7 **Credits:** 4

Teaching Hrs. 60

Objective: To enlighten the functional aspects of organ system in the body of animal and man.

UNIT I **15 Hrs.**

Blood and circulation: Blood Corpuscles, Haemopoiesis and formed elements, plasma function, blood volume, blood volume regulation, blood groups, hemoglobin, immunity and Hemostasis.

UNIT II **10 Hrs.**

Cardiovascular system: Comparative anatomy of heart, myogenic heart - Specialized tissue, ECG- its principle and significance, cardiac cycle, heart as a pump and blood pressure.

UNIT III **10 Hrs.**

Respiratory system: Comparison of respiration in different species, anatomical considerations, transport of gases, exchange of gases, waste elimination, neural and chemical regulation of respiration.

UNIT IV **15 Hrs.**

Nervous system: Neurons, action potential, gross neuro-anatomy of the brain and spinal cord, central and peripheral nervous system, neural control of muscle tone and posture.
Excretory system: Comparative physiology of excretion, kidney, urine formation, urine concentration and waste elimination.

UNIT V **10 Hrs.**

Endocrinology and reproduction: Endocrine glands, basic mechanism of hormone action, hormones and diseases; reproductive processes, neuroendocrine regulation.

TEXT BOOK:

1. Hoar, W.S. General and Comparative Physiology.

REFERENCE BOOKS:

1. David Saunders: An Introduction to Biological Rhythms.
2. K. Nagabushanam, M.S.Kodarkar and R.Sarojini: An Introduction to Animal Physiology.
3. Prosser C.L.Comparative animal physiology.
4. Schmidt-Nielson: Animal physiology.

MICROBIOLOGY

Core Paper: 8 **Credits:** 4

Teaching Hrs: 60

Objectives:

- To understand the structural details of the microbes and correlate with microbial diseases.
- To understand the role of microbes in the environment and in the field of food production, biotechnology etc.

UNIT-I **15 Hrs.**

History and Scope: Milestones in Microbiology- Microbial Taxonomy- Classification system- Phennetic- Numerical- phylogenetic. Major characteristics- Classical and molecular, phylogenetic tree, Domain kingdom- DNA and ribosomal RNA analysis. Characterization and identification – Serological and Gene probe method. Morphology-Ultra structure of Bacteria, Fungi and Viruses- Bacterial physiology- Growth and Nutrition-Nutritional requirements - Kinetics of growth. Enumeration of bacteria – Viable plate count-MPN procedure.

UNIT-II **10Hrs.**

Medical microbiology- Pathogenic Microbes in Bacterial- Tuberculosis, Whooping cough and Tetanus. Viral- Measles, Hepatitis and HIV. Fungal- Candidiasis. Protozoan- Amoebiasis and Malaria. Cure, Control and Prevention.

UNIT-III **10Hrs.**

Microbial Ecology and Environmental Microbiology- Role of microorganisms in Carbon, Nitrogen and Sulphur cycle. Population interaction – Commensalism, Co-metabolism, Epiphyte, Synergism, Mutualism, Competition, Predation and Parasitism.

UNIT-IV **10 Hrs.**

Food and Dairy Microbiology- Microbes in food, Role of microorganisms in food production, Dairy and Non-dairy-Fermented food and Alcoholic beverages. Microorganisms and Food spoilage.

UNIT-V **15 Hrs.**

Industrial Microbiology- Industrial uses of microbes- Fermentation products. Production of Penicillin, Ethanol, Vinegar, Vitamin B_{12}, Citric acid and Protease. Methods of Immobilization: Types of Reactors: Animal and Plant Cell Bioreactors.

TEXT BOOK:

1. Michael. J. Pelczar Jr, Chan. E.C.S, Kriej, Noel.R. Microbiology. Tata Mac Grawhill.

REFERENCE BOOKS:

1. Dubey, R.C. and Maheswari, D.K, A text book of Microbiology.
2. Lansing, M. Prescott, John P.Harley and Donald A. Klein. Microbiology Mc Graw Hill(1999):
3. Patel, A.H. - Industrial Microbiology (2001). MacMillan India Limited.
4. Powar and Daginwala: General Microbiology - Vol II Microbiology-fourth edition.
5. Ronald, M. Atlas, Principles of Microbiology (1997)
6. Sharma. P.D, Microbiology- A text book for university students.

ELECTIVE – II AQUARIUM FISHES

Teaching Hrs: 45 **Credits:** 3

Objective:

- To provide basic information on common aquarium fishes of India and its export potential.

UNI TI **10Hrs**

Introduction: Taxonomy and biology of some common Fresh water and Marine Ornamental Fishes.

UNIT II **5 Hrs.**

Food and Feeding Management: Live feed organisms (Daphnia, Tubifex, Cyclops, Brachionus and Chlorella.) - Formulated feed (Freeze dried tubifex, liver and vegetable food.) – Preparation of commercial feed and quality assessment.

UNIT III **10 Hrs.**

Aquarium Keeping and Management: Setting up of an aquarium tank – Selection of stone and gravel – Decors - Aquarium plants – Water quality management – Aeration – Illumination devices - Salinity – pH - Temperature maintenance – Filtration (Mechanical and Biological filters). Safety measures and devices for maintenances.

UNIT IV **10 Hrs.**

Breeding techniques and Health assessment: Development of brood stocks – Selection of brood fishes - Breeding of Egg layers and Live bearers – Common diseases of aquarium fishes and their control – Microbial: Bacterial, Viral and Fungal diseases; Non – microbial – Protozoans, Trematodes, Cestodes, Nematodes and Crustaceans.

UNITV **10Hrs**

Prospects of ornamental fishes: Export and industrial importance - Hobby and household industry – List of fresh water and marine ornamental fishes available in India for export with its indicative prices - Role of women in ornamental fish culture.

TEXT BOOK:

1. Donald Wilkie, Aquarium fish (1985). Pelhem Book, Ltd.

REFERENCE BOOKS:

1. Boulenger, E.G., Keep an Aquarium (1939).
2. Dey V.K., Ornamental fishes-MPEDA Hand book ofAquafarming
3. Harvey Jack Hims. Georg, F., A guide to fresh water Aquarium fishes. Hamylnn publications, 1973.
4. Gregory C. Bateman, Fresh water Aquaria - 7th edition. Revised by JackHen. 5. Hornell, J.Guide to Madras aquaria (1921).
6. John G. Shedd, Aquarium (1933).
7. Stephen Spotte, Marine Aquarium keeping. The Science, Animals and Art. (1973).John Wiley &Sons.
8. William T. Innes, The aquarium (1932).
9. Robert Goldstein, Diseases of aquarium fishes (1971). T.F.H.Publication.

WORKPLACE COMMUNICATION SKILLS

UNIT I - GOAL SETTING

- SMART Goals
- Blue print for success
- Short Term, Long Term, Life Time Goals

UNIT II TEAM BUILDING AND WORKING

- Team Work – necessity
- Personal, Social and Educational

UNIT III EMOTIONAL INTELLIGENCE

- Definition
- Emotional quotient
- Importance of Emotional Intelligence
- Emotion Scales
- Managing Emotions

UNIT IV - CREATIVITY

- Out of the box thinking
- Lateral Thinking
- Stimulating innovation and change

UNIT V - DECISION MAKING & EMPOWERMENT

- Importance and necessity of Decision Making
- Process and practical way of Decision Making
- Weighing Positives & Negatives
- Power tactics
- Coalition
- Managerial empowerment
- Entrepreneurship

REFERENCE

1. *Covey Sean, Seven Habits of Highly Effective Teens, New York, Fireside Publishers, 1998.*
2. *Carnegie Dale, How to win Friends and Influence People, New York: Simon & Schuster, 1998.*
3. *Thomas A Harris, I am ok, You are ok , New York-Harper and Row, 1972*
4. *Daniel Coleman, Emotional Intelligence, Bantam Book, 2006*

SEMESTER-III

DEVELOPMENTAL BIOLOGY

Core Paper: 9 **Credits:** 4

Teaching Hours: 60

Objective:

- Developmental biology helps to understand the ontogeny of animals.

UNIT-I **15Hrs**

Basic concepts of development: Potency, commitment, specification, induction, competence, determination and differentiation; morphogenetic gradients; cell fate and cell lineages; stem cells; genomic equivalence and the cytoplasmic determinants; imprinting; mutants and transgenics in analysis of development.

UNIT-II **15Hrs**

Gametogenesis, fertilization and early development: Production of gametes, cell surface molecules in sperm-egg recognition in animals; embryo sac development and zygote formation, cleavage, blastula formation, embryonic fields, gastrulation and formation of germ layers in animals.

UNIT-III **10Hrs**

Human Embryonic Development: Hormonal control of ovulation and pregnancy- development of germinal layers, foetal and maternal relationships- embryonic mutation – partition- embryonic adaptation and the development of mammals. Spermatozoa- Human embryo- Prenatal diagnosis- Medical implication of developmental Biology.

UNIT-IV **10 Hrs**

Gene activity: Gene activity during Gastrulation- Involvement of paternal the core genes in the development.

UNIT-V **10 Hrs**

Application of modern techniques in Developmental Biology: IVF in Human cryopreservation, human cloning and its ethical implications, embryo transfer and developmental potential.

TEXT BOOK:

1. Balinsky B.I., An introduction to Embryology. (1981) Saunders, Philadelphia.

REFERENCE BOOKS:

1. M.J. Berrill–Developmental Biology. (1986) Tata Mc Graw Hill, publications Ltd.
2. Raven: An outline of developmental physiology. Porgamanpress.
3. Robert S.Rugh: The frog Reproduction. (1951) Tata Mc Graw Hill publications Ltd.
4. P.K.Gupa, Biotechnology and genomics.

ENTOMOLOGY

Core Paper: 10 **Credits:** 4
Teaching Hours: 60

Objective:

- To study about the insects and their habitats and physiology.
- To study about the economic importance of insects.

UNIT I **10 Hrs.**

Biology of an insect with special reference to the following: Nutrition, Development, Reproduction and Endocrinology. Insects and their interrelationships with environments (Interspecific and Intraspecific).

UNIT II **10 Hrs**

Insects as pollinators, predators, parasitoids, scavengers and weed killers. Biology of Honeybees, Lac insects and their management. Prospects of Sericulture, Biology of Silkworm (Nutrition, Genetics, Endocrinology, Reproduction, Pest and Diseases).

UNIT III **15 Hrs**

Insects as crop pests: Types of injuries and loss caused to plants in general factors governing the outbreak of pests. Pests of rice, sugarcane, coconut, vegetables and stored products.

UNIT IV **15 Hrs**

Methods of pest control- Natural control-Applied or Artificial control- Prophylatic methods- Curative or Direct method- Cultural methods- Mechanical method, Physical method- Biological methods-Chemical methods- Attractants, Repellents,and Antifeedants.

UNIT V **10 Hrs**

Pesticide – Classification of Insecticides- Inorganic Compounds- Organic compounds, Synthetic organic compounds. Plant protection appliances- Dusters and Sprayers, Aircraft and Other equipments. Integrated Pest Management. Synthetic organic compounds. Plant protection appliances- Dusters and Sprayers, Aircraft and Other equipments. Integrated Pest Management.

REFERENCES:

1. The Science of Entomology. William S. Romoser and John G. Stoffolano. Wm. C. Brown Publishers, England.1994.
2. The Silkwonn. An important laboratory tool. By Yataro Tazima, Kodarsha, Scientific Book Ltd., Japan.1978.
3. Sericulture Manual: FAD, Agril, Service Bulletin,Rome.
4. Applied Entomology: P. G. Fenemore, Allaprkash, Wiley Eastern Ltd., Delhi.1992.
5. Park, J. E and K. Park. Textbook of social and preventive medicine. Publ. Mis. Banarasides Bharol.Jabalpur.
6. Nayar, K. K, Ananthakrishnan, T. Nand B. V. David. General and Applied Entomology. Tata McGraw Hill Publ., New Delhi.1989.
7. Entomology and Pest Management. Larry, P. Pedigo Prentice Hall, New Jersey.1989.

ELECTIVE – III ENVIRONMENTAL BIOLOGY

Credits: 3

Teaching Hours: 45

Objective:

- To study the interaction between living organism and the environment.

UNIT I **10Hrs.**

The Environment: Physical environment; biotic environment; biotic and abiotic interactions. Major Biomes with special reference to rain forest, high altitudes, Deserts and Mangroves.

UNIT II **10 Hrs**

Marine habitat: Zonation of Sea Nekton and Benthos. Population ecology: Characteristic of a population, population growth curve, Concept of metapopulation, age structured Populations.

UNIT III **10Hrs.**

Biodiversity: Status, major drivers of biodiversity change; biodiversity management, approaches and conversation, Types of Environmental pollution - Air , Water, Industrial and Noise, their Biological effects and Control measures.

UNIT IV **10 Hrs.**

Community Ecology: Nature of communities; community structure and attributes; levels of species diversity, Edges and Ecotones. Ecosystem structure and function; energy flow and mineral cycling.

UNIT V **5Hrs**

Radiation Ecology: Radiation Ecology and its effects on biosphere.

TEXT BOOKS:

1. Anantha krishnan, T.N., Bioresources Ecology. (1982) Oxford- IBH Publishing Co, New Delhi.
2. Theodosis Dobzhansky,Francisco J .Ayala, G. Ledyard Stebbins, James W.Valentine, Evolution (1977) W.H.Freeman and Co.

REFERENCE BOOKS:

1. Began M.J.L.Harper and C.R.Town Send (1990), Ecology, individuals, populations and communities. Blackwell Scientific Publication, London.
2. Clarke, G. L., Elements of Ecology (1954), John Wiley, NewYork.
3. Odum .E.P. Fundamentals of Ecology (1971) 3rd Edition, W.B.Saunder Co, Philadelphia.
4. Elton,C. Animal Ecology, (1971), Metheun company.
5. Rastogi, V.B. and Jayaraj, M. S., Animal ecology and distribution of animals,

ELECTIVE - IV BIOPHYSICS AND BIOSTATISTICS

Credits: 3

Teaching Hours: 45

Objective:

- To highlight the statistical applications in biological sciences and to enhance the principles of physics in biology.

UNIT-I **5 Hrs**

Principles of Light Microscopy, Electron Microscopy and their applications; Principles and methods of Histology and Histochemistry, Freeze-drying, Freezing Microtome and Cryostat.

UNIT-II **10Hrs**

Electronic configuration of an atom: Vander Waal's forces – Hydrophobic and hydrophilic interactions; Principles and different types of Chromatography and Electrophoresis; Principles and applications of Colorimetry, Spectroscopy, Ultra violet and Infrared Spectroscopy in Biological investigations.

UNIT-III **10Hrs.**

Phenomenon of Radioactivity: Isotopes and their use in biological investigations. Biological effects of radiation- Determination and measurement of radio activity-Geiger Muller and scintillation counter- Biological applications of radio isotopes and autoradiography.

UNIT-IV **10 Hrs.**

Sampling and Sampling Designs: Definitions – Theoretical basis Laws – Methods. Sampling and Non-sampling errors. Variables-Qualitative and Quantitative, Discrete and Continuous. Types of classification-Qualitative and Quantitative. Qualitative - Chronological, Geographical etc, Quantitative –Frequency distribution, Discrete and Continuous frequency distribution. Diagrammatic and Graphical representation of Data - Bar diagrams-Pie diagrams- Cartograms. Frequency distribution-Histograms, Frequency Polygon and Frequency Curve.

UNIT- V **10 Hrs**

Measures of Central tendency: Arithmetic Mean, Median and Mode. Definition and computation for different types of data (ungrouped, discrete and continuous frequency distribution). Measures of Dispersion: Standard deviation- ungrouped data, discrete and continuous frequency distribution. Correlation- Definition and Types, Scatter diagram, Computations of Karl Pearson's coefficient of correlation, Students " t" test and Chi square analysis.

TEXT BOOKS:

1. Dr.S.P.Gupta, Statistical Methods. (1984) Sultan Chand and Sons, New Delhi.
2. M.A Subramanian, Biophysics Principles and Techniques (2005), MJP Publishers.

REFERENCE BOOKS:

1. Pillai, R.S.N.and Bagawathi.V Statistical Theory and practice(1989).
2. Sokal, R.R and Roulf, F.J - Biometry. The Principles and Practice of Statistics in Biological Research.(1969).

PRACTICAL-III DEVELOPMENTAL BIOLOGY, ENTOMOLOGY AND ENVIRONMENTAL BIOLOGY

Core–Practical - 11
Teaching Hours: 60 **Credits: 4**

DEVELOPMENTAL BIOLOGY

1. Oogenesis and Spermatogenesis– Histological studies in mammals.
2. Study of life cycle of *Drosophila melanogaster* and record its developmental stages (Egg, larvae, pupal and adult stages).
3. Study of life cycle of frog and record its developmental stages (Egg, tadpole, young adult with tail and adult stages).
4. Demonstration: Induced ovulation and fertilization in frog or fish.
5. Egg density in frog/fish.
6. Mounting of Chick embryo (24 Hrs, 48 Hrs, 72 Hrs, and 96 Hrs).

ENTOMOLOGY

1. **Taxonomy:** Identification of insects of orders Odonata, Orthoptera, Blattodea, Mantodea, Isoptera, Hemiptera, Thysanoptera, Neuroptera, Coleoptera, Diptera, Lepidoptera and Hymenoptera.
2. **Control**: Insecticide formulations and mixtures, common natural enemies of crop pests (parasitoids, predators and microbes)
3. **Storage Entomology**: Collection, identification and familiarization with the stored grains/seed insect pests and nature of damage caused by them.
4. **Plant protection appliances**: Dusters and sprayers.

ENVIRONMENTAL BIOLOGY

1. Identification of freshwater and marine planktons.
2. Study of rocky, sandy, muddy shore fauna, Marine and Fresh water fauna and their adaptations.
3. Determination of hydrobiological features of different samples – (freshwater, brackish water, seawater and polluted water)-pH, salinity, free-carbon dioxide dissolved oxygen and calcium.
4. Analysis of macro and microorganisms in soil, soil litter of the Guru Nanak College campus.
5. Animal associations- parasitism, mutualism and commensalism
6. Study of termitarium (demonstration).
7. Earthworm population estimation.
8. Analysis of industrial effluent for TDS, TSS, BOD and COD. (Demonstration)
9. Study of fauna in their natural habitats by visiting places of zoological interest.

PRACTICAL - IV

IMMUNOLOGY AND BIOCHEMISTRY

Core – Practical–12 **Credits**: **4**
Teaching Hours: 60

IMMUNOLOGY

1. Haemagglutination - Quantitative analysis – haemagglutination titration.
2. Preparation of Antigen; RBC-Demonstration.
3. Immuno-Electrophoresis - Demonstration.

BIOCHEMISTRY

1. Estimation of protein by Lowry's method from fish tissues.
2. Estimation of carbohydrates by Anthrone method from fish tissues.
3. Estimation of lipids by Zak's method from fish tissues.
4. Amino acid detection by TLC method.
5. Blood: Clotting time and bleeding time.
6. Estimation of hemoglobin.
7. Erythrocyte Sedimentation Rate (ESR) – Chick.

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STUDY TOUR

Report on the physiological and ecological adaptations of animals through field visit

ED-1: MATERNITY AND CHILD CARE

Total Hrs: 45 **Credit:** 3

Objective:

- To orient the students regarding the care during pregnancy.
- To orient the students about the care given to the new born.

UNIT I **10 Hrs.**

Structure and functions of Reproductive organs in male and female – Structure of a mammalian sperm – longevity – Morphology and cyclic changes of ovary – uterus – vagina and mammary glands during menstrual cycle – hormonal changes – puberty – menarche – menopause.

UNIT II **5 Hrs.**

Formation of gametes – spermatogenesis – spermiogenesis – oogenesis – structure of human ovum– Ovulation – Role of hormones.

UNIT III **10 Hrs.**

Fertilization – types – mechanism – chemotaxis – capacitation – Acrosomal reaction – activation of ovum – cortical reaction – amphimixis – monospermy, polyspermy – implantation – development of foetus – Birth of identical and non- identical twins – Siamese twins.

UNIT IV **10 Hrs.**

Pregnancy – maternal body changes – Test for pregnancy – parturition – Role of hormones – Birth control – necessity for birth control – contraceptive devices – Infertility – causes

UNIT V **10 Hrs.**

Medical diagnosis for healthy new born child, Vaccination schedule, Nutrition for 0 months to 1 year of baby, Theories of Child Behavior – Language Theories – Emotional Theories – Learning Theories – Intellectual Theories – Psycho-Social Theories – Personality Theories – Moral Theories

- Implications of Theories.

TEXT BOOK:

1. Inderbir Singh and Pal, G.P. 2005. Human Embryology, 7th
2. Berk, L.E., (2000), Childhood to Adolescence, Mc.Graw Hill Company, London
3. Berk, L.E., (2007), Development through the life span, Pearson Educational, New Delhi
4. Briyastava, K.K, (2003), Principles of Guidance and Counseling, Kanishka Publishers and distributors, New Delhi
5. Dash, D.N., (2003), Guidance and Services in Schools, Dominant Publishers and distributors, New Delhi

ED-2: RESEARCH METHODOLOGY

Total Hours: 45 **Credits:** 3

Objective:

- To acquire the knowledge on research and use of various tools and techniques in research.

UNIT-I **5 Hrs.**

Foundations of Research: Meaning, Objectives, Motivation, Utility. Concept of theory, empiricism, deductive and inductive theory. Characteristics of scientific method – Understanding the language of research – Concept, Construct, Definition and Variable.

UNIT-II **10 Hrs.**

Problem Identification and Formulation – Research Question – Investigation Question – Research Design: Concept and Importance in Research – Features of a good research design – Exploratory research Design – concept, Types and Uses, Descriptive research design – Concept, Types and Uses. Experimental design: Concept of Independent and Dependent variables.

UNIT-III **10 Hrs.**

Data Analysis: Data Preparation- Univariate analysis (frequency tables, bar charts, pie charts, percentages). Bivariate analysis- Cross tabulations and Chi-square test including testing hypothesis of association.

UNIT-IV **10 Hrs.**

Interpretation of Data and Paper Writing – Layout of a Research Paper, Journals in Computer Science, Impact factor of Journals, When and where to publish and Research ethics: Ethical issues related to publishing, Plagiarism and Self-Plagiarism. Use of Encyclopedias, Research Guides, Handbook. Academic Databases for Computer Science Discipline.

UNIT-V **10 Hrs.**

Use of tools / techniques for Research: methods to search required information effectively, Reference Management Software like Zotero/Mendeley, Software for paper formatting like LaTeX/MS Office, Software for detection of Plagiarism Biopiracy.

Books Recommended:-

1. Business Research Methods – Donald Cooper & Pamela Schindler, TMGH, 9th edition
2. Business Research Methods – Alan Bryman & Emma Bell, Oxford University Press.
3. Research Methodology – C.R.Kothari
4. Select references from the Internet

SECOND YEAR – THIRD SEMESTER

SELF & TIME MANAGEMENT SKILLS

UNIT I- STRESS MANAGEMENT

- Definition of Stress
- Types of Stress
- Symptoms
- Stress coping ability
- Stress inoculation training
- Techniques to manage Stress

UNIT II - CRISIS &CONFLICT MANAGEMENT SKILLS

- Definition of Crisis
- Ways to overcome Crisis
- Critical Thinking & Innovation
- Problem Solving
- Types of conflict
- Conflict stimulation
- Conflict resolution – Approaches

UNIT III - INTERPERSONAL SKILLS

- Group decision making
- Types of leadership
- Emotional intelligence
- Effective leadership
- Negotiation skills

UNIT IV-TIME MANAGEMENT

- Concept
- Limitations
- Attendance, Self-Discipline & Punctuality
- Adherence to Time
- Maintaining Work/Life Balance

UNIT V-SELF-ACTUALIZATION

- SWOC Analysis
- Self-Regulation
- Self-Evaluation
- Self-Management
- Self-Monitoring
- Self-Criticism
- Self-Motivation
- Self Esteem
- Importance of Self Confidence

REFERENCE

1. Wentz, Fredrick H. Soft skills Training – A workbook to develop skills for employment by, Create Space Independent Publishing Platform; Large edition. May 14, 2012.

2. Mitra, Barun K. Personality Development and Soft skills, Oxford University Press. 2011.

3. Mackenzie, Alec R. The Time Trap: The Classic book on Time Management New York: AMACOM Books.2009.

SEMESTER-IV

BIOCHEMISTRY

Core Paper: 13 **Credits:** 4

Teaching Hours: 60

Objective: To train the students to apply the principles for a better understanding of biological phenomena and to impart knowledge.

UNIT I **10 Hrs**

Nature of living matter- Biomolecules, pH, Buffers. Enzymes –Mechanism of enzyme action, coenzymes, classification and functions. Isoenzymes, Apoenzymes, Holoenzymes –Enzyme kinetics.

UNIT II **10 Hrs**

Clinical Biochemistry - Test for Liver function, Serum bilirubin, Classification of Jaundice, Bile acids and Bile salts, Tests based on the metabolic capacity of liver, Tests based on synthetic function of liver. Gastric function – Mechanism of HCl secretion.

UNIT III **15 Hrs**

Proteins-Classification based on structure and solubility- Protein metabolism- Amino acid metabolism- Oxidative Deamination, Transamination, Decarboxylation, Demethylation Reaction, Structure of Haemoglobin, Haemoglobinopathies.

UNIT IV **10 Hrs**

Lipids- Classification –Structure and Properties, Steroids-Cholesterol and Sex hormones. Lipid metabolism-Metabolism of fatty acids and glycerol, Coronary Artery Disease.

UNIT V **15 Hrs**

Bioenergetics- Electron Transport Chain, Laws of Thermodynamics. Metabolism of Xenobiotics –Detoxification – Definition – Mechanism – Phase I Oxidation, Reduction, Hydrolysis –Phase II Conjugation Reaction - Glucuronic acid, Glutathione , Sulphate, Acetate and Methyl group.

TEXT BOOK:

1. Ambika Shanmugam: Fundamentals of Biochemistry for Medical Students.

REFERENCE BOOKS:

1. J.L.Jain:Fundamentals ofbiochemistry(1983).
2. Lehninger,A.L.(1970):Biochemistry, worth publishingco.,N.Y.
3. Lubert stryer: Biochemistry- (1975) Freeman andco.
4. D.W.Martin,P.A.Mayer and V.W.Redwell:Harper ″s Review of biochemistry 19th edition(1983).Maruyen AsianEdition.

IMMUNOLOGY

Core Paper: 14 **Credits:** 4
Teaching Hours: 60

Objective: To gain knowledge about the human immune system and Immune Deficiency Diseases.

UNIT I **10Hrs**

Scope of Immunology – Types of Immunity - Innate and Acquired, Passive and Active. Primary and Secondary Lymphoid Organs – Structure and Function of Bone Marrow, Thymus, Spleen, Bursa of Fabricius, GALT, BALT, MALT and Lymph Nodes. Cells of Immune System – Origin and Differentiation of T & B Cells and Macrophage.Antigens – Class Determinants – Reactive Sites and Receptor Sites

UNIT II **10 Hrs**

Major Histo-compatibility Complex (HLA) and its Products in Man. Transplantation Immunology, Tumour Immunology – Immune Deficiency Diseases – AIDS – Autoimmune Diseases – Examples – Concept and Mechanisms – Types of Hypersensitivity.

UNIT III **10Hrs**

Antibody – Immunoglobulin – Primary Structure – Classes, Functions, Synthesis. Hybridoma technology Monoclonal Antibodies and their Applications. Genetic Mechanisms in Generation of Antibody Diversity – Regulation of antibody Diversity. Complement – Classical and Alternative Pathways and Immunological Significance – Antigen antibody reaction.

UNIT IV **15 Hrs**

Cancer: Genetic rearrangements in progenitor cells - oncogenes - tumor suppressor genes - cancer and the Cell cycle. Virus-induced cancer – Metastasis - Interaction of cancer cells with normal cells. Apoptosis - Therapeutic interventions of uncontrolled cell growth.

UNIT V **15Hrs**

Mediated immune responses, primary and secondary immune modulation, the complement system, Toll- like receptors - Cell-mediated effector functions - Inflammation - Hypersensitivity and autoimmunity, immune response during bacterial (tuberculosis), parasitic (malaria) and viral (HIV) infections, congenital and acquired immunodeficiencies, Vaccines.

TEXT BOOK:

1. T.A. Brown – Gene cloning an Introduction (1995), Third edition Stanley Thornes Publishers.

REFERENCE BOOKS:

1. Benjamin Lewin Gene VII (2000) Oxford Universitypress.
2. Desmond S.T.Nicholl- An introduction to Genetic Engineering (1996) – Cambridge Universitypress.
3. Purohit-Biotechnology.
4. Schlegel- Genetic Engineering.
5. R.W.Old and S.B.Primrose Principles of Gene Manipulation (1994).VEdition BlackwellScience.

ELECTIVE V- EVOLUTION OF LIFE

Credits**: 3**

Teaching Hours: 45

Objective:

- To explore the process and product of evolution since nothing in biology makes sense except in the light of evolution.

UNIT-I **5 Hrs.**

Evolutionary Thought and Causal Factors: Neo- Lamarckism- Neo- Darwinism; Adaption, struggle, fitness and natural selection.

UNIT-II **10 Hrs.**

Cosmic Evolution and Origin of Life: Origin of life- Pre-biotic, Organic compounds- Nature of proto- cells- Evolution of prokaryotes- Origin of eukaryotes- Origin of mitosis and sex. Origin of unicellular and multicellular organism.

UNIT-III **10 Hrs.**

Paleontology: Geological time scale- Fossil records (nature; conditions and dating) - Man in the fossil records- mass extinction.

UNIT-IV **10 Hrs.**

Selection in Action natural selection: (Normalising; Diversifying; Disruptive) and Genetic Polymorphism- Gene Pool and Hardy- Weinberg equilibrium- genetic drift- Animal colouration and mimicry- Micro and Macro evolution. Adaptation, Pre - adaptation and Post-adaptation.

UNIT-V **10 Hrs.**

Adaptation, Speciation, Man and Natural Selection: Adaptive radiation in reptiles and mammals- Convergence- Parallelism -Co-evolution- evolutionary constancy- speciation and Isolating mechanisms- Hybridization as an evolutionary catalyst- Evolutionary genomics- Human races- Sociobiology (Scope, selfish gene, altruism, kin selection) - Man and Natural selection- Evolutionary future of mankind.

TEXT BOOKS:

1. Darwin, C.R. 2000. On the Origin of species by means of natural selection (Revised edition) Collier Books, New York.

REFERENCE BOOKS:

1. Dodson, E.O. 1990. A Text Book of Evolution, W.B. Saunders, Philadelphia.,
2. Lull.R.S.1984.Organicevolution,Seemapublication.

SPOKEN AND PRESENTATION SKILLS

UNIT – I

- Body Language
- Kinesics, Proxemics, Para linguistic, Chronemics,
- Nuances of Speech Delivery.
- Personality Development: Building self-esteem.

UNIT – II

- Team work and participating in group discussions
- Team building and Team work
- Team briefing
- Role of Team leader
- Conflict resolution
- Methodology of Group discussions
- Role Functions in Group Discussion
- Types of Non – functional Behavior
- Improving group performance.
- Participating in Mock group discussions.

UNIT – III

- Interviews
- Types of Interviews
- Preparing for interviews
- Facing interviews
- Reviewing performance
- Participating in mock interviews.

UNIT – IV

- Etiquettes for Public Speaking (extempore and lectures)
- Telephone Conversations and Business Meetings

UNIT – V

- Business Presentations
- Preparing successful presentations
- Thinking about audience
- Making effective use of visual aid
- Delivering presentation-using prompts, dealing with questions and interruptions
- Mock presentations.

REFERENCE

1. *Peter, Francis. Soft Skills and Professional Communication. New Delhi: Tata McGraw Hill. 2012.*
2. *Singh, Prakash and Raman, Meenakshi. Business Communication. New Delhi: Oxford UP. 2006.*
3. *Bailey, Edward P. Writing and Speaking at Work: A Practical Guide for Business Communication. Pennsylvania: Prentice Hall. 2007.*
4. *Pease, Allan and Peas, Barbara. The Definitive Book of Body Language. New York: Random House. 2006.*
5. *De Bono, Edward.1993. Serious Creativity.Re print.Harper Business. 1993.*

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A - Grade' by NAAC
(Affiliated to the University of Madras)

MASTER OF COMMERCE
(M.Com. GENERAL)

Regulations and Syllabus
(For the Candidates admitted in 2019 - 2020 and thereafter)

SEMESTER SYSTEM WITH CREDITS

(Effective from the Academic year 2019-2020 and thereafter)

RULES AND REGULATIONS

I. CHOICE BASED CREDIT SYSTEM (CBCS) WITH GRADING

The College follows the CBCS with grades under the semester pattern. Every course paper is provided with a credit point based on the quantum of subject matter, complexity of the content and the hours of teaching allotment. This is done after a thorough analysis of the content of each subject paper by the members of the Board of studies and with the approval of the Academic Council. Students are also offered a variety of Job-oriented courses, Elective courses and courses involving Soft-skills as the part of curriculum. Students can earn extra credits by opting for Massive Open Online Courses (MOOCs) and Certificate Courses.

The evaluation method under CBCS involves a more acceptable grading system that reflects the personality of the student. This is represented as Cumulative Grade Point Average (CGPA) and Grade Point Average (GPA) which are indicators of Academic Performance of the student. It provides students scope for horizontal mobility and empowers them with the flexibility of learning at their convenience.

II. ELIGIBILITY FOR ADMISSION

Candidates admitted to the first year of the UG programme should have passed the higher secondary examinations (Academic or Vocational Stream) conducted by the Government of Tamil Nadu or an examination accepted as equivalent thereof by the Syndicate of the University of Madras. Students applying for the PG programme should have taken the UG degree in the concerned subject from a recognized university as per the norms of the University of Madras.

III. DURATION OF THE COURSE

The UG course is of three-year duration with six semesters and the PG course is of two-year duration with four semesters excluding MCA – three-year duration with six semesters. The odd semester includes the period from June to November and the even semester from December to April. There shall not be less than 90 working days for each semester.

IV. COURSE OF STUDY

The main subject of study for Bachelor's Degree shall consist of the following:

1. FOUNDATION COURSES

a) PART - I : Tamil or Classical Language (Hindi / Sanskrit/French)

b) PART - II : English

2. CORE COURSES

a) PART - III : Consisting of (a) Main subjects, (b) Allied Subjects, (c) Elective subjects related to the main subject of study and project work.

b) PART - IV

i. Those who have not studied Tamil / Hindi up to XII standard and have taken a non- Tamil / non – Hindi language under Part – I shall opt for Basic Tamil / Basic Hindi in the first two semesters.

ii. Those who have studied Tamil up to XII standard, and taken a non -Tamil language under Part – I shall opt for Advanced Tamil in the first two semesters.

iii. Others, who do not come under either of the clauses mentioned above, can choose a Non-Major Elective (NME) in the first two semesters.

iv. Soft Skills. (I, II, III&IV Semesters)

v. Environmental Studies (IV Semester)

vi. Value Education (V Semester)

c) PART - V : Compulsory Extension Service

A candidate shall be awarded one credit for compulsory extension service.

All the students shall enroll for NSS / NCC /Sports & Games/ Rotaract/ Youth Red Cross / Citizen Consumer Club / Enviro Club or any other service organization in the College and shall have to put in compulsory minimum attendance of 40 hours which shall be duly certified by the Principal of the College. If a student lacks 40 hours attendance in any Semester, he/she shall have to compensate the same during the subsequent Semesters. Literacy and population, educational field work shall be compulsory components in the above extension service activities.

V. COURSE STRUCTURE

The UG course consists of 15-18 Core papers, 3 Elective papers and 4 Allied papers. The Credit for each core paper shall be 3-4, while the elective and allied papers shall carry a credit of 5. The B.Com (Hons) course has 32 core papers of 4 credits each.

The PG course has 14-17 core papers with 4 credits, elective papers with 3-4 credits and a project work.

The MBA course has 13 core papers of 4 credits each, 8 elective and interdisciplinary papers of 3 credits each and a project work.

The MCA Regular (3 Years) course has 26 core papers of 2-4 credits, 4 Elective papers of 3-4 credits, 1 Non – Major Elective of 4 credits, 1 Extra-disciplinary paper of 4 credits and a project work of 18 credits.

The MCA Lateral Entry (2 Years) course has 14 core papers of 2-4 credits, 4 Elective papers of 3-4 credits, 1 Non – Major Elective of 4 credits, 1 Extra-disciplinary paper of 4 credits and a project work of 18 credits.

The MSW course has 17 core papers with 3 credits for theory papers, 6 credits for field work, 2 credits for summer placement, 1 credit for study tour, 6 credits for research projects and 2 credits for block placement.

Internship training is a compulsory component for all the PG courses.

❖ **The details of the course structure are given in the following table:**

CHOICE BASED CREDIT SYSTEM WITH GRADING

POST GRADUATE DEGREE

COMPONENTS	M.Sc. Chemistry M.Sc. Mathematics M.Sc. Zoology M.A. Economics M.A. Defence & Strategic Studies			M. COM			M. S.W		
	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits
CORE COURSES INCLUDING PRACTICAL	14-17	4	60-70	16	4	64	17	3-6	65
PROJECT	0-1	6	0 - 6	0	0	0	1	6	6
ELECTIVES INCLUDING EXTRA DISCIPLINARY COURSES	3-5	3 - 4	10-20	4	4	16	7	2	14
SKILL	4	2	8	4	2	8	4	2	8
INTERNSHIP	0-1	2	0-2	1	2	2	0	0	0
TOTAL			**91**			**91**			**93**

COMPONENTS	M.C.A. REGULAR (3 YEARS)			M.C.A. LATERAL ENTRY (2 YEARS)			M.B.A.		
	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits
CORE COURSES INCLUDING PRACTICAL	26	2-4	81	14	2-4	41	13	4	52
PROJECT	1	18	18	1	18	18	1	8	8
ELECTIVES INCLUDING EXTRA DISCIPLINARY COURSES	6	3-4	21	6	3- 4	21	8	3	24
SKILL	6	2	12	4	2	8	4	2	8
INTERNSHIP	1	3	3	1	3	3	1	2	2
TOTAL			**135**			**91**			**94**

UNDER GRADUATE DEGREE

PART	COMPONENTS	B.Com(Gen.) B.Com(A&F) B.Com(B.M.) B.Com(M.M.) B.Com(ISM) B.B.A. B.C.A B.Sc (IT)			B.Com (C.S) B.Sc.(Mat.) B.Sc.(Phy.) B.Sc.(Chem.) B.Sc.(Plant Bio.) B.Sc.(Adv.Zoo) B.Sc.(C.S.) B.Sc.(Viscom) B.Sc (Biotech) B.A.(Eco.) B.A.(Defence), B.A. (English).			B.Com (Honours)		
		No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits	No. of Courses	Credit per Course	Total Credits
Part I Foundation Course	**Language (Tamil/ Hindi/ Sanskrit/ French)**	2	3	6	4	3	12	2	3	6
Part II Foundation Course	**English**	2	3	6	4	3	12	2	3	6
Part III	**Core Papers**	18	4	72	15-18	3-4	60	32	4	132
	Allied Papers	4	5	20	4	5	20	-	-	-
	Elective Papers	3	5	15	3	5	15	-	-	-
Part IV	**Non Major Electives/ Basic Tamil/ Advanced Tamil***	2	2	4	2	2	4	2	2	4
	Skill Based Elective	4	3	12	4	3	12	5	2-4	14
	Environmental Studies	1	2	2	1	2	2	1	2	2
	Value Education	1	2	2	1	2	2	1	2	2
Part-V	**Extension Service**	1	1	1	1	1	1	1	1	1
Total				**140**			**140**			**167**

Under Part IV of the Course, students should register separately for two Non-Major Elective papers, during the First and Second semester. The marks obtained under Part IV would not be included for classification of the candidate although a pass is mandatory. Students should have obtained the minimum credit under Part V to be eligible to receive the degree.

VI. EXAMINATIONS

Continuous Internal Assessment (CIA) will be for 50 percentage and End Semester Examination (ESE) will be for 50 percentage.

➢ CONTINUOUS INTERNAL ASSESSMENT (CIA)

Every semester has two centralized CIA examinations and one model examination for each paper. Each of the Continuous Assessment Tests (CAT) of one-and-a-half-hour duration will be conducted on completion of 30 and 60 working days respectively in each semester. A Model exam of three hours' duration will be conducted on completion of 80 working days in each semester.

The schedules for these tests are as follows:

C.I.A. Test	Schedule	Syllabus Coverage
I	After 30 working days from the commencement of the Semester	40%
II	After 60 working days of the Semester	80%
III (Model Examination)	After 80 working days of the Semester	95%

The components for the CIA are as follows:

Internal Components			
Assessment Type	**Nature**	**Maximum Marks**	**% of Weightage**
CIA	Written Test - 1	50	5
	Written Test – 2	50	5
Model	Model Examination	100	10
	Assignment		10
	Class activity		15
	Attendance		5
	Total		**50**

The class activity relates to a programme of accepted innovative techniques such as seminars, quiz, portfolio creation, MCQ, power point presentation, objective tests, role play etc. The mode of evaluation of the class activity will be fixed before the commencement of the semester and an approval will be obtained from the HOD. Once the classes begin, the student would be informed.

A record of all such assessment procedures will be maintained by the department and is open for clarification. Students will have the right to appeal to the Principal in case of glaring disparities in marking.

CIA marks for practical subjects will be awarded by the respective faculty based on the performance of the student in the model practical examination, observation notebook, submission of record books, regularity and attendance for the practical classes. The attendance particulars for practical classes will be maintained by the concerned faculty.

Marks for attendance will be awarded as per the following:

Percentage of General Attendance	Marks Awarded
90-100	5
75-89	4
60-74	3
<60	0

- **END SEMESTER EXAMINATIONS (ESE)**

Examinations will be conducted during each semester after the completion of a minimum of 90 working days. Examinations will be held for all papers of the course in Nov/Dec and April/May for all UG and PG courses.

Practical examinations will be conducted only during the end of the odd / even semester either before, during or after the commencement of the theory exam. The schedule for ESE Practicals will be notified by the Controller of Examinations in consultation with the Dean (Academics).

A candidate will be permitted to appear for the End of Semester examinations for any semester if:

a) He / She secures not less than 75% of attendance in the working days during the semester.
b) His / Her conduct has been satisfactory
c) He / She should have applied for the examination
d) He / She should have paid the requisite examination fee

The attendance requirements to appear for the ESE are as follows:

i. Students must have 75% of attendance in each part of the course of study to appear for the examination.

ii. Students who have 65% to 74.9% of attendance shall apply for condonation in the prescribed form along with the prescribed fee after obtaining permission from the Principal. Students cannot claim condonation as a matter of right. Submission of Medical Certificate is normally not accepted to condone shortage of attendance.

iii. Students who have 50% to 64.9% of attendance will fall under the - **Withheld category**. Such students cannot take up the ESE exams. They should apply to the Principal for permission to write the next supplementary examination and pay the requisite fee for this purpose. However, they can appear for previous semester supplementary paper.

iv. Students who have less than 50% of attendance fall under the - **Detained category would not be permitted to appear for the examination. They shall redo the semesters after completion of the course and appear for the examination after securing the required percentage of attendance. The decision of the Principal remains final and binding in all respects.**

v. Students who do not get the minimum marks to pass in the ESE shall compulsorily re-appear for the paper in the subsequent semester after paying the required fee.

A Student who for whatever reasons is not able to complete the program within the normal period (N) or the minimum duration prescribed for the programme, may be allowed two years period beyond the normal period to clear the backlog to be qualified for the degree. (Time Span = N +2 +1 years for the completion of programme).

In exceptional cases like Major accidents and child birth an extension of one year be considered beyond maximum span of time (Time Span = N + 2 + 1 years for the completion of programme).

If they fail to do so, they shall re-register their names and take the examination in the revised regulations/syllabus of the paper in force at the time of their reappearance. In the event of removal of that paper consequent to the change of regulation and/or curriculum after 5-year period, the candidate shall have to take up an equivalent paper in the revised syllabus

as suggested by the Chairman of the concerned Board of Studies. Students qualifying during the extended period, shall not be eligible for **RANKING.**

- **INSTANT EXAMINATIONS (SPECIAL SUPPLEMENTARY EXAMINATION)**

In order to provide an opportunity to the final UG and PG students to obtain the degree in the same year and also to facilitate vertical mobility, special supplementary End Semester Examinations will be conducted in about 30 days from the date of publication of results every year for the final semester theory papers and also for the candidates who had failed in **ONLY ONE** theory paper of the previous semesters. Students, who wish to apply for special supplementary End Semester Examinations, can do so within 7 days from the date of publication of results.

Students involved in Malpractice will not be permitted to appear for Supplementary Examination.

The details of the ESE are as follows:

External Component			
Assessment type	**Comprehensive Test**	**Maximum mark**	**% of Weightage**
External Exam	3 Hours Examination	100	50
	Grand Total (CIA+ESE)		100

VII. CONDUCT OF EXAMINATION

Chief Superintendent of Examinations will be the Principal or a person appointed by the Principal. The conduct of End Semester Examinations lies with the team led by the Chief Superintendent.

The time-table for examinations will be finalized by the office of the Controller of Examinations and will be displayed well in advance i.e., 20 days prior to the commencement of examinations.

The Hall tickets for eligible students will be issued 3 days prior to the commencement of examinations. For Subjects like Environmental Studies / Value Education, End Semester Examinations may be conducted on-line or along with the regular ESE.

VIII. VALUATION

Valuation of the answer scripts are undertaken at the central valuation camp led by the Controller of Examinations or the Camp Officer appointed by the Controller of

Examinations. Single valuation of answer scripts by external examiners is adopted for both UG and PG Courses.

IX. PUBLICATION OF RESULTS

The Examination results will be published on the web portal during the third / fourth week of May for the II, IV and VI semester examinations and during the third / fourth week of December for the I, III and V semester examinations

A. GUIDELINES FOR OBTAINING PHOTOCOPY OF THE ANSWER SCRIPT

Candidates seeking photocopy of the answer scripts are advised to go through these rules and regulations before they apply

i. Photocopy is allowed only for Regular theory papers in PART I, II and III. **(Supplementary excluded).**
ii. Select the papers carefully in which you wish to get the photocopy. No second application for additional papers would be accepted.

B. GUIDELINES FOR APPLYING REVALUATION OF THE ANSWER SCRIPT

Candidates seeking revaluation are advised to go through these rules and regulations before they apply

i. Revaluation is allowed only for Regular theory papers in PART I, II and III. **(Supplementary excluded).**
ii. Select the papers carefully in which you wish to get the revaluation. No second application for additional papers would be allowed.
iii. The application is to be filled in by the candidate in his/her own hand-writing and not by anyone else on his/her behalf.
iv. Entries made by the candidate are to be verified by the HOD and forwarded to the Principal for endorsement.
v. Prescribed Fee payment receipt or challan to be attached with the Application Form and submitted to the Principal's Office. The candidate will be given an acknowledgement for submission mentioning date and time.
vi. Candidate to be aware that when applying for revaluation, He / She SURRENDERS the original performance and will now accept the revised performance in which
    (a) There can be NO CHANGE in the marks (or)
    (b) There can be INCREASE in the marks

X. CLASSIFICATION OF PERFORMANCE – GRADING SYSTEM FOR THE SEMESTER

A candidate shall be declared to have qualified for the award of the Degree provided the candidate has successfully completed the Programme requirements and has passed all prescribed subjects of study in all the semesters.

Passing Minimum :

UG CIA 40% AGGREGATE 40%

B.Com(Hons.) and PG CIA 50% ESE 50% AGGREGATE 50% OF THE MAXIMUM OF THE COMPONENT IN THAT PAPER / COURSE

P: Pass, U: Re-Appear, WH: Withheld, AAA: Absent, CIA: Continuous Internal Assessment, ESE: End Semester Examination, GPA: Grade Point Average. CGPA: Cumulative Grade Point Average

UNDER GRADUATE DEGREE

PART – I	**:**	**TAMIL / OTHER LANGUAGES**
PART – II	**:**	**ENGLISH**
PART – III	**:**	**CORE, ALLIED AND ELECTIVE**
PART – IV	**:**	**TAMIL / NON MAJOR ELECTIVE, SKILL BASED ELECTIVES, ENVIORNMENTAL STUDIES AND VALUE EDUCATION**
PART – V	**:**	**EXTENSION ACTIVITIES**

POST GRADUATE DEGREE

PART – A	**:**	**CORE, ELECTIVE, MAJOR PROJECT**
PART – B	**:**	**SOFT SKILL COURSE, INTERNSHIP**

RANGE OF MARKS FOR GRADES UG Also for Certificate / Diploma			
Range of Marks	**Grade Points**	**Letter Grade**	**Description**
90 - 100	9.0 - 10.0	O	Outstanding
80 - 89	8.0 - 8.9	D+	Excellent
75 - 79	7.5 - 7.9	D	Distinction
70 - 74	7.0 - 7.4	A+	Very Good
60 - 69	6.0 - 6.9	A	Good
50 - 59	5.0 - 5.9	B	Average
40 - 49	4.0 - 4.9	C	Satisfactory
00 - 39	0.0 - 3.9	U	Re-appear
ABSENT	0	AAA	Absent

RANGE OF MARKS FOR GRADES UG[B.Com.(Hons.)], PG and also for PG Diploma			
Range of Marks	**Grade Points**	**Letter Grade**	**Description**
90 - 100	9.0 - 10.0	O	Outstanding
80 - 89	8.0 - 8.9	D+	Excellent
75 - 79	7.5 - 7.9	D	Distinction
70 - 74	7.0 - 7.4	A+	Very Good
60 - 69	6.0 - 6.9	A	Good
50 - 59	5.0 - 5.9	B	Average
00 - 49	0.0 - 4.9	U	Re-appear
ABSENT	0	AAA	Absent

Ci= Credits earned for course *i* in any semester

Gi= Grade Point obtained for course *i* in any semester

n refers to the semester in which such courses were credited.

- **CGPA Grades:**

CGPA	GRADE	CLASSIFICATION OF FINAL RESULT
9.5-10.0	O+	First Class - Exemplary*
9.0 and above but below 9.5	O	
8.5 and above but below 9.0	D++	First Class with Distinction*
8.0 and above but below 8.5	D+	
7.5 and above but below 8.0	D	
7.0 and above but below 7.5	A++	First Class
6.5 and above but below 7.0	A+	
6.0 and above but below 6.5	A	
5.5 and above but below 6.0	B+	Second Class
5.0 and above but below 5.5	B	

B.Com (Hons.)	UG	B.Com (Hons.)	B.Com (Hons.)	UG	UG
0.0 and above but below 5.0	4.5 and above but below 5.0	U	Re-appear	C+	Third Class
	4.0 and above but below 4.5			C	
	0.0 and above but below 4.0			U	Re-appear

The candidates who have passed in the first appearance and within the prescribed semester of the UG/PG Programme (Core, Allied and Elective) alone are eligible.

GRADING SYSTEM

For a Semester:

GRADE POINT AVERAGE [GPA] = $\sum_i C_i G_i / \sum_i C_i$

$$GPA = \frac{\text{Sum of the multiplication of grade points by the credits of the courses}}{\text{Sum of the credits of the courses (passed) in a semester}}$$

For the entire programme:

CUMULATIVE GRADE POINT AVERAGE [CGPA] = $\sum_n \sum_i C_{ni} G_{ni} / \sum_n \sum_i C_{ni}$

$$CGPA = \frac{\text{Sum of the multiplication of grade points by the credits of the entire programme}}{\text{Sum of the credits of the courses of the entire programme}}$$

(CGPA is calculated only if the candidate has passed in all the courses in the entire programme)

XI. CONCESSIONS FOR DIFFERENTLY-ABLED STUDENTS

A. DYSLEXIA STUDENTS

For students who are mentally disabled, learning disability and mental retardation, who are slow learners, who are mentally impaired having learning disorder and seizure disorder and students who are spastic and cerebral Palsy, the following concessions shall be granted:

i. Part I Foundation course Tamil or any other Language can be exempted.
ii. One-third of the time of paper may be given as extra time in the examination.
iii. Leniency in overlooking spelling mistakes, and
iv. Amanuensis for all courses provided the request is duly certified by the Medical Board of the Government Hospital/ General Hospital/ District headquarters Hospitals and they shall be declared qualified for the degree if they pass the other examinations prescribed for the degree.

B. HEARING, SPEAKING IMPAIRED & MENTALLY RETARDED

For students who are hearing and speaking impaired and who are mentally challenged, the following concessions shall be granted:

i. One Language paper either Part I Foundation course Tamil or any other Language or Part II English or its equivalent can be exempted
ii. Part IV Non-Major Elective (NME) or Basic Tamil or Advanced Tamil can be exempted.

C. VISUALLY CHALLENGED STUDENTS:

i. Exempted from paying examination fees.
ii. A scribe shall be arranged by the College and the scribe be paid as per the College decision.

XII. INTERDISCIPLINARY ELECTIVE (IDE)

It has been proposed that the UG students admitted from the academic year 2019 – 2020 onwards would take up an Interdisciplinary Elective (IDE) Paper in their Fifth Semester for the students admitted in the year 2019 onwards.

❖ **The following Departments functioning in Shift I will be offering IDE Papers to students only from Shift I:**

S.NO	DEPARTMENT	IDE (TITLE OF THE PAPER)
1	Mathematics	Numerical Analysis
2	Physics	Integrated Electronics
3	Chemistry	Chemistry in Everyday Life
4	Plant Biology and Plant Biotechnology	Horticulture and Mushroom Cultivation
5	Advanced Zoology and Biotechnology	Wildlife Conservation
6	Commerce (General)	Entrepreneurial Development
7	Corporate Secretaryship	Entrepreneurial Development
8	Economics	Principles of Insurance and Risk Management
9	Defence and Strategic Studies	An Introduction to Defence Journalism
10	Department of Hindi	Communication Hindi : Oral and Written

❖ **The following Departments functioning in Shift II will be offering IDE Papers to students only from Shift II:**

S.NO	DEPARTMENT	IDE (TITLE OF THE PAPER)
1	Commerce (General)	Entrepreneurial Development
2	Commerce (A&F)	Indian Constitution and Human Rights
3	Commerce (BM)	Personal Investment Planning
4	Commerce (MM)	Tourism Management
5	Commerce (Hons)	Business Venture
6	Corporate Secretaryship	Entrepreneurial Development
7	BBA	Managerial Skill Development
8	BCA	Introduction to Web Designing(HTML & CSS) -Practical
9	Computer Science	Internet And Its Applications
10	Visual Communication	Understanding Films

❖ **The following Departments from Shift II, functioning in Shift I timings can only offer IDE Papers to the students functioning within the same Shift I timings:**

S.NO	DEPARTMENT	IDE (TITLE OF THE PAPER)
1	Commerce (ISM)	Essentials of office Automation Tools and E-Mail Etiquette
2	B.Sc.(IT)	Web Designing
3	B.Sc. (Biotechnology)	Intellectual Property Rights
4	B.A. (English)	Travel Writing

XIII. OPTION TO EARN ADDITIONAL CREDITS

A. MOOCs (Massive Open Online Courses)

- UG students can opt for a minimum of one Course and earn 2 credits, while a maximum of 6 Credits can be earned by opting three courses during their three-year period of study.
- PG students can opt for a minimum of one Course and earn 2 credits, while a maximum of 4 Credits can be earned by opting two courses during their two-year period of study.
- This is completely optional.

B. CERTIFICATE COURSES

The Certificate courses are offered by the departments for a duration of 30 hours which will enable the students to earn 2 additional credits.

C. ADDITIONAL CREDIT FOR EXTENSION SERVICES

All the students who have put in additional 40 hours or more apart from the compulsory minimum hours in NSS / NCC / Sports & Games / Rotaract / Youth Red Cross / Citizen Consumer Club / Enviro Club or any other service organization in the College and which shall be duly certified by the Principal of the College, will be eligible to earn an additional credit at the time of completion of their Course.

XIV. REQUIREMENT FOR PROCEEDING TO SUBSEQUENT SEMESTER

i. Candidates shall register their names for the first semester examination after admission in the UG / PG courses.

ii. Candidates shall be permitted to proceed from the first semester up to final semester irrespective of their failure in any of the semester examinations subject to the condition that the candidate had registered for all the arrear subjects of earlier semesters along with current semester subjects.

XV. ISSUE OF CERTIFICATES

A Statement of Marks will be issued to every student who has written the examination.

❖ **Consolidated Mark Sheet**

Consolidated mark sheets will be given to final year students along with total credits earned only to those who have passed in all the papers prescribed for the respective degree.

❖ **Transcript**

Students who wish to obtain any Transcript certificate for joining courses of study in other Universities in India or abroad or for obtaining scholarships, can obtain these certificates from the office of the Controller of Examinations. A requisition letter duly signed by the Student and forwarded by the Principal along with fee challan is to be submitted to the office of the Controller of Examinations. The Certificate will be provided within 15 working days in a sealed envelope.

❖ **Provisional Certificate**

A copy of the results of the successful final year students will be sent to the University of Madras in the prescribed format in July/August and the University will issue a Provisional Certificate through the College. A soft copy can be downloaded from the University of Madras website and a hard copy will be provided by them within 90 days of the issue of soft copy.

❖ **Corrections in the Certificates**

Any corrections like name, date of birth etc., can also be made in the certificate. A letter of request duly signed by the student, HOD and Principal along with the prescribed fee paid challan is to be forwarded to the office of the Controller of Examinations. The time line to update will be 15 working days. The amount once paid will not be refunded under any circumstances.

❖ **Duplicate Mark Sheet**

In case of loss of mark sheet / certificate, a duplicate will be provided after submitting a non-traceable certificate issued from the Police station duly signed by an Inspector or Sub Inspector. A letter of request duly signed by the student, HOD and Principal along with the prescribed fee paid challan is to be forwarded to the office of the Controller of Examinations.

❖ **Duplicate Provisional Certificate / Degree Certificate:**

Students have to apply directly to the University of Madras for duplicate provisional certificate and degree certificate.

❖ **Verification of Qualification**

Agencies which request for verification of educational qualification of students under autonomous mode of this college and students who opt for higher studies / employment and who require verification of educational qualification, shall verify online through the QR code in the consolidated mark sheet through online payment. They can also apply to the Principal to this effect along with the prescribed fees which has to be forwarded to the OCOE. The relevant certificate will be issued within 15 working days from the receipt of the forwarded request of the Principal and the same office.

XVI. CONVOCATION AND NOTICE

❖ **Convocation**

Every year after the Convocation is conducted by the University of Madras, the College will hold a Graduation day / Convocation in which the Degree Certificates will be distributed to the students who are present. For others it will be issued by the College Office. Students should collect the same within 30 days of convocation after which a search fee will be charged. **Students are responsible to collect their Certificates and the College shall not be liable for the same.**

❖ **Notice**

Candidates, who have completed the duration of the course and left the College, can get information regarding Supplementary Examinations, issue of examination application forms, certificates and application for Graduation day through the college web site and general notice board. Regular students will however be informed of the examinations by circulation, in addition to the modes mentioned above.

No candidate will be communicated individually.

XVII. MODUS OPERANDI FOR THE SYLLABUS

i. The department will finalize the syllabus.

ii. Finalization implies a change in the existing syllabus or a revamp of entire syllabus

iii. They will place it on the BOS meeting. After approval of the syllabus in the BOS, the concerned department will submit the minutes along with the modified syllabus book / sheet (five copies) to the Dean's office within ten days of the BOS meeting

iv. A Soft copy of the batch-wise syllabus approved by the BOS in PDF format is to be sent to the Dean's mail ID within ten days of the BOS meeting.

M.COM (GENERAL) [CHOICE BASED CREDIT SYSTEM]
W.E.F. AY 2019-20

SEMESTER	COURSE COMPONENTS	SUBJECTS	HOURS	CREDITS
I	CORE PAPER – I	ADVANCED CORPORATE ACCOUNTING AND ACCOUNTING STANDARDS	6	4
	CORE PAPER – II	FINANCIAL MANAGEMENT	6	4
	CORE PAPER – III	ORGANISATIONAL BEHAVIOUR	5	4
	CORE PAPER – IV	MANAGERIAL ECONOMICS	5	4
	ELECTIVE – I	ACCOUNTS FOR SPECIALISED INSTITUTIONS	6	3
	SOFT SKILL – I	ESSENTIALS OF LANGUAGE AND COMMUNICATION	2	2
		TOTAL	***30***	***21***
II	CORE PAPER – V	ADVANCED COST AND MANAGEMENT ACCOUNTING	6	4
	CORE PAPER – VI	ADVANCED BUSINESS STATISTICS	6	4
	CORE PAPER – VII	MARKETING OF SERVICES	6	4
	CORE PAPER - VIII	INCOME TAX LAW AND PRACTICE	6	4
	EXTRA DISCIPLINARY-I	KNOWLEDGE MANAGEMENT	6	3
	SOFT SKILL – II	COMPUTING SKILLS	2	2
		TOTAL	***30***	***21***
III	CORE PAPER – IX	RESEARCH METHODOLOGY	5	4
	CORE PAPER – X	FUNDAMENTALS OF INFORMATION TECHNOLOGY	5	4
	CORE PAPER – XI	ACCOUNTING FOR MANAGERS	5	4
	CORE PAPER – XII	INDIRECT TAXES	5	4
	ELECTIVE – II	CONSUMER BEHAVIOUR	5	3
	EXTRA DISCIPLINARY-II	INDUSTRIAL RELATION AND LABOUR WELFARE	5	3
	INTERNSHIP	INTERNSHIP		2
	SOFT SKILL – III	ESSENTIALS OF SPOKEN AND PRESENTATION SKILLS	2	2
		TOTAL	***30***	***26***
IV	CORE PAPER – XIII	CHANGE MANAGEMENT	5	4
	CORE PAPER – XIV	ADVERTISING AND SALESMANSHIP	5	4
	CORE PAPER – XV	CONSUMER RIGHTS AND EDUCATION	5	4
	CORE PAPER – XVI	PROJECT PLUS VIVA VOCE #	5	4
	ELECTIVE –III	HUMAN RESOURCE MANAGEMENT	5	3
	ELECTIVE –IV	COMPUTERIZED ACCOUNTING	5	3
	SOFT SKILL – IV	PERSONALITY ENRICHMENT	2	2
		TOTAL	***30***	***24***
		TOTAL CREDITS	***92***	

#@ Viva-voce examination carries 40 Marks and Project Report carries 60 Marks.
Project Viva-voce is considered one core paper.
For practical papers Internal 40 marks and external 60 marks
Internship will have to be carried out at the end of the Second Semester and the report of the same shall be submitted by the students within a period of one month after the completion of the internship. The Internship report shall be evaluated by the two examiners within the Department of the college. The marks shall be by the College and the same will be included in the Third Semester Statement of Marks.

SEMESTER - I

Semester –I

CORE PAPER –I

ADVANCED CORPORATE ACCOUNTING AND ACCOUNTING STANDARDS

OBJECTIVE:

To impart knowledge on corporate accounting methods and procedures and to develop skills in the preparation of accounting statements and in their analysis.

Unit-I

Advanced problems in shares- forfeiture of shares- effects of pro-rata allotment on forfeiture of shares- reissue- partial reissue of shares- underwriting of shares- types of underwriting- determining the liability of underwriters in respect of an underwriting contract- complete underwriting- partial underwriting- firm underwriting.

Unit- II

Valuation of goodwill and shares- methods of valuation of goodwill- average profit method- weighted average method- super profit method- annuity method- capitalization method- valuation of shares- net assets method- yield method- fair value method.

Unit –III

Alteration of share capital and internal reconstruction- Amalgamation, Absorption and External Reconstruction- purchase consideration- computation of purchase consideration- methods of accounting for Amalgamation- pooling of interest method- purchase method- distinction between pooling of interest method and purchase method-accounting treatment for Amalgamation, Absorption and External Reconstruction.

Unit-IV

Liquidation of companies- order of payment- calculation of liquidator's remuneration- liquidator's final statement of account- statement of affairs- deficiency or surplus account.

Unit-V

Accounting for price level changes- social responsibility accounting- human resource accounting- mandatory accounting standards- provision of Accounting Standards AS-1, AS-2, AS-3, AS-4, AS-14 and AS-21.

Note: The proportion between theory and problems 20: 80

Book References

1. Shukla M C and T. S. Grewal, Advanced Accounts, New Delhi, S. Chand and Co.
2. Gupta R L and M. Radhaswamy, Advanced Accounts, New Delhi, Sultan Chand
3 Jain S P and K.L. Narang, Advanced Accounts, Ludhiana, Kalyani Publishers
4 Reddy T S and Murthy, Corporate Accounting, Chennai, Margam Publications

Web references

www.indiacorporateadvisor.com
www.iimcal.sc.in
www.futureaccountant.com

CORE PAPER -II
FINANCIAL MANAGEMENT

OBJECTIVE:
To impart knowledge on the fundamentals of finance function in business and to develop skills in financial analysis and decision making

Unit I
Financial Management: Meaning, Scope, and Objectives - Finance Functions: Investment, Financing and Dividend decisions.

Unit II
Cost of Capital: meaning and determinants of cost of capital – computation of cost of capital- cost of debt, cost of preference and cost equity - Measurement of weighted average Cost of Capital.

Unit-III
Financing Decisions: Capital Structure- meaning, patterns of capital structure; difference between capital structure and financial structure E.B.I.T - E.P.S analysis- capital structure theories: MM approach and traditional approach only.

Unit-IV
Leverages: meaning and significance of leverages - types of leverages - computation of operating leverage, financial leverage, composite or combined leverage.

Unit-V
Working Capital Management: Concept, Need, Determinants of working capital – estimating working capital requirement- inventory levels- EOQ- estimation of cash possession.

Note: The proportion between theory and problems 20: 80

Book References

1 Van Horne J. Financial Management & Policy Pearson Education, Delhi
2 Brealey and Myers, Principles of Corporate Finance, New York, McGraw Hill
3 West on and Brigham, Managerial Finance, New York, Holt Rinehart
4 Pandey I M, Financial Management, New Delhi, Vikas
5. Periyasamy P, Financial Management, Vijay Nicole Imprints

Web references
www.accountingstudyguide.com
www.managementparadise.com

CORE PAPER -III
ORGANIZATIONAL BEHAVIOUR

OBJECTIVE:
To provide knowledge on employees' behaviour and their managerial implications and to impart knowledge on organizational dynamics

UNIT I:
Introduction to Organizational Behaviour - Meaning - Elements - Need - Approaches – Organizational Behaviour Models.

UNIT II:
Individual Behaviour - Personality - importance- personality theories- determinants of personality -Learning – factors- theories-Attitudes – factors influencing attitude-attitude measurement- functions and change of attitude- Perception – process- determinants- Motivation –theories of motivation- Group Behaviour - Group Dynamics - Group Norms - Group Cohesiveness.

UNIT III:
Transactional Analysis-components - Stress - Meaning - Types - measures to overcome stress- Quality of Work Life- factors responsible for the growing importance of QWL- criteria for measuring QWL- measures to improve QWL and benefits of high QWL.

UNIT IV:
Organisational Conflict- meaning- causes of conflict- stages of conflict- levels of conflict- conflict outcomes- resolution of conflicts- Discipline- positive and negative aspects- objectives- causes of indiscipline- procedures for disciplinary action- the Red Hot Stove Rule- kinds of punishment- principles of natural justice.

UNIT V:
Organizational Dynamics - Effectiveness - Approaches - Organizational Culture – Determinants- types- creation and maintenance of Organisational Culture - Organizational Climate - Implications on Organizational Behaviour

Book References

1. Mishra - Organizational Behaviour - Vikas Publishing House Pvt. Ltd
2. Chandran - Organizational Behaviour - Vikas Publishing House Pvt Ltd
3. L.M. Prasad, - Organizational Behaviour - 3rd Edition Reprint - Sultan Chand & Sons
4. Gupta.Shahi.K & Joshi Rosy Wahia, 2004 - Organizational Behaviour - 1st Edition - Kalyani Publishers
5. Gregory Moorhead, Ricky W. Griffin - Organizational Behaviour - Published by Bixtantra .

Web references

www.journals.elsevier.com
www.unesco.org
www.onlinelibrary.wiley

CORE PAPER – IV
MANAGERIAL ECONOMICS

OBJECTIVE:
To offer expertise and knowledge on the application of economic theories and concepts to business decisions

Unit I
The Scope and Methods of Managerial Economics -Risk -uncertainty and probability analysis - Approach to managerial decision making and the theory of firm

Unit II
Demand analysis, basic concepts and tools of analysis for demand forecasting, use of business indicators; demand forecasting for consumer goods, Consumer durable and capital goods

Unit III
Concepts in resource allocation, cost analysis; breakeven analysis, short run and long run cost functions; production function: cost -price -output relations -Capital investment analysis - Economics of size and capacity utilization input -output -analysis

Unit IV
Market structure, Pricing and output; general equilibrium. Product policy, rates, promotion and market strategy -Advertising rates model- Advertisement budgeting

Unit V
Pricing objectives -pricing methods and approaches -Product line pricing -Differential pricing - Monopoly policy restrictive agreements -Price discrimination -Measurement of economic concentration -Policy against monopoly and restrictive trade practices

Book References

1 Peterson, Managerial Economics 4th Ed. Pearson Education, New Delhi,
2 Spencer, M.H. : Managerial Economics, Text Problems and Short Cases
3 Mote and Paul: Managerial Economics TMH, New Delhi
4 Sampat Mokherjee, Business and Managerial Economics Calcutta New Central Book Agency
5 Dwivedi D N Managerial Economics, New Delhi Vikas

Web references
www.emeraldinsight.com
www.taylorandfrancis.com
www.oxfordjournals.org

ELECTIVE – I ACCOUNTS FOR SPECIALIZED INSTITUTIONS

OBJECTIVE:

To provide in-depth understanding about the accounting practices to be followed to maintain the accounts of various specialized institutions and to update the knowledge of accounting standards for specified nature of accounts

UNIT I:

Holding and Subsidiary company- Accounting treatment and disclosures, Treatment of Dividends, Unrealized profits, Revaluation of Assets, Depreciation adjustments for revaluation, consolidation of accounts, Preparation of balance sheet and profit and loss account.

UNIT II:

Banking company Accounts: Classification of banking companies assets Rebate on bills discounted, Treatment of NPA and interest on doubt full loans & advances, Preparation of Profit and loss Account and balance sheet as per new regulations.

UNIT III:

Insurance company Accounts: General insurance, Life insurance, Treatment of Claims, Correct life assurance fund, Preparation of valuation balance sheet, Preparation of revenue accounts and final accounts of life and non-life insurance companies as per new regulations.

UNIT IV:

Electricity and Non Electricity company accounts: Meaning of double account system, differences between single and double account system, advantages and disadvantages of double account system, Calculation of Capital base, Reasonable return, Distribution of surplus, Preparation of Revenue, Receipts and Expenditure and Balance sheet.

UNIT V:

Packaging and Shipping company accounts: Package and containers, Returnable and non – returnable containers, Different methods of Accounting for package and containers. Voyage accounts - calculation of freight, primage, managers commission and adjustments for unfinished voyage.

Note: The proportion between theory and problems 20: 80

Book References

1. Maheshwari S N, Advanced Accounting, Vol.II, Vikas Delhi
2. Shukla and Grewal, Advanced Accounting, Vol.II, S. Chand and Sons,New Delhi
3. Gupta R L and Radhaswamy, Advanced Accounting, Vol.II, Sultan Chandand Sons, New Delhi
5. Jain and Narang, Advanced Accounting, Vol.II, Kalyani, New Delhi
6. Horngren C T, Introduction to Financial Accounting, PHI, New Delhi
7. Mark, E., Harkins, International Financial Reporting and Analysis, TMH, New Delhi

Web References

www.accountingcoach.com
www.accountingstudyguide.com
www.cimaglobal.com

SEMESTER - II

CORE PAPER -V
ADVANCED COST AND MANAGEMENT ACCOUNTING

OBJECTIVE:

To impart knowledge on cost and management accounting techniques and to develop the skills of students in the preparation of cost and management accounting statements

Unit- I

Installation of costing system –Essentials of a good cost accounting system -cost reduction and cost control techniques -control over wastages, scrap, spoilage and defectives

Unit- II

Process costing –meaning and features- treatment of normal loss, abnormal loss and abnormal gain - treatment of equivalent units -inter - process profit.

Unit- III

Budgetary Control – meaning - classification of Budgets - Flexible Budgets- Control ratios - Zero Base Budgets.

Unit –IV

Financial Statement analysis- meaning and types of financial statements- comparative financial statements - common size financial statements - Trend analysis - Ratios meaning – uses - merits and demerits- ratio analysis – profitability ratios – turnover ratios and solvency ratios.

Unit- V

Funds Flow analysis – meaning and uses – construction of Fund Flow statement - Cash Flow analysis – meaning and uses – difference between Fund Flow and Cash flow statement – construction of Cash flow statement...

Note: The proportion between theory and problems shall be 20:80

Book References

1. Murthy and Gurusamy, Cost Accounting, Vijay Nicole Imprints and Tata McGraw Hill
2. Murthy and Gurusamy, Management Accounting, Vijay Nicole Imprints and Tata McGraw Hill
3. Horngren C. T. Cost Accounting -A Managerial Emphasis, New Delhi, Pearson Education
4. Kaplan, Advanced Management Accounting, 3rd Ed. Pearson Education, New Delhi
5. Polimeni, et. at. Cost Accounting: Concepts and Applications for Managerial Decision Ma king, New York, McGrawHill Choudhary Anu Prasad Roy & Amitava Bhattac.harya, Cost and Management Accountancy: Methods and Techniques, Calcutta, New Central Book Agency
6. Reddy T S and Y.H. Reddy, Cost and Management Accounting, Margam Publications, Chennai

Web references

www.futureaccountant.com
www.ce.cmu.edu

CORE PAPER - VI
ADVANCED BUSINESS STATISTICS

OBJECTIVE:
To provide knowledge in statistics methods and applications and to offer expertise in statistics analysis

UNIT –I

Time Series Analysis – components of time series – Graphic method – least square method –moving average- seasonal index(simple and ratio moving average method) - Trend analysis

UNIT – II

Index Numbers – Aggregative and Relative Index – simple and weighted method, Chain and Fixed Index – construction of Cost of Living Index and methods.

Unit- III
Probability – measurement – Addition and Multiplication theorems – Bayesian theorem- combination

Unit- IV
Probability Distribution – Binomial and Poisson Distributions - definition – characteristics – problems.

Unit- V
Sampling- Sampling methods- sampling error- Sample size and standard error- Sampling distribution- Central limit theorems- Estimating population parameters- point and interval estimates- percentage and mean population from large sample and small sample.

Note: The proportion between theory and problems shall be 20: 80

Book References
1 Richard I. Levin and David S Rubin, Statistics for Management, 7th Ed. Pearson Education New Delhi
2 Gupta, Statistical Methods, Sultan Chand
3 Johnson, Applied Multivariate Statistical Analysis, 5th Ed, Pearson Education

Web references
http://fe.ugm.ac.id/iup/material/syllabi_quantitative.pdf
www.aiu.edu
http://www.duxbury.com/sme6/index.html

CORE PAPER VII
MARKETING OF SERVICES

OBJECTIVE:
To provide specialized knowledge on marketing skills for service sector and to expose students to marketing practices in service sector

Unit- I

Nature and classification of services -Characteristics of services and their marketing implications

Unit- II

Marketing strategies for service firms -with special reference to information, communication, consultancy, advertising, professional services, after -sales service, recruitment, training and tourism

Unit- III

Product support services -pricing of services -problems of quality -innovations in services

Unit- IV

Marketing of financial services -nature- types -marketing of insurance -mutual fund -marketing for non-profit firms.

Unit- V

CRM & Relationship Marketing -Customer Satisfaction

.

Book References

1. Christopher Lovelock, Services Marketing, 4th Ed, Pearson Education
2 EG Bateson, Mal1agil1g Services Marketing -Text and Readings, Dryden Press, insdale Ill.
3.Philip Kotler and Paul N Bloom, Marketing Professional Services, Prentice Hall, New Jersey
4. Payne, The Essencl' of ServIces Marketing, New Delhi, Prentice Hall
5. Helen Wood Ruffe, Services Marketing, Macmillan India, New Delhi
6. Mary Anrn Pezzallo, Marketing Financial Services, Macrnillan

Web references

www.managementstudyguide.com
www.tutor2u.ne
www.learnmarketing.net

CORE PAPER VIII
INCOME TAX LAW AND PRACTICE

OBJECTIVE:

To Enrich concepts of Income tax and to practice the provisions relating to different sources of income.

To acquaint knowledge with provisions relating to Assessment of Individuals and Powers of Income Tax Authorities.

UNIT-I

Incomes exempt from tax. Salary income – Allowances – Perquisites and their valuations - Gratuity – Pension – Commutation of pension – Leave salary – Profits-in-lieu of salary and Taxability of Provident funds.

UNIT-II

Income from House property – Definition of annual value – Computation of income of different properties. Income from Business or Profession- Allowable and not allowable expenses- Computation of income from business or profession. Provisions relating to depreciation and its computation.

UNIT-III

Capital gains – Types of capital gains – Transactions not included as transfer – Cost of improvement – Indexation of cost- Computation of Capital gains. Income from other sources – Deductions in computing income under the head Income from other sources

UNIT-IV

Set off – Carry forward and set off of losses. Deductions from gross total income. Assessment of individual and Partnership firms.

UNIT-V

Income Tax Authorities – Powers of the Central Board of Direct Taxes Commissioners of Income Tax and Income Tax Assessing Officers – Types of assessment- Due date of fling of Return – Permanent Account Number (PAN) – Advance payment of Tax and deduction of Tax at Source.

Note: The proportion between theory and problems shall be 20: 80

Books for References:

1. Students Guide to Income Tax – Dr. Vinod K. Singhania, Taxman Publications Pvt. Ltd.
2. Income Tax Law & Accounts, Dr. Mehrotra & Goyal Sahitya Bhavan Publications.
3. Income Tax Law & Practice V.P. Gaur & D.B. Narang Kalyani Publishers.
4. Income Tax Theory, Law & Practice – T.S. Reddy and Y Hariprasad Reddy Margham Publications.
5. Bhagawath Prasad Direct Taxes Law and Practice

Web References

www.incometaxindia.gov.in

www.taxsmile.com
www.law.incometaxindia.gov.in

EXTRA- DISCIPLINARY- I
KNOWLEDGE MANAGEMENT

OBJECTIVE:
To provide knowledge on understanding managing human resources in organization and to provide an exposure on the knowledge management tools.

UNIT I:
Knowledge Management- definition- nature- objectives-need- benefits- Knowledge Economy- Technology and Knowledge Management- Knowledge Management Strategy- Knowledge as a Strategic asset.

UNIT II:
Knowledge Attributes- Knowledge Creation- phases of Knowledge Creation and Knowledge Architecture- Tacit and Explicit Knowledge- Knowledge Management and Organisational learning- Knowledge Collection and Codification- Repositories- Repository life cycle.

UNIT III:
Collaborative platforms - Different kinds of platforms- Tools for Collaborative platforms- Knowledge Culture Principle and improvement - Knowledge Culture enablers.

UNIT IV:
Knowledge Culture Enhancement Programs- Implementing Knowledge Culture change programs- Communities of practice-Existence of Communities of Practices in Organisations- Importance- Developing and nurturing Communities of practice.

UNIT V:
Tools and Techniques in Knowledge Management- K-Audit- Knowledge Careers- Organisational Knowledge Role classification- Practical Implementation of Knowledge Management Systems- Case Studies.

.

Book Reference

1. Joseph M. Firestone and Mark W. McElroy, Butterworth – Hienemann, Key issues in the New Knowledge Management, KMCI Press
2. Daryl Morey & others Knowledge Management – Classic and contemporary works (Edited) Universities Press India Limited
3. Shelda Debowski, Knowledge Management, , John Wiley & Sons
4. Sudhir Warier, Knowledge Management, Vikas Publishing House Private Limited
5. Stwart Barnes Knowledge Management System Theory and practice (Edited) Thomson Learning
6. Hol Sapple Springer C W, Handbook on knowledge management (Edited)

Web References

www.knowledge-management-online.com
www.systems-thinking.org
www.kmworld.com
www.knowledge-management-tools.net

SEMESTER - III

CORE PAPER - IX
RESEARCH METHODOLOGY

OBJECTIVE:

To provide knowledge on research methods, techniques and the process and to develop skills in the application of research methods for business problem solving

Unit- I

Research – Meaning and purpose – Types of Research – Pure and Applied, Survey, Case Study, Experimental and exploratory – Research Design – Steps in research – steps in selection and formulation of research problem – review of literature.

Unit- II

Data Collection – Types of Data – Collection of Data – Observation – Interview – Questionnaire/Schedule construction – Pilot Study and pre-testing and testing validity and reliability – Graphic, diagrams – bar diagram, histogram, pie diagram– o'give curve – lorenze curve – Descriptive statistics - mean, median and mode – standard deviation – quartile deviation - skewness

Unit- III

Karl Pearson and Spearman Rank Correlation – Simple, Partial and Multiple Correlations – Regression – Simple (OLS) and Multiple Regression (With 3 Variables only)

Unit- IV

Hypothesis – Formulation – types – testing – sampling techniques – sampling errors and sample size – parametric and non-parametric tests – Tests of Significance – Z – test, t-test, F-test, Chi –square test – one way ANOVA - Simple problems.

Unit –V

Report writing – Types of report – Contents – Style and Convention – Steps in drafting report

Note: The proportion between theory and problems shall be 20: 80

Book References

1 William C Emory, Business Research Methods, Richard D Irwin, NJ
2 Donald R Cooper, Business Research Methods 7th Ed, McGraw Hill
3 Krishnaswami OR, Methodology of Research for Social Science, Himalaya, Mumbai
4 Anderson J. et.al, Thesis and Assignment writing, Wiley Eastern

Web references

www.tutorsindia.com
www.springer.com
www.authorstream.com
www.socialpsychology

CORE PAPER-X
FUNDAMENTALS OF INFORMATION TECHNOLOGY

OBJECTIVES

1. To offer basic skills in computer application.
2. To develop working knowledge on business related software.
3. To impart knowledge on application of software for analysis of business related data.

Unit- I

Introduction of Computer- Classification of Digital Computer System- Computer Generations- Computer Architecture- Nature and Implications of Information Technology- Applications of Computers in Business.

Unit- II

Operating Systems- Functions, Significance- Multimedia- Components, Features, Applications – Information Communication Technology (ICT)- Tools - Importance of ICT- Usage of Accounting and Statistical Packages.

Unit III

Internet- History - Hardware and Software requirements of Internet- Internet Service Providers- Usefulness of Internet – Network Topologies – E-Mail Accounts Creation- Sending and Receiving mails, Attachments.

Unit IV

Ms-Word – Creating word document- Editing Text, Sorting, Adding and formatting numbers, symbols – Drawing tools – Mail Merge, Getting into Print. Ms-Excel- Arithmetic and logical functions- Usage of Tables and Graphs.

Unit V

Ms-Access- Creating Tables, Forms, Modifying Tables, Form Design, Reports- Ms. PowerPoint-Slide Design- Custom Animation, Slide Transition- Preparation of PowerPoint presentation.

Note : The practical examination will be conducted by an internal examiner and an external examiner jointly. The Theory paper (3 Hours & 100 Marks) will be scaled to 60 marks. The practical paper (3 Hours & 100 Marks) will be scaled to 40 marks. The candidate has to secure 50 % in each of the Practical & Theory papers to secure pass. Failure to secure the minimum either in the Theory or in the Practical will entitle the reappearance only in that paper. 20 marks out of 100 for the practical paper is reserved for the record.

References

1. James A. Senn, Information Technology in Business Principles, Practices and opportunities, Prentice Hall
2. Corey Sandler, Tam Badget, Jan Wein Carten, Ms-Office for Windows.
3. Alexis, Leon & Mathew Leon fundamentals of IT, Vikas Publishers.

www.Springer.com
www.google.co.in

FUNDAMENTALS OF INFORMATION TECHNOLOGY LIST OF

PRACTICAL
EXPERIMENTS

- Creating Mail merged documents in MS WORD for example, Interview call letters
- Typing tables in Ms Word, for example schedule of debtors
- Creating a Cash budget in MS-EXCEL
- Draw a break even analysis graph in EXCEL
- Draw a graph to compare prices across year of multiple products
- Calculate the NPV of projects using EXCEL
- Computing regression and estimating the dependent variable using EXCEL
- Preparing Flexible budget using EXCEL
- Creating a file debtors and a file of Invoices along with the debtors details (relationship)
- Creating forms of data entry and data editing for a given data file (Include validation)
    - Using the query generator to extract data
    - Creating a Power Point presentation to promote a product.
    - Creating a PP Slide show with clip art and image files
    - Spelling checking, formatting and printing in WORD
    - Update files in MS-Access
    - Use reports to generate summaries in Ms-Access
    - Use PP Facilities to create and automate slide show (including transition)
    - Computing variance analysis using EXCEL
    - Using data from Ms-Access to mail, merge a document in MS-WORD
    - Drawing various types of graphs in EXCEL

CORE PAPER – XI

ACCOUNTING FOR MANAGERS

OBJECTIVE:
To apply advanced managerial accounting concepts in order to make more informed and more effective decisions in simulated and actual business situations, to develop management accounting information systems that will play an important role in the overall success of an organization and to analyze and to apply Modern cost analysis techniques to control and to reduce the cost to enhance the value

UNIT- I

Cost Volume Profit analysis and Decision Making – Pricing Decision under special circumstance – Make or Buy – Shutdown or continue – Export Vs Local Sale – Expand or contract decisions – Product Mix – Price Mix decisions

UNIT- II

Cost concepts in Decision Making – Incremental costing – Differential costing in managerial Decision making

UNIT- III

Capital Investment Decision – Payback and discounted payback – Net present value and taxation – Internal Rate of Return – Accounting Rate of Return – Post project evaluations

UNIT- IV

Transfer pricing – Introduction – Objectives of Transfer Pricing – Methods of Transfer pricing – Transfer Pricing and Performance Measurement and Compensation Issues - Conflict between division and Company – Congruence

UNIT- V

Activity based approaches to Cost and Management Analysis – Activity Based Costing – Activity Based Management –Target costing – Cost ascertainment and pricing using Target Costing

Proportion of theory and problems: 20% and 80%

Book References

1. Charler Brandon, Managerial Accounting, TMH, New Delhi
2. Ray H.Garrison, Managerial Accounting, TMH, New Delhi
3. Ravi M.Kishore, Advanced Management Accounting, Taxman, Publications, New Delhi
4. Advanced Management accounting – Study Material – Institute of Chartered Accountants
5. Horngren, Foster, Datar & Gowing. *Cost Accounting: A Managerial Emphasis*. 5th Cdn edition. Pearson

Web References

www.**accounting**coach.com
www.**accounting**studyguide.com
www.cimaglobal.com

CORE PAPER-XII
INDIRECT TAXES

OBJECTIVE:
To impart knowledge of the important provisions pertaining to Indirect Taxes

UNIT I:
INDIRECT TAXES – AN INTRODUCTION: Special feature of Indirect Tax levies – Contribution to Government Revenues - Role of Indirect Taxation – Merits and Demerits of Indirect Taxation – Reforms in Indirect Taxation

UNIT II:
THE CUSTOMS LAWS: Levy and Collection of Customs Duty – Type of Customs Duty – Prohibition of Importation and Exportation of Goods – Special Provision for Detection and Prevention of Import and Export of certain goods. Valuation of goods under Customs Act – Clearance of Import and Export Goods – Warehousing of Goods – Customs Duty Drawback – Search, Seizure, Arrest, and Confiscation of Goods – Tax Planning in Customs

UNIT III
An overview of Goods & Service Tax (GST) – Introduction of Goods & Service Tax in India – Constitutional Amendment under Pre- Goods & Service Tax Regime & Transitional Provisions. Goods & Service Tax: Concepts, Meaning, Significance, Dual GST, features and benefits. GST Common Portal – Taxes & Duties not subsumed in GST – Rates of GST in India.

UNIT IV
Goods & Service Tax (GST) Council & its role – Registration and Returns - functions and services performed by Goods & Service Tax Network (GSTN) – E-Way Bill Compliance – Doctrine of unjust enrichment – Anti-profiteering – Important definitions.

UNIT V
Goods & Service Tax (GST) Incidence – Challenges for the government after implementation of GST - Principle of Supply: Meaning, classification, time and valuation of supply. Integrated Goods & Service Tax (IGST) Mechanism: Features, Inter State vs. Intra State supply. Input Tax Credit (ITC): Eligibility and conditions to avail ITC -Reverse Charge Mechanism.
Problems to be asked from Unit – II (Customs Duty) only.

ELECTIVE – II CONSUMER BEHAVIOUR

OBJECTIVE:
To develop knowledge and skill in the application of marketing research tools and techniques and to develop an understanding of consumer behavior

UNIT I:
The consumer behavior - Meeting Changes and Challenges – Perspectives towards the study of consumer behavior – Understanding about the dark side of the consumer – various consumer behavior models - Consumer behavior and marketing strategy

UNIT II:
Internal influences on Consumer behavior – Personality – self image and Life style – Consumer motivation – Consumer involvement – Consumer perception – Consumer Learning and knowledge – Consumer attitude and change

UNIT III:
External influences on consumer behavior - The Influences of Culture on Consumer Behaviour - Subcultures and Consumer Behaviour- Social Class and Consumer Behaviour- Reference Groups and Family- Consumer Influence and the Diffusion of Innovations

UNIT IV:
The consumer decision process, prospect theory, heuristics, persuasion- – Consumer decision making processes – Need recognition – Information search – Consumer Evaluation process – Purchase decision – Post purchase decision – Marketing strategies involved in each stage of the process

UNIT V:
Family and Household Decision making - The role of Reference group in purchase decisions – Word of Mouth (WOM) – Demographics and psychographics in consumer purchase decision of the Consumer- Global consumer and diffusion and innovations – Consumer behavior and social marketing - Consumer and public policy

Book References

1. Leon G.Schiffman, Leslie Lazar Kanuk, "Consumer Behaviour ", Pearson Education, New Delhi
2. David L.Loudon, Albert J Della Bitta, "Consumer Behaviour ", McGraw Hill, New Delhi
3. Jay D.Lindquist and M.Joseph sirgy, "Shopper, buyer & consumer Behaviour, Theory and Marketing application", Biztantra Publication, New Delhi
4. Sheth Mittal, " Consumer Behaviour A Managerial Perspective", Thomson Asia (P) Ltd., Singapore
5. Srivastava K K, " Consumer Behaviour an Indian Context", Goal Gotia Publishing Co, New Delhi

EXTRA DISCIPLINARY-II
INDUSTRIAL RELATIONS AND LABOUR WELFARE.

OBJECTIVE:

To offer knowledge on managing industrial relations and the processes, regulations and the authorities regarding industrial relations

UNIT I

Concepts – Importance - Industrial Relations Problems in the Public Sector- Growth of Trade Unions- Codes of conduct

UNIT II

Disputes – Impact – Causes – Strikes - Prevention – Industrial Peace –Government Machinery- Conciliation – Arbitration – Adjudication

UNIT III

Concept –Objectives – Scope – Need- Voluntary Welfare Measures – Statutory Welfare Measures- Labour- Welfare Funds- Education and Training Schemes

UNIT IV

Causes of Accidents – Prevention –Safety – Provisions – Industrial Health and Hygiene- Importance – Problems-Occupational Hazards- Diseases – Psychological problems- counseling-statutory provisions

UNIT V

Child Labour – Female Labour- Contact Labour – Construction Labour –Agricultural labour – Disabled – Welfare of knowledge – Social Assistance – Social Security- Implications.

Book References

1.Mamoria C.B. and Sathish Mamoria , 'Dynamics of Industrial Relations', Himalaya Publishing House, New Delhi 1998
2.Dwivedi. R.S. 'Human Relations & Organisational Behaviour', Macmillan India Ltd., New Delhi, 1997
3.Ratna Sen, 'Industrial Relations in India', Shifting Paradigms, Macmillan India Ltd., New Delhi, 2003
4.Srivastava, 'Industrial Relations and Labour laws', Vikas 4 th edition, 2000
5.Venkata Ratnam C S, 'Globalisation and Labour Management Relations', Response Books, 2001

Web References

www.springer.com
www.emeraldinsight.com
www.tatamcgrawhill.com
www.onlinelibrary.wiley.com

SEMESTER - IV

CORE PAPER- XIII
CHANGE MANAGEMENT

OBJECTIVE:

To enable students to analyze strategic change and how change impacts managerial issues

UNIT- I

Nature, forces, types and models of organizational change - impact of change, transition management

UNIT- II

Progress and challenges in organizational change management - learning organization, role of politics

UNIT- III

Motivating and enabling change, managing complex major changes Effective change leader – Mapping change – the cultural web – cultural attributes to change – resistance to change

UNIT- IV

Mapping change – the cultural web – cultural attributes to change – resistance to change

UNIT -V

Systems approach to change, intervention strategy model, total project management model

Book References

1. Harigopal K, Management of Organizational change – Leveraging transformation, Sage Publications Pvt. Ltd., New Delhi
2. Paton A.R, Mc Calman J, Change Management – A guide to effective implementation, Sage Publications Pvt. Ltd., New Delhi
3. Carr K.D, Hard J.K.Tralant W.J, Managing the change process, Mc GrawHill, NewYork

Web References

www.springer.com
www.emeraldinsight.com
www.tatamcgrawhill.com
www.onlinelibrary.wiley.com

CORE PAPER XIV
ADVERTISING AND SALESMANSHIP

OBJECTIVE:
To enable students to learn the nuances of target marketing and personal selling and public relations

UNIT- I

Introduction to Integrated Marketing Communication – Components of Marketing communication – Advertising – Salesmanship and public relations – The role of Integrated Marketing communication in marketing process – Evaluation of marketing strategy and analysis. Evaluating Social, Ethical and Economical aspects of advertising

UNIT- II

Identification of Target markets – Organization for Advertising and Salesmanship – The communication process – Sources – Message and channel factors –Advertising objectives and Budgeting – Determining the promotional objectives – DAGMAR approach

UNIT- III

Media planning and strategy- Determining different media strategy – Media mix – Evaluation of broadcast media – Evaluation of Print media and evaluation of other support media such as Home media and In-store media and Internet media

UNIT- IV

Direct Selling – Role of Salesmanship in direct selling – Evaluating salesmanship and his effectiveness – The Internet and interactive media – Measuring its effectiveness

UNIT- V

The role of personal selling and public relations in Integrated Marketing communication – International advertising- developing international advertising strategy- International sales force and their management

Book References

1. George E.Belch and Michael A.Belch, Advertsing and Promotion, McGraw Hill Company
2. Ronald, Karen Whitehill king,and J.Thomas Russell, Kleppner's Advertising Procedure, Pearson Education International, Prentice Hall
3. Sarangi, Advertising and Sales Promotion, Asian Books
4. Gupta, Advertising and Sales Promotion, EPH Publisher

Web References

www.marketingpower.com
www.tutor2u.net
www.marketingprofs.com

CORE PAPER XV
CONSUMER RIGHTS AND EDUCATION

OBJECTIVE:

To acquire knowledge as a consumer on basics of Consumer Protection Act and Consumer pressure groups-voluntary consumer organizations.

Unit- I

Consumer Movement in India Profile of Indian Consumer –Problems of Indian Consumers – Consumerism-ill effects of consumerism/Limitation of 'Buyer Beware' concept

Unit- II

Right of Consumers- Responsibilities of Consumers –Consumer Education & awareness building –unfair trade practices –Caveat emptor

Unit –III

Consumer Protection Act- Main Provisions –Redressal forums –District Level –State Level and National Level –Powers & Functions –Filling of Complaints Procedure Regulatory Authorities & OMBUDSMAN

Unit- IV

Consumer pressure groups-voluntary consumer organizations-Consumer Protection Councils-Remedy & Redressal of Grievances –Legal and non-legal

Unit- V

Consumer satisfaction and social Responsibility of Business – Consumer Communication – ethics in advertisement- Consumer care mechanism in Private and Public Sector

Book References

1. Indian consumer protection Act
2. Law of consumer protection – Avatar singh – Eastern Book Company
3. Consumer protection – Jurisprudence – Balakrishna Eradi – Lexis Nexis Butter worth publishing
4. Commentary on the Consumer protection- Universal Law Publication

CORE PAPER XVI

PROJECT REPORT AND VIVA VOCE

GUIDELINES FOR INTERNAL ASSESSMENT –PROJECT WORK

Work load for project work is 6 hours per week. Internal assessment for project work is to be carried out by the Department Committee with HOD as the Chair Person and all project Guides as members. They should assess each candidate based on two presentations. Each candidate should present two seminars. The first seminar after one month of commencement of the Project work/IV th semester, where in the proposal for the project work, review of literature should be presented. The second seminar should be presented before submission of the project work. The second presentation should cover results of the project work. For each presentation 25 marks should be allotted. At the option of the college, the students shall be asked to undergo Institutional training for 4 weeks during summer vacation immediately after first year. If such arrangement is made, the candidate should be asked to make a presentation in the first week of 4^{th} semester on the training programme undergone and the experience gained. 20 marks shall be allotted for this presentation. Where ever Institutional training is encouraged, the project related seminars shall carry 15 marks each.

GUIDELINES FOR CONTINOUS INTERNAL ASSESSMENT FOR 2 PAPERS IN LIEU OF PROJECT.

In case of internal assessment for other papers, each faculty member should conduct a minimum of two tests and the students should write at least one assignment and present one seminar in the subject taught by the faculty member. The marks should be allotted to each component and the total internal assessment marks obtained by each student should be recorded. Each faculty member and the department should maintain a record of the details of internal assessment marks awarded to each student. Each year in the beginning of the 4^{th} semester the Head of Department and the faculty members who are involved in the project guidance should prepare a list of topics for project work and the students should be asked to choose from the list. Each student should work on a different topic. The viva voce for each candidate shall be conducted by the external examiner appointed by the University.

INSTRUCTIONS FOR COURSE TRANSACTIONS Out of the total teaching hour's allotted to each paper, the department committee shall allocate needed number of hours to the following:

- Practical's
- Library work
- Seminars
- Tutorials
- Quiz
- Field Work
- Institutional visits

#@ Viva-voce examination carries 20 Marks and Project Report carries 60 Marks & CIA 20 marks.

Project Viva-voce is considered one core paper.

Project:

Internal Marks best 2 out of 3 presentations = 20 marks

Viva =20 marks
Project Report = 60 marks

ELECTIVE – III HUMAN RESOURCE MANAGEMENT

OBJECTIVES

1. To provide knowledge on understanding managing human resources in organizations.
2. To offer exposure on human resources practices in organizations.

UNIT 1:

Humans and other physical resources –emphasis on the development of the human potential- Implications of Behavioural Science theories to HRM –Link between organization planning and HR planning.

UNIT 2:

Acquisitions and maintenance of personnel- Recruiting and selection process- duties – orientation. Maintenance of personnel- Motivation for increased productivity- Q. W.L.

UNIT 3:

Reward and compensation system –Grievance procedure –conflict –process-Stress Vs Challenge –sources –resolution.

UNIT 4:

Performance Appraisal- Basic consideration –Components- Methods – problem in assessment prevention.

UNIT 5:

Human development, training- identifying needs – Designing training programme – Evaluation of training programme –methods of training – placement and management –organisation changes- changes agents.

References

1. Dressler ,Human Resource Management,8th Ed.Pearson Education,2002
2. De Genzo and Ro~bins, Personnel/Human Resource Management,Prentice Hall of India,1998.
3. S.K.Chakraborty,Values and Ethics for Organisations, Oxford University Press; 1999
4. Aswathappa, Human Resource and Personnel Mal18iement, Tata MCGraw Hill, New Delhi, 2002.

ELECTIVE – IV COMPUTERIZED ACCOUNTING

OBJECTIVE:

To develop the skills of students to prepare Accounting Statements using Accounting software.

Unit -I

Introduction – Features and advantages of Computerized Accounting - Purchases and Sales – Debit and Credit - Types of Accounts – Rules of Double Entry system- Account Books (Journal, Ledger, Subsidiary Books, Final Accounts) - Inventory system.

Unit -II

Tally Start Up Screen – Components – Creation of a Company.- Accounts Only , Accounts with Inventory. Tally Configuration features – Accounting Features, Inventory Features and Statutory Features.

Unit- III

Creation of Accounts Master – Accounts Info. - Ledger , Groups, Cost Categories, Cost Centre- Creation of Inventory Masters – Inventory Info. - Stock Item, Stock Group, Units of Measurement. Bill-wise details –Advantages and Disadvantages.

Unit- IV

Accounting Voucher Entry – Contra, Receipt, Payment, Journal, Purchase, Sales, Debit Note and Credit Note- Accounting Reports – Trial Balance- Profit and Loss Account- Balance Sheet, Cash & Bank books- Ledger Summaries – Bills Receivables and Payable Statements.

Unit -V

Inventory Voucher Entry- Delivery Challan – Goods Receipt Note- Stock Transfer- Bill of Materials- Physical Stock Voucher- Batch wise details - .Inventory Report- Stock Summaries- Order Books Summary- Purchase Order summary- Sales Order Summary.- Statutory Reports.

Note : The practical examination will be conducted by an internal examiner and an external examiner jointly. The Theory paper (3 Hours & 100 Marks) will be scaled to 50 marks. The practical paper (3 Hours & 100 Marks) will be scaled to 50 marks. The candidate has to secure 50 % in each of the Practical & Theory papers to secure pass. Failure to secure the minimum either in the Theory or in the Practical will entitle the reappearance only in that paper. 20 marks out of 100 for the practical paper is reserved for the record.

Book References

1. Nidhani, implementing Tally
2. Namrata Agarwal,Financial Accounting using Tally –Dream tech publishers

Web References

www.computerizedaccount.tripod.com
www.academyoflearning.com

COMPUTERIZED ACCOUNTING- LIST OF PRACTICAL EXPERIMENTS

1. Creation, Alteration AND Deletion of Companies n TALLY
2. Creation of Single and Multiple Ledgers
3. Creation of Groups
4. Preparation of Final Accounts with Adjustments
5. Accounting Voucher Entries – Receipt, Payment, Contra, Purchases and Sales, Debit Note and Credit Note.
6. Inventory Info. Units of Measurement, Stock Group, Stock items
7. Preparation of Statement of Accounts
8. Creation of Cost Centers and Cost Category
9. Preparation of inventory Vouchers
10. Bill of Materials and Stock Journals
11. Bill-wise details and Tracking Numbers
12. Batch-wise Details and Expiry
13. Order Processing – Purchase Order and Sales Order
14. Preparation of Statutory Report – VAT.

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Course No	OTHER ELECTIVES AVAILABLE
Paper- I	Investment Analysis and Portfolio Theory
Paper – II	Managerial behavior and effectiveness
Paper –III	CRM and Relationship marketing
Paper – IV	Management information system
	OTHER EXTRA –DISCIPLINIARY ELECTIVES
Paper – I	Business Ethics and Corporate Social responsibilities
Paper –II	Total Quality Management
PAPER -III	International Marketing
PAPER -IV	Operation Research

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ELECTIVE – I
INVESTMENT ANALYSIS AND PORTFOLIO THEORY

Objective: To provide knowledge on basics of investment management and to develop skill for investment analysis and portfolio building

UNIT- I

Sources of investment information-- investment management -investment objectives, constraints -factors – investment process- investment analysis - economic analysis -industrial analysis role of capital markets.

UNIT -II

Approaches to security analysis- market indicators -security price movements -fundamental analysis -technical-analysis -Dow theory -Random walk theory -efficient market hypothesis -various forms of market efficiency and their implications to security analysis-technical analysis Vs. efficient markets hypothesis.

UNIT -III

Company and Industry analysis - components -non financial aspects -financial analysis -financial statement - analysis of prospectus -ratio analysis -BPS, dividend yield -payout ratio – ROI –Risk and return – Types of risk.

UNIT- IV

Portfolio management -meaning and objectives, traditional and modem portfolio theory. Diversification- Markowitz's approach -portfolio management process-portfolio planning-portfolio analysis-portfolio selection -portfolio evaluation -portfolio revision-various steps involved in the development of portfolio

UNIT- V

Capital market theory -assumptions -risk, investors preference -capital asset pricing model (CAPM) - options pricing model-put and call- valuation of various options -futures trading -hedging and forward contracts -Indian stock market and the institutional investors

Book References

1 Prasanna Chandra, Managing Investments, New Delhi, Tata Mcgraw Hil
2 Elton, Edwin J & Gruber Martin J, Modem Portfolio Theory & Investment Analysis, Wiley & Sons
3 Sidney CottIe, Graham & Dood's, Security Analysis, Tata Mcgraw Hill
4 Fisher D & RJ Jordan, Security Analysis & Portfolio Management, Prentice Hall of India
5 Francis J C and S H Arclean, Portfolio Analysis, Prentice Hall of India
6 Russell Fuller et.al, Modern Investments and Security Analysis, McGraw Hill

Web references

www.amazon.com
www.bcci.bg
www.asrm.edu.pk

ELECTIVE – II
MANAGERIAL BEHAVIOUR AND EFFECTIVENESS

Objective: To develop an understanding of managerial behavior in organization and to sensitize students in managing human relations and on developing managerial effectiveness

UNIT- I

Defining dimensions of managerial jobs –methods –Model –Time dimensions in managerial jobs –Effective and ineffective job behaviour –Functional and level difference in managerial job behaviour

UNIT- II

Identifying managerial talent – Selection and recruitment –Managerial skills development-pay and rewards –Managerial motivation –Effective management criteria –performance appraisal measures –balanced scoreboard –Feedback –Career management –current Practices

UNIT- III

Definition –The person, process, product approaches –Bridging the Gap-Measuring Managerial Effectiveness –Current Industrial and Government practices in the Management of managerial effectiveness-the effective manager as an optimizer

UNIT- IV

Organizational processes-Organizational climate-Leader-Group influences –Job challenge –Competition –Managerial styles

UNIT- V

Organizational and managerial efforts –Self-development –Negotiation skills –Development of the competitive spirit -Knowledge management- Forecasting creativity

Book References

1. Peter Drucker,'Management', Harper Row
2. Milkovich and Newman,'compenstion', McGraw-Hill international
3. Blanchard and Thacker, 'effective Training Systems, Strategies and practices' Pearson
4. Dubin, Leadership,' Research Findings, Practices & skills', Biztantra
5. Mathis Jackson Human Resource Management', Thomson Southwestern

Web References

www.springer.com
www.emeraldinsight.com
www.tatamcgrawhill.com
www.onlinelibrary.wiley.com

ELECTIVE – III
CRM AND RELATIONSHIP MARKETING

Objective: To impart knowledge on customer relationship management and to provide an overview on the various concepts relating to relationship marketing

UNIT- I

Customer Relationship Management - Measurement - Qualitative Measurement Methods - Quantitative Measurement Methods - Calculating Relationship Indices

UNIT- II

Customer Relationship Survey Design - Statistical Analysis of Customer Surveys - Using Customer Relationship Survey Results

UNIT -III

Relationships in Marketing - Relationship Concepts - Relationship Drivers - Lasting Relationships

UNIT- IV

Customer Partnerships – Internal Partnerships – Supplier Partnerships – External Partnership

UNIT- V

The Technological Revolution – Relationship Management – Changing Corporate Cultures

Book References

1. John Egan, “Relationship Marketing, Exploring Relational Strategies In Marketing”, Prentice Hall
2. John Anton, “Customer Relationship Management”, Prentice Hall
3. Jagdish N Sheth and Atul Parvatiyar, “Handbook of Relationship Marketing”, Response Books
4. Anderson, “Customer Relationship management”, Tata McGraw Hill
5. David Strutton; Lou E. Pelton; James R. Lumpkin, “Marketing Channels: A Relationship Management Approach”, McGraw-Hill Higher Education
6. Zineldin, Mosad, “Strategic Relationship Management: A Multi-Dimensional Perspective: Towards a New Co-Opetive Framework on Managing, Marketing and Organizing”, Coronet Books Publishers
7. McKenna, Regis, “Relationship Marketing: Successful Strategies for the Age of the Customer”, Addison-Wesley Longman
8. Christopher, Martin, “Relationship Marketing”, Science & Technology Books

Web References

www.marketingpower.com www.tutor2u.net www.marketingprofs.com

ELECTIVE – IV
MANAGEMENT INFORMATION SYSTEM

Objective: To offer in depth knowledge on information systems in business and their management

Unit- I

Management Information System – Concept, Need, Strategic role – Evolution of Management Information System – Components of Management Information System – Information flow

Unit- II

Data base management systems – Objectives and Components – Database design – Creation and control – Recent trends in database

Unit- III

Developing information system – Planning, Designing and redesigning – Approaches for system development – System analysis and Design – system Implementation and Maintenance

Unit- IV

Transaction processing and Support system – Transaction processing system – Office automation systems – Decision support systems – Executive information systems – Artificial intelligence and Expert systems

Unit- V

Functional Information systems – Production, Finance, Human resource and Marketing – Managing information resources – Information Security – Control & Audit of Information Systems

Book References

1. Azam M, Management Information Systems, Vijay Nicole Imprints
2. James A O' Brain, Management Information Systems', Tata Mc Graw Hill
3. King R William, 'Management Information Systems'
4. Davis, 'Management Information Systems',Mc Graw Hill
5. Wetherbe, Turban, 'Information Technology for Management', John willey publisher
6. Prasad L M, Usha Prasad, 'Management Information Systems', Sultan chand & Sons
7. Goyal D P, 'Management Information Systems – Managerial Perspectives', Mac Millan India Ltd
8. Sadagopan S, 'Management Information System', Prentice Hall
9. Eff Oz, 'Management Information Systems', Vikas Publishing house Pvt. Ltd
10. Muneesh Kumar, 'Business Information Systems', Vikas Publishing house Pvt. Ltd

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www.dbatra.com
www.itworld.com
www.icisa.cag.gov.in

EXTRA- DISCIPLINARY ELECTIVE- I
BUSINESS ETHICS CORPORATE SOCIAL RESPONSIBILITIES

Objective: To develop an understanding among students on ethical issues in business and good governance practices and to impart skills of analysis and capability of making business decisions

UNIT- I

Concept of ethics - sources -- values - codes of conduct - what is an ethical issue? - Ethical theory and its applications to business/morality and ethical theory – Ethical management - love and reverence in work and life - strengthening personal and organizational integrity - the spiritual core of leadership

UNIT- II

Advertising and information disclosures - environmental responsibility - ethics and ecology - employee rights - conflict of interests - work ethics - professional ethics and responsibility

UNIT –III

Corporate Social Responsibility (CSR) - meaning - promoting corporate responsiveness - managing socially responsible business

UNIT- IV

Corporate Governance – Meaning and scope –– Origin- Practices –Shareholders Vs. Stakeholders approach –Board mechanism, Role and duties of the directors-Chairman-Governance committees

UNIT –V

Codes of governance –Birla committee report

Book References

1. A M A, “Corporate Governance And Business Ethics”, Excel Books
2. Cannon Tom, “Corporate responsibility. A textbook on business ethics, governance, environment: role and responsibilities”, Pitman, London
3. Hoffman, W. Michael, et, “Corporate Governance and Institutionalizing Ethics”, Lexington Books
4. Sutton, Brenda, editor, “The Legitimate Corporation; Essential Readings in Business Ethics & Corporate Governance”, Blackwell Publishers
5. Manual Vela Squez, “Business Ethics Concepts and Cases”, Prentice Hall, New Jersey
6. Kenneth Blanchard and Norman Vincent Peale, “The Power of Ethical Management”, New York, William Morrow & Co.,
7. Sekhar R C, “Ethical Choices in Business”, Response Books
8.Kendall, Nigel, “Corporate Governance”, London, Financial Times Pitman Publishing

Web References

www.business-ethics.com www.cgi.com www.businessethics.ca
www.societyforbusinessethics.org e-businessethics.com

EXTRA- DISCIPLINARY ELECTIVE- II
TOTAL QUALITY MANAGEMENT

Objective: To provide expert knowledge in the emerging Total Management techniques and to build conceptual clarity and skill of concept applications

UNIT- I

Introduction to Quality Control - Quality and Cost Considerations - Statistics and its Applications in Quality Control

UNIT- II

Sampling Inspection in Engineering Manufacture- Statistical Quality Control by the Use of Control Charts- Methods of Inspection and Quality Appraisal - Reliability Engineering - Value Engineering and Value Analysis

UNIT- III

Theory of Sampling Inspection - Standard Tolerancing - ABC Analysis - Defect Diagnosis and Prevention

UNIT- IV

Quality Improvement: Recent Technique for Quality Improvement - Zero Defect - Quality Motivation Techniques - Quality Management System and Total Quality Control

UNIT- V

Selection of ISO Model ad Implementation of ISO 9000 - Human Resource Development and Quality Circles - Environmental Management System and Total Quality Control

Book References

1. Srinivasa Gupta and Valarmathy, Vijay Nicole Imprints
2. Dahlgaard Jens J., Kristensen K., Kanji Gopal K, "Fundamentals Of Total Quality Management", Bross Chapman & Hall, London
3. George, Stephen and Weimerskirch, Arnold, "Total Quality Management - Strategies and Techniques Proven", Mohit Publications
4. Hakes, Chris (editor), "Total Quality Management: The Key to Business Success", NY: Chapman and Hall
5. Fox, Roy, "Making Quality Happen. Six Steps to Total Quality Management", McGraw-Hill
6. Jain, "Quality Control And Total Quality Management", Tata McGraw Hill
7. Lal H, "Total Quality Management: A Practical Approach", New Age International Private Ltd
8. Rao, Ashok, "Total Quality Management: A Cross Functional Perspective", Wiley & Sons

Web References

www.managementhelp.org
www.tqmschool.com
www.bpir.com

EXTRA- DISCIPLINARY ELECTIVE- III
INTERNATIONAL MARKETING

Objective: To offer knowledge and expertise in the marketing business at global level and to provide exposure on marketing practices of business firms

UNIT- I

The concept of global marketing – Importance, Growth and Benefits – Scope and Challenge of international marketing – The dynamic environment of international marketing

UNIT- II

Developing Global Marketing strategies – Global marketing management –Planning and Organization – International Marketing Information System and Research – Understanding Global Consumers – Cultural Dynamics in assessing Global markets

UNIT- III

International product policy – Product positioning in foreign market – Product standardization and Adoption – Brands, Trademarks, Packaging and Labeling – International marketing of services – International product pricing policy – Export pricing –Pricing for international markets.

UNIT- IV

International promotional policy – International advertising – Developing International advertising strategy – International sales force and Their management – Other forms of promotion for global markets

UNIT- V

Overseas marketing channel policy – Managing international distribution channels – Multinational retailers and Wholesalers – Global Logistics – Contemporary issues in International marketing – Future prospects in International marketing

Book References

1. Raju M S and Dominique, Xardel, Marketing Management – International Perspectives, Vijay Nicole Imprints
2. Dana – Nicoleta, Laseu, 'International Marketing', Biztantra 2003
3. Vasudeva R K, 'International Marketing' Excel books, 2004
4. Srinivasan R, 'International Marketing' Prentice Hall India
5. Warren J. Keagan, Mark Green, 'Global Marketing 3/e, Prentice Hall
6. Philip R. Cateora, John Graham, 'International Marketing', Irvine – Sage Publications, 2004
7. Vern Terpstra, Ravi sarathy, 'International Marketing', Harcourt college publishers, 2001
8. Rathor, Jani Rathor, 'International Marketing', Himalaya publishing House
9. Sherlekar S A, V.S. Sherlekar, 'Global Marketing Management', Himalaya publishing House.

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www.taylorandfrancis.co m
www.oxfordjournals.com

EXTRA- DISCIPLINARY ELECTIVE- IV
OPERATIONS RESEARCH

Objective : To impart knowledge on the various techniques of operations research

Unit I:

Introduction to Operations Research – Meaning – Definition – Characteristic features – Scope – Steps – Techniques – Application – Limitations.

Unit II:

Linear Programming Problem (LPP) – Meaning – Assumptions – Applications – Formulating LPP – Advantages – Limitations – Formulating LP Model (Simple Problems only) – Obtaining Optimal Solution for Linear Programming Problem (LPP) – Graphical Method – Problems – Simplex Method for ≤ type and for slack and variable case – Maximisation function (Simple Problems only)

Unit III:

Transportation Problems (Initial Basic Feasible Solution) – Assumptions – Degenerate solution – North-west Corner method – Least Cost method – Vogel's approximation method – Testing Optimality - Assignment problems – features – Transportation Vs Assignment problem - Hungarian method (Simple Problems only)

Unit IV:

Network analysis – Network diagram and critical path problems without crashing - PERT and CPM – Differences.

Unit V:

Game theory – Meaning – Types of games – Basic assumptions – Finding value of game for Pure Strategy – Mixed Strategy – Saddle point – Pay-off matrix – value of game (Simple Problems only)

Proportion of theory and problems: 20 : 80

Books for Readings:

1. Agarwal N P and Sonia Agarwal, Operations Research and Quantitative Techniques, RBSA Publishers, New Delhi, 2009
2. Anand Sharma, Operations Research, Himalayan Publishing House, 2014, Mumbai
3. Gurusamy S, Elements of Operations Research, Vijay Nicole Imprints, 2015, Chennai
4. Gupta P K and Gupta S P, Quantitative Techniques and Operations Research, Sultan Chand and Sons, 2014, New Delhi
5. Kapoor V K, Operations Research Techniques for Management, Sultan Chand and Sons,2012, New Delhi

E-Resources:

1. http://www.learnaboutor.co.uk/
2. http://www.theorysociety.com/
3. http://www.orcomplete.com/
4. http://www.orsi.in/

GURU NANAK COLLEGE

(Autonomous)

Velachery Road, Chennai – 600042

(Re-accredited at 'A' grade by NAAC)

Affiliated to the University of Madras

MASTER OF SOCIAL WORK



RULES AND REGULATION

UNDER CHOICE BASED CREDIT SYSTEM

EFFECTIVE FROM

THE ACADEMIC YEAR 2019-2020

MSW PROGRAMME

1. INTRODUCTION:

Master of social work is a Professional course and therefore the objectives are to prepare candidates for a career in social work and in its different fields of social work. Guru Nanak College, an autonomous institution affiliated to the University of Madras, adopting Choice Based Credit System (CBCS) introduces the semester system with credit from the academic year 2016-2017 onwards. Its purpose is to provide a Value added, market driven and indigenously relevant course in social work education.

2. OBJECTIVES OF THE COURSE:

The objective of the MSW course is focused on preparing the candidates for a career in social work through a professional training programme aimed at developing them.

- Scientific knowledge about the dynamics of problems and issue in our society.
- An ability to critique the ideologies that lead to systematic domination and marginalization of vulnerable groups.
- Necessary skill awareness, skills aiming at empowerment of people and skills in culture-sensitive method of social chance.
- Ability to apply skills in social work practice and social work research in different fields for achieving desirable chance and development and empowerment of people.
- Attitude and values necessary for working with people and organizations for achieving the goals of social work profession namely:
    1. To enhance peoples capacity for social functioning
    2. To improve the quality of life for everyone
    3. To promote the social justice
    4. Provide opportunity for people to develop their capacities to become participating and contributing citizens.

3. PATTERNS OF THE COURSE:

Adopting the CBCS pattern, the course study for the MSW degree programme shall extend over 4 semesters (Two years) and shall consist of:

1. Theory course/ paper (Core, Interdisciplinary, Electives, Specialization, Extra-disciplinary papers)
2. Field Practicum (As core paper)
3. Research Project (As core paper)
4. Co-curricular components viz., Rural camp, Summer placement, Study tour and Block placement. (As core paper)
5. Besides the above, students should also undergo the Madras University specified soft-skill course (As supportive courses) which are compulsory.

4. ELIGIBILITY FOR ADMISSION:

All the Bachelor (Undergraduate) degree holders of Madras University (or from any university degree) holders declared eligible by Madras University and with right aptitude for social work profession will be eligible for applying for the course. Admission will be based on the merit subject to the government and institutional regulations.

5. ELIGILBILITY FOR THE AWARD OF DEGREE:

As per the autonomous regulation a candidate in the Guru Nanak College becomes eligible for the award of the degree of MSW subject to the fulfillment of the following conditions:

- Undergone the post-graduate course of study in social work offered by the Guru Nanak College over 4 (four) Semesters two years full time and has earned the prescribed 92 credits.
- Passes all the theory examination, participated in Rural Camp and completed study tour, summer placement and Block field work practicum.
- Meets all the requirements in vogue as prescribed by the Board of Studies in Social Work at the time of admission and the amendment introduced to the regulation from time to time.

6. CONDITIONS FOR PROMOTION:

A candidate who does not pass the examination relating to any theory paper in each of the semester shall be permitted to appear in such failed paper in the ensuring supplementary examination held by the institute. However, to get the result declared pass, one should have passed in all the examination held by the college and completed all the courses.

7. EXAMINATIONS

Continuous Internal Assessment (CIA) and End Semester Examination (ESE), each carrying 50% marks, will form the basis for grading student performance in each paper.

CONTINUOUS INTERNAL ASSESSMENT

Continuous assessment will be made by teachers responsible for the course they teach on dates centrally fixed by the college. Every semester has two centralized CIA examinations and one model examination for each paper. The Continuous Assessment Tests (CAT) of one and a half hour duration would be held on completion of 30 and 60 working days each semester. Students who fail to write one or more CATs will have to register for a re-test after obtaining clearance from the HOD and Dean Academics. Re-test is generally not allowed except in the case of students who miss CA tests because they were away on those days representing college in sports or cultural activities or for any justifiable reason acceptable to the Principal/Dean. Principal/Dean may grant special permission to such candidates for taking just one additional paper of three hour duration covering the entire syllabus of that paper. This test should be taken before the commencement of the End of Semester Examination of that semester. A Model exam of three hours duration will be held at the end of each semester. The schedule for these tests is as follows:

C.I.A Test	Schedule	Syllabus Coverage
I	After 30 working days from the commencement of the semester	40%
II	After 60 working days of the semester	80%
III (Model)	After 80 working days of the semester	90%

The components for the CIA are as follows:

Internal Components			
Assessment Type	**Nature**	**Maximum marks**	**% of Weightage**
CIA	Written test I	50	5
	Written test II	50	5
	Model examination	100	10
	Assignment		10
	Class activities		15
	Attendance		5
	Total		**50**

The class activity relates to a programme of accepted innovative techniques such as seminars, quiz, portfolio creation, MCQ, power point presentation, objective tests, role play etc. This class activity for evaluation will be fixed before the commencement of the semester with the approval of theHOD.

A student should attend at least one test in order to declare him/her as pass in the internal assessment tests even though he/she has got pass marks in the overall internal components. Candidates who fail in a paper for want of sufficient marks in CIA will have to seek improvement by coming back to the semester for CA exams or repeating it after the completion of the course at the time of regular CIA.

A record of all such assessment procedures will be maintained by the department and is open for clarification by the students. Students will have the right to appeal to the Principal in case of glaring disparities in marking.

CIA marks for practical subjects will be awarded by the respective faculty based on the performance of the student in the model practical examination, observation notebook, submission of record books, regularity and attendance to the practical classes. The attendance particulars for practical classes will be maintained by the concerned faculty.

Marks for attendance will be awarded as per the following:

Percentage of General Attendance	Marks Awarded
90-100	5
75-89	4
60-75	3
<60	0

END SEMESTER EXAMINATIONS (ESE)

Examinations will be conducted during each semester after the completion of a minimum of 90 working days. Examinations will be held for all papers of the course in Nov/Dec and April/May for all UG and PG courses. Practical examinations will be conducted only during the end of the even semester either before the commencement of the theory exam or after the theory exams. The schedule for ESE Practical will be notified by the Controller of Examinations in consultation with the Dean of Sciences.

A candidate will be permitted to appear for the End of Semester examinations for any semester if:

- He / She secure not less than 75% of attendance in the working days during the semester.
- His / Her conduct has been satisfactory
- He / She should have applied for the examination
- He / She should have paid the requisite examination fee

The attendance requirement to appear for the ESE is as follows:

Students must have **75%** of attendance in each part of the course of study to appear for the examination.

Students who have **65% to 74.9%** of attendance shall apply for condonation in the prescribed form along with the prescribed fee after obtaining permission from the Dean. Students cannot claim condonation as a matter of right. Submission of medical certificate is normally not accepted to condone shortage of attendance.

Students who have **50% to 64.9%** of attendance will fall under the ―Withheld‖ category. Such students cannot take the ESE exams. They should apply to the Principal for permission to write the next supplementary examination and pay the requisite fee for this purpose.

Students who have less than **50%** of attendance fall under the "detained" category and **are not** permitted to appear for the examination. **They shall redo the semesters after completion of**

the course and appear for the examination after securing the required percentage of attendance. The decision of **Principal** remains final and binding in all respects.

Students who do not get the minimum marks to pass in the ESE shall compulsorily re-appear for the paper in the subsequent semester after paying the required fee. Candidates who fail in any of the papers in the UG and PG End of Semester examinations shall complete the paper concerned within 5 years from the date of admission to the particular course. If they fail to do so, they shall re-register their names and take the examination in the revised regulations/syllabus of the paper in force at the time of their reappearance. In the event of removal of that paper consequent to change of regulation and/or curriculum after 5-year period, the candidate shall have to take up an equivalent paper in the revised syllabus as suggested by the Chairman, Board of Studies concerned.

Instant Examination. (Special Supplementary Examination)

In order to provide an opportunity to the final year UG and PG students to obtain the degree in the same year itself and to facilitate vertical mobility, special supplementary End of Semester examinations will be conducted in about 20 days from the date of publication of results every year for the final semester theory papers and also for the candidates who fail in only one theory paper of the previous semesters. Students, who wish to apply for special supplementary End of Semester examinations, can do so within 7 days from the date of publication of results.

Malpractice cases, if any, will not be permitted to appear for <u>Supplementary Examination</u>

The details of the ESE is as follows:

External Component			
Assessment type	**Comprehensive**	**Maximum Marks**	**% of Weightage**
External Exam	3 hours examination	100	50
	Grand total (CIA+ESE)		**100**

CONDUCT OF EXAMINATION

Chief Superintendent of exams will be the Principal or a person appointed by him. The conduct of end of semester examination lies with the team headed by the Chief Superintendent.

Time-table for examinations will be finalized the office of the Controller of Examinations and will be displayed well in advance i.e., 20 days prior to the commencement of examination.

The Hall tickets for eligible students will be issued **5** days prior to the commencement of examination.

For Subjects like Environmental Studies, Value Education etc. End Semester Examinations may be conducted on- line or along with the regular ESE.

a. VALUATION

Valuation of the answer scripts are undertaken at the central valuation camp lead by the Controller of Examination or the Camp Officer appointed by the Controller of Examinations.

Single valuation of answer scripts by external examiners is adopted for both UG and PG courses

b. PUBLICATION OF RESULTS

The Examination results will be published on the web during the second / third week of May for the II, IV and VI semester examinations and during the second / third week of December for the I, III and V semester examinations

PROVISION FOR OBTAINING PHOTOCOPY AND REVALUATION OF VALUED ANSWER SCRIPTS

- A student can request the Principal for a photocopy of the answer book within seven days from the announcement of the results. Such requests should be endorsed by the HOD and submitted along with the prescribed fees for forward transcription to the COE.
- Students intending to go for revaluation after obtaining the photocopy of the answer script shall apply to the COE in the prescribed format along with fees duly endorsed by the HOD and Principal. The application should reach the COE within 7 days from receipt of the photocopy of the answer script.
- Revaluation /obtaining photocopy of answer scripts is permissible only for the current semester papers and not for any arrear paper.
- For re-valuation, the answer papers will be valued by two external examiners separately and the average mark of the valuations will be taken into account.
- The revaluation results will be forwarded to the Principal within 15 working days.

8. Revised mark statement will be issued after withdrawing the previous one, if the marks obtained in revaluation are higher than the marks obtained earlier. In other cases, the original marks obtained earlier will be retained and the matter will be intimated to the student concerned as _No change‘.

9. CLASSIFICATION OF PERFORMANCE – GRADING SYSTEM FOR THE SEMESTER

A candidate shall be declared to have qualified for the award of the Degree provided the candidate has successfully completed the Programme requirements and has passed all the prescribed subjects of study in all the semesters.

Conversion of Marks to Grade Points and Letter Grade (Performance in a paper/course)

<table>
<tr><td colspan="2">Range of Marks</td><td colspan="2">Grade Points</td><td colspan="2">Letter Grade</td><td colspan="2">Description</td></tr>
<tr><td colspan="2">PG & UG</td><td colspan="2">PG & UG</td><td colspan="2">PG & UG</td><td colspan="2">PG & UG</td></tr>
<tr><td colspan="2">90-100</td><td colspan="2">9.0-10.0</td><td colspan="2">O</td><td colspan="2">Outstanding</td></tr>
<tr><td colspan="2">80-89</td><td colspan="2">8.0-8.9</td><td colspan="2">D +</td><td colspan="2">Excellent</td></tr>
<tr><td colspan="2">75-79</td><td colspan="2">7.5-7.9</td><td colspan="2">D</td><td colspan="2">Distinction</td></tr>
<tr><td colspan="2">70-74</td><td colspan="2">7.0-7.4</td><td colspan="2">A +</td><td colspan="2">Very Good</td></tr>
<tr><td colspan="2">60-69</td><td colspan="2">6.0-6.9</td><td colspan="2">A</td><td colspan="2">Good</td></tr>
<tr><td colspan="2">5 0 - 5 9</td><td colspan="2">5 . 0 - 5. 9</td><td colspan="2">B</td><td colspan="2">A v e r a g e</td></tr>
<tr><td>PG</td><td>UG</td><td>PG</td><td>UG</td><td>P G</td><td>U G</td><td>PG</td><td>U G</td></tr>
<tr><td rowspan="2">00-49</td><td>40 - 49</td><td rowspan="2">0.0</td><td>4.0-4.9</td><td rowspan="2">U</td><td>C</td><td rowspan="2">Re-appear</td><td>Satisfactory</td></tr>
<tr><td>00-39</td><td>0.0</td><td>U</td><td>Re-appear</td></tr>
<tr><td colspan="2">ABSENT</td><td colspan="2">0.0</td><td colspan="2">AAA</td><td colspan="2">ABSENT</td></tr>
<tr><td colspan="2">B.Com (Hons)</td><td colspan="2">B.Com (Hons)</td><td colspan="2">B.Com (Hons)</td><td colspan="2">B . C o m (H o n s)</td></tr>
<tr><td colspan="2">00 - 59</td><td colspan="2">0 . 0</td><td colspan="2">U</td><td colspan="2">Reappear</td></tr>
</table>

Classification of Grades

C G P A		G R A D E		CLASSIFICATION OF FINAL RES ULT	
PG & U G		**PG & UG**		**PG & UG**	
9.5 - 10. 0		O+		First Class – Exemplary*	
9.0 and above but below 9.5		O		First class- outstanding*	
8.5 and above but below 9.0		D++		First Class with Distinction*	
8.0 and above but below 8.5		D+			
7.5 and above but below 8.0		D			
7.0 and above but below 7.5		A++		First Class	
6.5 and above but below 7.0		A+			
6.0 and above but below 6.5		A			
5.5 and above but below 6.0		B +		Second Class	
5.0 and above but below 5.5		B			
P G	**U G**	**PG**	**U G**	**P G**	**U G**
0.0 and above but below 5.0	4.5 and above but below 5.0	U	C +	Re – appear	Third Class
	4.0 and above but below 4.5		C		
	0.0 and above but below 4.0		U		Re- appear

*** The candidates who have passed in the first appearance and within the prescribed semester of the UG/PG Programme (Core, Allied, Elective, Project and Internship courses) alone are eligible.**

Grading For a Semester/Year:

GRADE POINT AVERAGE [GP] = ∑i CiGi /∑iCi

$$\text{GPA} = \frac{\text{Sum of the multiplication of grade points by the credits of the courses}}{\text{Sum of the credits of the courses (passed) in a semester/year}}$$

For the entire programme:

CUMULATIVE GRADE POINT AVERAGE [CGPA] = ∑n∑iCniGi/∑n∑iCni

$$CGPA = \frac{\text{Sum of the multiplication of grade points by the credits of the entire programme}}{\text{Sum of the credits of the courses of the entire programme}}$$

(CGPA is calculated only if the candidate has passed in all the courses in the entire programme)

C1 = Credits earned for course *i* in any semester / year.

G1 = Grade Point obtained for course *i* in any semester / year.

*n*refers to the semester/year in which such courses were credited. I = Credits earned for course i in any semester.

Gn = Grade Points obtained for course i in any semester.

n refers to the semester in which such courses were credited

Passing Minimum

Passing minimum of each subject/course under PG Programme is 50% in CIA, 50% in ESE and 50% in aggregate i.e., CIA + ESE

Passing minimum of each subject under Career Oriented Programmes, Certificate Courses and Diploma courses is 40% in CIA and ESE and 40% in aggregate i.e., CIA + ESE. Both UG and PG students are at liberty to study these courses jointly

Passing minimum for each PG Diploma course offered by a PG Department as a part of the curriculum to its students is 50% in ESE and 50% in aggregate i.e., CIA + ESE, since graduates alone are admitted to these Courses

10. REQUIREMENT FOR PROCEEDING TO SUBSEQUENT SEMESTER

(a) Candidates shall register their names for the first semester examination after admission in the UG courses.

a. Candidates shall be permitted to proceed from the first semester up to final semester irrespective of their failure in any of the semester examinations subject to the condition that the candidate should register for all the arrear subjects of earlier semesters along with current (subsequent) semester subjects

b. ISSUE OF CERTIFICATES

1. Mark Sheet

Mark sheets will be issued every semester to all students who have taken the examination.

2. Consolidated Mark Sheet

Consolidated mark sheets will be given to final year students along with total credits earned only to those who have passed all the papers prescribed for the respective degree.

3. Transcript

Students who are desirous to obtain any other certificates like Transcript certificates for joining courses of study in other Universities in India or abroad or for obtaining scholarships, can obtain these certificates from the office of the Controller of Examinations. A requisition letter duly signed by the Student and forwarded by the Principal along with fee challan is to be submitted to the office of the Controller of Examinations. The certificates will be provided within 15 working days.

4. Provisional Certificate

A copy of the results of the successful final year students will be sent to the University of Madras in the prescribed format in July/August and the University will issue a Provisional Certificate through the College. This may take around 2 months.

5. Corrections in the Certificates

Any corrections like name, date of birth etc., can also be made in the certificate. A letter of request duly signed by the student, HOD and Principal along with the prescribed fee paid challan is to be forwarded to the office of the Controller of Examinations. The time line to update will be 15 working days. The amount once paid will not be refunded under any circumstances.

6. Issue of Duplicate Mark Sheet

In case of loss of mark sheet / certificate, a duplicate may be provided after submitting a non-traceable certificate issued from the Police station duly signed by an Inspector or Sub Inspector. A requisition letter duly signed by the Principal along with the requisite fees should also be submitted to the office of the Controller of Examinations. Certificates which are torn will not be replaced.

7. Duplicate Provisional Certificate / Degree Certificate

Students have to apply directly to the University of Madras for duplicate provisional certificate and degree certificate.

8. Verification of Qualification

The agencies who request for verification of educational qualifications of students under autonomous mode of this college and students who opt for higher studies / employment and who require verification of educational qualification shall apply to the Principal to this effect along with the prescribed fees. The letter of request has to be forwarded to the OCOE. The relevant certificate will be issued within 15 working days from the office of the Principal.

CONVOCATION AND NOTICE

1. Convocation

Students must apply for their Degree certificates along with copy of the provisional certificates in the application form issued by University of Madras and submit the same in the college office on or before the last date fixed by the college. Every year after the Convocation

held by University of Madras, the college will hold a Graduation day / convocation in which the Degree certificates will be distributed to the students who are present. For others it will be issued through the college administrative office.

2. Notice

Candidates, who have completed the duration of the course and left the College, can get information regarding Supplementary Examinations, issue of examination application forms, certificates and application for Graduation day through the college web site and general notice board. Regular students will however be informed of the examinations by circulation, in addition to the modes mentioned above**.**

No candidate will be communicated individually. The liability lies on the candidates for their certificates. The College shall not be liable for whatever lapse that occurs due to the ignorance of the candidates.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN FOR THEORY PAPERS WITHOUT PRACTICALS:

QUESTION ALLOTMENT	**MAXIMUM 1 00 MARKS** **PASSING MINIMUM 50 MARKS** **THREE HOURS DURATION**
QUESTION 1-12 Answer any 10 questions	P AR T- A (10 X 2 = 20 MARKS) ANSWER ANY 10 QUESTIONS EACH QUESTION CARRIES 2 MARK
QUESTION 13-2 0 Answer any FIVE out of 8	PART-B (5 X 8 = 4 0 MARKS) ANSWER ANY FIVE QUESTIONS EACH QUESTION CARRIES 8 MARKS
QUESTION 21 TO 24 Answer any TWO out of 4	P A R T -C (2 X 2 0 = 4 0 M A R K S) ANSWER ANY TWO QUESTIONS EACH QUESTION CARRIES 20 MARKS

II-CREDIT-COURSE-SYLLABUS MATRIX - A - CREDIT MATRIX

SEM NO	TYPE OF PAPER	TYPE OF PAPER	TOTAL NOOF PAPERS	CREDIT PER PAPER	Teaching Hours r paper per week @3 class days per We e k	Duration of semester Exam (Hours)	PAPER-WISE CREDIT TOTAL			SEMISTR –WISE CREDIT TOTAL
								Core	Non-core	
I	CORE	Theory	3	3	4	3	9	1 5		21
		Field Work	1	6	-	Viva	6			
	Elective	T h e o r y	2	2	3	3	4			
	Soft Skill	-	1	2	2*	CIA	2		6	
II	C O R E	Theory	3	3	4	3	9	1 7		23
		Field Work	1	6	-	Viva	6			
		Summer Placements**		2	-	Individual presentation	2			
	Elective	Theory	2	2	2	3	4			
	Soft Skill		1	2	2*	CIA	2		6	
III	CORE	Theory	3	3	1 2	3	9	1 6		22
		Field Work	1	6	-	Viva	6			
		Study Tour**	1	1	4 - 5 day s	-	1			
	Elective	Theory	2	2	2	3	4			
	Soft Skill	-	1	2	2*	CIA	2		6	
IV	CORE	Theory	3	3	1 2	3	9	23		27
		Field Work	1	6	-	v i v a	6			
		Research Project	1	6	3	Only ICA and Viva	6			
		Block Placement * *	-	2	-	-	2			
	Interdisciplinary	Theory	1	2	4	3	2		4	
	Soft Skill	-	1	2	2*	CIA	2			
	TOTAL							**71**	**22**	**9 3**

Note:*Depending on the convenience this course will be offered in the patterns of 18 Hours / Semester (or) 3 full days / semester.

+For the soft skill course the pattern & Syllabus prescribed by the University of Madras will be adopted.

** Summer placement, study tour & Block Placement at the end of the II, III & IV semester after the completion of the respective semester examinations. No theory examination for these courses, but attendance is compulsory for course completion.

B-SYLLABUS MATRIX

SEMESTER I

Course Component	Title of the Paper	Credits	Lecture Hours	Exam Hours	CIA	ESE	Max. Marks
Core Paper -1	Social Work Profession	3	45	3	50	50	100
Core Paper -2	Social Work with Individuals	3	45	3	50	50	100
Core Paper -3	Social Work with Groups	3	45	3	50	50	100
Elective - I	Sociology	2	30	3	50	50	100
Elective- II	Psychology	2	30	3	50	50	100
Core Paper -4 (Field Work)	Concurrent Field Work - I	6	-		50	50	100
Soft Skill - 1	Language and Communication skills	2	30	3		100	100
	Rural Camp (In between the semester)						
	Total Credits	**21**					

SEMESTER - II

Course Component	Title of the Paper	Credits	Lecture Hours	Exam Hours	CIA	ESE	Max. Marks
Core Paper -5	Social Work with Communities and Social Action	3	45	3	50	50	100
Core Paper -6	Social Work Research and Statistics	3	45	3	50	50	100
Core Paper -7	Social Welfare Administration	3	45	3	50	50	100
Elective - III	Social Policy and Social Legislation	2	30	3	50	50	100
Elective - IV	Gender and Development	2	30	3	50	50	100
Core Paper - 8 (Field Work)	Concurrent Field Work - II	6	-		50	50	100
Soft Skill - II	Computing Skills	2	30	3		100	100
Field Work	Summer Placement (After the second semester theory examination during summer vacation)	2					
	Total Credits	**23**					

SEMESTER - III

Course Component	Title of the Paper	Credits	Lecture Hours	Exam Hours	CIA	ESE	Max. Marks
Core Paper - 9 (Specialization Paper – 1)	Rural Community Development (CD)/ Labor Legislation (HR)/ Mental Health and Psychiatric Disorders (MPSW)	3	45	3	50	50	100
Core Paper -10 (Specialization Paper – 1I)	Development and Social Work Practice (CD)/ Human Resource Management (HRM)/ Public Health in India (MPSW)	3	45	3	50	50	100
Core Paper -11 (Specialization Paper – 1II)	Working with Children and Youth (CD)/ Employee Relations and Welfare (HRM)/ Medical Social Work (MPSW)	3	45	3	50	50	100
Elective – V (Specialization Paper – IV)	Counselling (CD and MPSW)/ Strategic Management (HRM)	2	30	3	50	50	100
Elective – VI (Specialization Paper – V)	Social Entrepreneurship (CD and MPSW)/ Quality Management (HRM)	2	30	3	50	50	100
Core Paper – 12 (Field Work)	Concurrent Field Work - III	6	-		50	50	100
Soft Skill- III	Managerial Skills	2	30	3		100	100
	Study Tour	**1**					
	Total Credits	**22**					

EMESTER - IV

Course Component	Title of the Paper	Credits	Lecture Hours	Exam Hours	CIA	ESE	Max. Marks
Core Paper - 13 (Specialization Paper – V1)	Urban Community Development (CD)/ Organizational Behaviour (HRM)/ Psychiatric Social Work (MPSW)	3	45	3	50	50	100
Core Paper -14 (Specialization Paper – V1I)	Dalit and Tribal Development (CD)/ Organizational Development (HRM)/ Therapeutic Interventions in Social Work Practice (MPSW)	3	45	3	50	50	100
Core Paper -15 (Specialization Paper –V1II)	Management of Non Governmental Organisations(CD)/ Human Resource Development (HRM)/ Hospital Administration (MPSW)	3	45	3	50	50	100
Interdisciplinary (Common Paper)	Corporate Governance and Corporate Social Responsibility (CD, MPSW and HRM)	2	30	3	50	50	100
Core Paper – 16 (Field Work)	Research Project	6	30	3	50	50	100
Core Paper – 17	Concurrent Field	6			50	50	100
(Field Work)	Work - IV						
Soft Skill - IV	Spoken and Presentation Skills	2	30	3		100	100
Core Paper (Field Work)	Block Placement (After the IVth Semester Theory Examination)	2					
	Total Credits	**27**					

Note: The Soft skill courses will not be taken into account for classification. But candidates should appear and pass all these subjects for course completion.

C – FIELD PRACTICUM CREDIT SCHEDULE

Semester	Type of Field Work	Minimum Number of days	Minimum Number of Hours	Credits
I	Concurrent Field Work - I	24	180	6
II	Concurrent Field Work - II	24	180	6
II	Summer Placement	30		2
III	Concurrent Field Work - III	24	180	6
IV	Concurrent Field Work - IV	24	180	6
IV	Block Placement	30		2
Total Credits				**28**

REGULATIONS

The college offers this course with three specializations viz., Human Resource Management, Community Development and Medical and Psychiatric Social work.

As a result of this the following arrangement will be made for the field work training. All the social work specialization students will have to undergo the field work training in all the three specialized agencies (For example: summer placement community development ; Semester III& IV : Human Resource Development, Community Development, and Medical and psychiatric social work; block placement : As per the choice of the students.)

I – ASSESSMENT PATTERN (ALL SEMESTERS)

i. **Theory**: 100 marks (Internal 50marks,External 50 marks)
Internal 50 marks (Test1- 5marks, Test 2- 5 marks, Model exam – 10, Class activity – 15, Seminar / assignment - 10, Attendance 5)

ii. **Field Work** – I to IV Semester
Total 100 (Internal : 50 & External : 50)
Internal 50 marks:
I semester:
Observation visit 15marks ; Rural camp 35 marks (Rural camp 20 marks:

Pre – camp – Faculty supervisor 10,Post camp 10 – Camp Directors, Rural camp report-15 marks)

II to IV semester:

Faculty supervisor 50 marks

External 50 marks:

Field work viva (Report 20 ,Viva 20)

Agency supervisor. 10

iii. Research project work:

100 marks (Research guide 40, External examiner for quality of report 40, viva 20)

Note:

The other course requirements such as study tour, summer placement and Block placement will not be carrying any marks. They are a requirement for course completion.

II – FIELD WORK:

General:

Dress code: only formal dress will be allowed. 100% attendance in field work is compulsory for successful completion and getting pass.

The field work reports to be submitted for viva for the respective semesters and has to be submitted to the external examiners well in advance to enable to conduct the viva.

Concurrent field work will be for two days in a week as decided by the department.

I – MSW (I & II Semester)

a. **Observation visit:**
   All the observation visits are compulsory .Absentees for a particular visit should complete the visit the same agency on their own arrangement before the completion of the observation visit period.
b. **Rural camp:**
   Student's participation in rural camp is compulsory to complete the course. Absentees will have to attend the camp along with subsequent batch of students
c. **Concurrent field work:**

Mark allocation : 50 internal + 50 external.

50 Internal + 20 agency supervisor + 30 viva voce examinations.

Viva-voce examination panel:

One practitioner from the relevant field + Faculty supervisor.

d. Summer placement:

After completing the summer placement training (on reopening of the college for the III semester) every student has to submit a report about the placement and also should make a presentation about the placement learning.

Format to be adopted by the students for the summer placement report:

1. About the agency
2. Activities, programmes & projects of the agency
3. Learning strategy adopted by the student and learning.

During presentation session the whole class will be divided on the basis of the specialization (CD, HR & MPSW) and to make the presentations.

Summer placement component carry no assessment component.

II M.S.W. (III & IV Semester)

a. Concurrent field work : (III & IV semester) placement:

HR specialization:

III semester (Manufacturing sector)

IV Semester (IT / Service / Hospitality sector)

Block placement (Student choice)

MPSW & CD specialization :

II Semester (Community based organizations)

IV Semester (Specialized institutions - hospitals)

Block placement (Specialised institutions)

Viva – voce examinations:

Separate panels for HR, CD & MPSW specializations will be formed. Each panel will consist of one academician from other schools of social work (external) + one practitioner from the relevant field (external) + faculty supervisor concerned.

b. Study tour:

Attendance to study tour is compulsory. No marks will be allotted for study tour.

It will be considered as a part of the field work.

To be undertaken in the months of November – December.

The defaulters will have to repeat the tour along with the subsequent batch. Until such time the final year results will be withheld.

c. Research Project:

Total 100 Marks (50 Internal + 50 External)

GENERAL

Assessment criteria for skill lab:

The skill lab is treated as a 2 credit paper with 100 marks (ESE 50 marks ; CIA 50 marks)

ESE 50 Marks will be assessed on the basis of a 3 hour written test (Question paper pattern: 5* 10 = 50 Marks).

CIA 50 marks will be assessed on the basis of :

I. Written test – Objective type (15 marks)
II. Group seminar / Case presentation (10 marks)
III. Individual seminar / Case presentation (15 marks)
IV. Viva – voce (10 marks)

Resource person form outside and internal faculty member in charge of skill lab will conduct examinations relating to both CIA and ESE.

CIA in the cases of paper sharing:

The faculty members will divide the portions among themselves appropriately.
On the basis of this the first faculty member will complete the portion and thereafter for the remaining classes the second faculty member will complete his or her portion.

When it comes to conducting internal tests one member will conduct the first internal test for his / her portion and the second faculty member will conduct the II internal test.

The III internal assignment / paper presentation component will also be done separately and average of the two will be taken as the internal assessment mark.

SEMESTER – I

CORE PAPER - I

PAPER TITLE: SOCIAL WORK PROFESSION

SUBJECT CODE:	THEORY	100 MARKS

Lecture hours: 45
Credits: 3

Objectives

1. To gain understanding about social work and related concepts.
2. To provide information about evolution of social works in west and in India and its emergence as a profession.
3. To recognize the needs and important of social work education and training.
4. To understand various models of professional practices and its applications.
5. To gain insight into personality requirements and code of ethics.

UNIT I: Introduction to Social Work (12 hours)

Social Work: Definition, characteristics, meaning, Voluntary and Professional Social Work, Nature of Social Work- Scope, functions and goals, introduction to methods, levels of practice and fields of practice. Meaning and Definition; Social Work as a Profession; Basic Concepts; Goals and Functions; Methods and Fields, Origin and Growth of the Profession in India: Scope of Professional Practice Problems and Status, International/National Bodies and Forums.

Concepts related to Social Work: Social service, Social Welfare, Social Reforms, Social Movements, Social Action, Social Development and Social Empowerment.

Religio–philosophical foundation of Social Work in India: Historical beginnings of Social Work in the West, History of Voluntary Social Work and Professional Social Work in India, Constitutional Safeguards; Social Reform Movements, Christian Missionaries,, Gandhian Social Work, India as a Welfare State**,** Role and Contributions of Voluntary Organizations, NGOs and CSOs, Emergence of International Social Work.

UNIT II: Philosophical Base for Social Work (12 hours)

Values and Beliefs: Respect for the Person, for Differences, for Individual's Right to Self-Determination and Self-Expression, Respect for Democratic Values and Diversity**,** Belief in the Value and Dignity of the Human Being, Uniqueness of Individuals, Groups and Community, Individual's Right to Fulfillment and Self-Actualization**,** Right for Equality, Reciprocal Rights and Responsibilities of Individuals and Society, Capacity of Individuals and Communities to Change.

Principles: Acceptance, Individualization, Confidentiality, Client Participation, Non-Judgmental Attitude, Controlled Emotional Involvement.

Code of Ethics: Need and Purpose, Evolution of Code of Ethics, Declaration of Ethics for Social Workers (SWEF -1997). International Association of Social Work-IASSW-2004

UNIT III: Social Work Ideologies, Theoretical Foundations: (10 hours)

Ideologies: Philanthropy, Humanitarianism, Welfarism, Socialism, Democracy, Marxism, Equality, Human Rights and Social Justice.

Theories and Practice Models: Welfare, Developmental, Empowerment and Advocacy Models, Evolution from Welfare and Development to Rights Based Approaches

Approaches: Remedial, Rehabilitative, Preventive and Promotive Approaches, Rights Based, Participatory, Indigenous Approaches, Anti-Discriminatory Practice

UNIT IV: Social Work Education (5 hours)

Social Work Education: Components in the Social Work Curriculum, Importance of Fieldwork and Supervision; Problems and Status; Professional Bodies/Forums in Education and Practice at International, National and State levels, Role and function of the IFSW and IASSW, Curriculum Recommendations of UGC for Social Work Education in India.

UNIT V: International Social Work (6 hours)

Concept, Definition and Meaning, Global Issues and Need for International Practice, Basic Concepts, Principles and Assumptions; Values, Beliefs and Goals; Practice Levels and Sectors; Global Forces Influencing International Practice

Approaches: Personal, Social, Developmental, Global; Multicultural, International and Transnational Practice Models; Global Agenda; Global Standards

Role of International Agencies: UN Agencies, INGOs and Human Rights Organizations; International Service-Delivery Programmes; Skills for International Practice; Dilemmas in International Practice.

Methodology of Teaching:

Lectures, Reading materials, Discussions, Assignment, Case analysis, Field work and News clippings

Suggested reading

1. Terry Mizrani, Larry E. Davis (ed), Encyclopedia of social work,20th ed, Vol:1-4, NASW press, Oxford University Press, New York.
2. Arthur Fink: The Field of Social Work, Holt Rhine hart and Winston, New York
3. Banerjee G R: Papers on Social Work: An Indian Perspective. TISS, Mumbai
4. Dasgupta S: Towards a philosophy of social work in India, Popular Book Service, New Delhi
5. Gangrade K D: Dimensions of Social Work in India, Marwah publication, New Delhi
6. Gore M S: Social Work and Social Work Education, Asia Publishing House
7. Hans, Nagpal: The study of Indian Society, S. Chand and Co. New Delhi
8. Khinduka S K: Social Work in India, Sarvodaya Sahitya Samaj, Rajasthan
9. Paul Chowdry: Introduction to social work, Atma Ram and Sons, New Delhi
10. Wadai A R: History and Philosophy of Social Work in India, Allied Publishing, New Delhi
11. Cox David & Manohar Pawar: International Social Work, Vistaar, New Dehli
12. Malcom Payne, 2005, 3rd ed, Modern Social Work Theory, Palgrave, Macmillan, New York.
13. Chaya Patel, 1995, Social Work Practice – Religio – Philosophical foundation, Rawat Publication, New Delhi.
14. Franus. J. Turner, Diffrential Diagnosis & treatment in Social Work, 2nd ed, Free Press, New York.
15. Sanjay Bhattacharya, 2008, Social Work – an Integrated Approach, Deep & Deep Publication Pvt Ltd, New Delhi.

CORE PAPER – II
PAPER TITLE: SOCIAL WORK WITH INDIVIDUALS

SUBJECT CODE:	THEORY	100 MARKS

Lecture Hours: 45
Credits: 3

Objectives:

1. To understand case work as a method of social work and to understand values and principles of working with individuals.
2. To develop the ability to critically analyze problems of individuals and factors affecting them.
3. To enhance understanding of the basic concepts, tools and techniques in working with individuals in problem solving and in development work.
4. Develop appropriate skills and attitudes to work with individuals.
5. To identify the various situations and settings where the methods could be used in the context of social realities of the country.

Unit I **(6 hours)**

Case Work: Concepts, objectives, purpose and importance; nature and scope, historical development; components; values and principles of Case Work Practice; socio – cultural factors affecting the case Work practice in India; relationship with other methods of social work.

Unit II **(8 hours)**

Case Worker-Client Relationship: empathy, transference and counter transference, resistance, sustaining the relationship, non-possessive warmth, genuineness and self-disclosure; Principles of client- worker relationship; Obstacles in client worker relationship…Importance of Interpersonal Relationship/Communication (IPR).

Unit III **(7 hours)**

Case Work process: Intake Study: Interviewing (types, purpose, skills, techniques and principles of interviewing). Home visits, Collateral contacts Assessment/Social Diagnosis: Use of genograms and Eco maps. Treatment / Intervention**,** Evaluation, Termination.

Unit IV **(13 hours)**

Approaches to Practice: Psychosocial, Problem Solving, Crisis Intervention; Cognitive Behaviour Modification, Functional and development of an Eclectic model for practice, Recording in case Work: meaning, source and types-process records- Analytic and Narrative record and its components; summative records, etc; principles of recording.

Unit V **(9 hours)**

Application of Social Case Work in different settings and Clientele groups; Medical and Psychiatric setting- mentally retarded Shelter homes; Mental Rehabilitation centre, de-addiction centre, Mental Health and Community Based Rehabilitation, Role of Social Workers in Hospital settings, Family and child Welfare settings, Family and child guidance clinic, Schools, Geriatric care & Aged and the terminally ill people. CaseWork practice in Community Settings, self-help

groups, Medical, Community and Correctional settings, Industries; Problems and Limitation. Skills, roles and responsibilities of Social case worker.

Teaching Methodology:
Classroom discussion, paper exercise, group activities, simulations, role plays, assignment/seminars.

Suggested reading:

1. Alfred, Kadushin. (1972). *the Social Work Interview*. New York, NY: Columbia University Press.
2. Battacharya,Sanjay. (2008).*Social work: Psycho-Social Health aspect*.
3. Florence, Hollis. (1964).*Case Work – A Psychosocial Therapy*.New York, NY: Random House.
4. Mathew, Grace. (1992).*An Introduction to Social Case Work Bombay*. Mumbai, Mumbai: Tata Institute of Social Science.
5. Pearlman, Helen, H. (1957).*Social Case Work- A Problem Solving process*. Chicago, University of Chicago Press.
6. Robert & Robert Nee. (1970).*Theories of social case work*. (ed) Chicago, University of Chicago Press.
7. Russell, M.N. (1990).*Clinical social work: Research and Practice*.Newbury Park, Sage.
8. Samalley, & Elizabeth, Ruth. (1971).*Theory of Social Work Practice*. New York,NY: Columbia univ. press.
9. Sundel and Sundel. (1999).*Behaviour Modification in the Human Service*. Newbury Park, Sage.
10. Timms, Noel. (1972). *Records in social work*. Rutledge &Kegan Paul.
11. Timms, Noel. (1964). *Social case Work: Principle and practice*. London, Rutledre and Kegan Paul.
12. Tilbury, D.E.F. (1977).*Case work in context- A Basic for Practice*. Oxford, Pergamon Press.
13. Trievithick. (2005).*Social Work Skills, A Practice Hand Book*, London, Open University Press.
14. William, Jordan. (1970). *Client Worker Transactions*. London, London: Rutledge & Kegan Paul.

CORE PAPER - III

PAPER TITLE: SOCIAL WORK WITH GROUPS

SUBJECT CODE:	THEORY	100 MARKS

Lecture Hours: 45
Credits: 3

Objectives:

1. To understand group work as a method of social work and to understand values and principles of working with groups.
2. To develop the ability to critically analyse problems of groups and factors affecting them.
3. To enhance understanding of the basic concepts, tools and techniques in working with groups in problem solving and in developmental work
4. Develop appropriate skills and attitude to work with group
5. To identify the various situations and settings where the methods could be used in the context of social realities of the country.

UNIT I **(8 hours)**

Social Group Work: Assumption, purpose, principles, and values of groups work, and historical development of group work; Group work as a method of social work. Theoretical basis of group work. Social Group: Definition, characteristics, types of groups and characteristics of effective groups. Group Formation Phases: Forming-Storming, Norming, Performing, Adjourning.

UNIT II **(10 hours)**

Group Dynamics-definition, functions and basic assumptions of group dynamics. Group Process: bonds, acceptance, isolation, rejection, sub-group formation, clique, and new comers in the group. Leadership in group: definition, functions, qualities of leader, types and theories of leadership. Communications within groups. Sociometry and sociogram.

UNIT III **(15 hours)**

Group work process: i. Planning Phase: Selection of members, composing group orienting the members, preparing the environment, ii. Beginning Phase- preparing for group work, First Meeting, goals setting, motivation, Assessment of communication and interaction, iii. Middle Phase: Intervening with group members, problem solving, Dealing with difficult members, Ending Phase: Evaluation- group work evaluation and criteria for good group work Termination, Follow-up.

UNIT IV **(7 hours)**

Models: Social goal, remedial and reciprocal models. Treatment groups: support, Educational, Growth, Therapy and socialization group. Group work recording: purpose, types and principles of group work recording

UNIT V **(15 hours)**

Group Work Setting and Practice: Skills of a group workers, Application of Group work method in different setting: community setting, medical and psychiatric settings: hospitals, de-addiction, physical and visual and mentally challenged, families and child welfare setting and the aged homes, schools, correctional institutional, industries.

Teaching Methodology: Classroom discussion, paper exercises, group activities, simulations, role plays assignment/seminars.

Suggested reading:

1. Corey, Gerald. (2000). *Theory and practice of group counseling*. London, UK: Wordsworth.
2. Corey, Gerald & Corey, Schneider (1992). *Group : process and Practice.* New York, NY: brooks and Cole.
3. Garvin, Charles, D. (1989) *Contemporary group work*, New Jersey, US: prentice Hall.
4. Johnson and Johnson. (1982). *Joining Together: Group theory and Group Skills*. New Delhi, New Delhi: Premier Publishing.
5. Konkpka, Gisela. (1972). *Social group work –A helping process*. Engle Wood Cliffs, prentice Hall.
6. Lawrence, Shulman. (1979) *Skills of helping Individual and Groups*, Chicago, US: Peacock Publisher.
7. Ronald, Toseland, &Robert, Rivas.(2001).*Introduce to group work practice*, London, UK: Allyn and Bascon.
8. Siddiqy, H.Y. (2008). *Group work: Theories and Practices*. Rawat Publications.
9. Tom, Douglas. (1972). *Group Process in social Work*. Chichester, UK:Willety.
10. Whitaker, Dorothy Stock. (1985).*Using groups to help people*.
11. Zastrow, Charles. (1985). *Social Work with Groups*, Chicago, US: Nelson Hall.

ELECTIVE - I

PAPER TITLE : SOCIOLOGY

SUBJECT CODE:	THEORY	100 MARKS

Lecture hour: 30
Credits: 2

Objectives:

1. To provide the student of social work a sociological perspective on Indian society, its structure and dynamics.
2. To sensitize the students of social work to the pressing social issues present in the Indian Society.
3. To enhance an analytical understanding among the students about the Indian society to aid in better professional practice.
4. To understand the perspectives of persons with different cultural, ethnic and social background.
5. To enable students define and compare basic theoretical orientations, how these reflect historical and cultural context, and how they can be applied to social reality.

Unit I: Introduction (5 hours)

Sociology: Definition, Nature, and Importance. Fundamental concepts: Society, Social Group, Community, Association, Institution, Organization, Social Disorganization, Social Structure, and Social System. Relationship of sociology with social work. Social Process - Co-operation, Competition, Conflicts, Accommodation, Assimilation and Acculturation.

Unit II: Culture (6 hours)

Concept, Functions and Elements of culture- values, norms, folkways, mores and laws. Theory of Cultural Lag by William F. Ogburn. Institution: Concept, Function and Types of Institution (Religious, Economic, Educational, Family, Polity. Changing Trends in these institutions and their institution and their impact on Indian society.

Unit III: Social Control (6 hours)

Concept, needs, Means of Social Control-Formal and Informal Means. Agencies of Social Control – Formal and Informal Agencies (values, norms, folkways, custom, mores and law).

Unit IV: Social Change (7 hours)

Social Changes- Meaning, theories, factors, processes. Social changes in India. Social movements- meaning, causes, types. Major Social movements in India- Narmadha Bacho Andolan, Dalit movement, Consumer movement, Women's movement, Kisan Movement(Farmers' Movement), Self- respect movement, Naxalbari movement, Religious movements. Impact of Social Movements on the Indian Society

Unit V: Social Problems (6 hours)

Social problems-meaning, causes and consequences.General Social Problems-Terrorism, Health, Environmental Degradation, Unemployment, Poverty, Illiteracy. Displacement, Migration,

Corruption, Alcohol & Drug Abuse, Deviance, Violence, Crime, Honour Killings. Problems faced by women, children, SC/ST,Elderly, Transgenders, and Differently Abled. Development issues arising out of liberalization, privatization and globalization. Legislative approach to social problems.

Teaching Methodology:
Lectures, Reading material, Discussions, Assignments, Case analysis, Field work and News clippings

Suggested reading:

1. Harlembos, Michael, *Sociology: Themes & Perspectives* (2014) New York: Collins
2. Shankar Rao, C. N., *Introduction to Sociology* (2005) New Delhi: S. Chand & Publications
3. Ritzer, George, *Sociological Theory* (1999) Jaipur: Rawat Publications
4. Scott, John, *Oxford Dictionary of Sociology* (2004) Oxford: Oxford University Press
5. Giddens, Antony, *Sociology* (2001) Cambridge: Polity Press
6. Srinivas, M.N., *Social Changes in Modern India* (1963) Calcutta: University of Calcutta
7. Bhusan, Vidya & Deva Sach, D.R. (2005). *An Introduction to sociology*.Allahabad, UP: Kitab Mahal Publications.
8. Duberman, Lucile and Clayton.*Sociology—focus on society*. A.Hartjen.
9. Madhan,G.R. (1973). *Indian social Problems*. Allied Pacific pvt Ltd.
10. Richard.T., & Schaefer, Lamm. P. & Robert.(1995). *Sociology*. New York. NY: Mc. Graw Hill Inc.

ELECTIVE - II

PAPER TITLE : PSYCHOLOGY

SUBJECT CODE:	THEORY	100 MARKS

Lecture hours: 30
Credits: 2

Objectives:

1. To understand the evolution of personality across individual life span
2. To understand stress and management of the same
3. To equip the student with a broad knowledge of abnormal behavior with specific reference to select abnormal behavior.
4. To facilitate the integration of above knowledge with social work practice.
5. To enable the students how the psychological theories and principles may be applied to individual, societal and global issues.

Unit I: Psychology (6 hours)

Definition of Psychology and its importance and role in social work practice. Scientific basis of psychology. Definition of behaviour. Psychology as a study of individual difference and observable behaviour.Brief history and Fields' of Psychology.

Unit II: Psychology functions (6 hours)

Perception: Definition, Principle and perceptual process, learning theories, application of learning, concept formation; Thinking- concept, thought process; Memory- process, encoding, retention, retrieval, forgetting. Motivation and Emotion- concepts, theories, types; Attitude- formation, maintenance, attitude and behaviour.

Unit III: Life span of an Individual-conception-old age (6 hours)

Conception , Infancy, Babyhood, Childhood, Adolescence, Adulthood, Middle Age, Old age Definition of the period, development tasks, Physical and social development. Psychological moral changes in each phase of psychosocial Development. Challenges in each stage (Erik Erikson)

Unit IV: Personality Theories (6 hours)

Sigmund Freud- Psychoanalytic theory and ego defense mechanisms. Skinner- Behaviour theory and behaviour modification techniques, Individual/humanistic theories- Maslow and Roger

Unit V: Stress and Mental Health. (6 Hours)

Definition and types of Frustration and Conflict. Stress- definition, types. Definition of Stressors.Stress management techniques, Concept of mental health mental Disorders, Mental Retardation.

Teaching Methodology:

Lectures, Reading material, Discussions, Assignment, Case analysis, Field work and news clipping

Suggested reading

1. Mangal S.K (1998). General Psychology, Sterling Publishers Private Limited, New Delhi
2. Hurlock, Elizabeth, B. (1980). *Developmental psychology: Life-span Approach.* McGraw-Hill.
3. Coon, Dennis. (1977). *Introduction to Psychology, Exploration and Application.*
4. Coon, Dennis. (1980). *Introduction to psychology*. Watts & Company.
5. Gross, Richard. (2nd ed), D. *Psychology – The Science of Mind and Behaviour*.,Hodder and Strongton.
6. Hjelle, Larry, A., Ziegler, Daniell J,. (1981). *Personality theories.* McGraw-Hill.
7. Hurlock, Elizabeth, B. (1980). *Developmental psychology: Life-span Approach.* McGraw-Hill.
8. Morgan and King.(6th ed), (1979).*Introduction to psychology*.McGraw Hill.
9. Seven Pathways, Bruno, Frank, J., (1983).*Adjustment and Personal Growth*. John & Wiley sons, Inc.
10. Sarason, Irwing, Sarson, Barbara, R,.(3rd ed). (1980). *Abnormal Psychology*. Prentice Hall.
11. Steinberg, L., & Hueberverlag, Max. (1996). *Adolescence Munchen*.
12. Watts & Glencoe. (4th ed). *Understanding Human Behaviour.* McGraw Hill.

CORE PAPER – IV

CONCURRENT FIELD WORK – I

SUBJECT CODE:	FIELD WORK	100 MARKS

Credits: 6

Overall objectives:

The field work during this semester is an overall design for providing an exposure to.,

1. The field of professional social work
2. Different field of social work practice
3. Understand the basic skill required for the practice of social work, and
4. To encourage the learner to become a professional social workers.
5. To bring sensitivity to personal values, beliefs, bias and prejudice as a product of past socialization.

Components of semester I Concurrent field work.

The above mentioned objectives will be achieved by providing the following three different types of learning opportunity vis-à-vis components of first semester concurrent field work.

COMPONENT NO.1

OBSERVATION VISITS TO DIFFERENT SOCIAL WELFARE AGENCIES

No. of visits: 8

Component objectives:

1. To get exposure to different social issues and social welfare agencies.
2. To get acquainted with structure, functioning and staffing patterns and activities of the organization.
3. To observe and develop a spirit of enquiry.
4. To participate in a group decision
5. To make use of the supervision & guidance in understanding the social issues.
6. To document the outcome of visits.

Process:

The students accompanied by a faculty member shall visit pre-identified agencies in different areas like disability, health, old age, children, women, rural & urban and industrial communities. The students are expected to observe & enquire about

1. Background and field of work of the agency.
2. Place and role of the agency in the society
3. Aims, objectives and programmes implemented
4. Types of Beneficiaries/Target groups
5. Administrative structure, departmentalization, staffing pattern.

6. Funding and resource mobilization
7. Problems and issues faced by the organization
8. Condition and problems of the inmates / beneficiaries.

During their observation visits and document the same. The learning and outcome of each visit to be evaluated through a group conference under the supervision of a faculty member.

Skills to be developed:
Observation / learning skills: Communication / presentation skills; Interpersonal skills;
To make use of the supervision inputs and to develop documentation skills.

COMPONENT No.2

RURAL CAMP.

Duration: on camp 1 Week.
The actual rural camp is preceded by two weeks of camp preparation to actual camp. This will include pilot visit to the village (s) for identification of the camp site, project to be implemented, and to liaise with local community, various NGO's and Government department to conduct the rural camp in a particular place.

Objectives:
The objective of the rural camp is:

1. To make the social work trainees to experience group living and to initiate and participate in development work in a village identified by the department and the students together.
2. To expose the students to rural life and living.
3. To enable the students to learn by carrying out development project after identify local need
4. To help them develop capacities and attitude suitable for a group living.
5. To inculcate the spirit of working in a team.

Process:
The entire class shall be divided into various groups called committees, namely Project, Transport, food, medical, housekeeping and Health, Finance and the like. Student coordinate and members will be nominated to these committees. For overall coordination two students camp leader will also be elected.
Faculty member as camp director and supervisor in charge of the respective committees will guide, facilitate the working committee.
There by the whole class to plan and execute the rural camp by working out the logistics, contributing and mobilizing necessary resources for the conduct of camp.
The whole process will be documented and evaluated by the class in the terms of camp experience, outcome and learning with reference to the objective specified.

Skills to be developed:
Skills pertaining to: Group living, Planning, Co-ordination, participation, cooperation, capacity to organize, resource mobilization, sense of responsibility, self-evaluation.

SOFT SKILLS – 1

PAPER TITLE: LANGUAGE AND COMMUNICATION SKILLS

SUBJECT CODE:	THEORY	100 MARKS

Credits: 2

Objectives:

1. Enable students to convert the conceptual understanding of communication in to everyday life.
2. Train students to ground concept / ideas in their own experience..
3. Create a learner-language interface enabling students to exercise control over language use.
4. Sensitize students to the nuances of the four basic communication skills-Listening, speaking, Reading and Writing.

UNIT I: Twinning functions of Listening and Speaking.

UNIT II: Twinning functions of reading and writing.

UNIT III: Individual communication.

UNIT IV: Intermediary communication.

UNIT V: Social communication; Media and communication, alternate media.

Recommended Texts:

1. Shuttle Keith, Wind & Elliot, Elizabeth. *Writing, Researching and Communicating: communication skills for the Information Age*. 3rd reprint, Tata McGraw Hill,Austrilia, 1999.
2. Dignen, Flinders & Sweeney. *English 365*. Cambridge University Press.
3. Goleman, Daniel. *Working with Emotional Intelligence*. Bantarn books, New York,1998.
4. Jones, Leo & Richard Alexander. *New International Business English*. Cambridge University Press, 2003.

Websites: www.tatamcgrawhill.com/sites/007060988.

SEMESTER-II

CORE PAPER – 5

PAPER TITLE : SOCIAL WORK WITH COMMUNITIES AND SOCIAL ACTION

SUBJECT CODE:	THEORY	100 MARKS

Lecture hours: 45
Credits: 3

Objectives:

1. To develop an understanding of the concepts related to working with communities and processes involved in it.
2. To make students understand the use and practice of community organization in various fields of work.
3. To provide the knowledge about the role of social worker in social changes and social development.
4. To familiarize the emerging trends and experiment in community organization.
5. To introduce various aspects of social action as an effective method of social work.

UNIT I **(9 hours)**

Community: meaning, types, students and dynamics. Community organization: definition, objectives, principles, approaches, historical development, community organization as a method of social work. Similarities and dissimilarities between Community organization and Community development. Community Leadership: concept, types of leadership and power structure of community.

UNIT II **(9 hours)**

Phases in community organization: study, analysis, assessment, discussion, organization, action, evaluation, modification and continuation. Method: locality development, social planning and Social action. Skills of community organization.

UNIT III **(9 hours)**

Application of community organization in different fields. Emerging trends and experiment in community organization. Models of community organization: Saulo- Alinsky, Paulo-Frerie and Gandhian model.

UNIT IV **(9 hours)**

Social Action: meaning, definition, objectives, principles, scope, processes, method, skills and strategies of social action such as public interest litigation, advocacy, lobbying etc., social action for social changes and development.

UNIT V **(9 hours)**

Social legislation through social action. Social problems and social action. Role of social worker in social action. Contribution of contemporary social activists.

Teaching methodology:
Lectures, reading material, discussions, assignment, case analysis, field work and news clippings.

Suggested reading:

1. Murray, Ross, G., (1985). *Community organization: Theory and Principles*, New York, NY: Harper and Row.
2. Gore, M.S., (1994). *Family and the rights of the Individual*. New Delhi. New Delhi: NIPCCD.
3. Dunham, Arthur E. *Community organization in India*. Bombay, Bombay: Popular Prakashan.
4. Marshall, Clinard, B.*Slums and community development.* New York, NY: free Press.
5. Kuppusamy, *social change in India*. New Delhi, New Delhi: Vikas Publishing house.
6. Christoper, A.J., & William, Thomas.(2006).*Community Organization and Social Action*. New Delhi, New Delhi: Himalaya Publication House.
7. Mizrani, Terry, &Davis, Larry, E. (ed), (20th ed), *Encyclopedia of social work*, , vol:1-4, New York, NY: NASW press, Oxford University Press.
8. *Encyclopedia of social work*. Government of India, New Delhi.

CORE PAPER – 6

PAPER TITLE : SOCIALWORK RESEARCH AND STATISTICS

SUBJECT CODE:	THEORY	100 MARKS

Lecture hours: 45
Credits: 3

Objectives:

1. To highlight the relevance of research for social work
2. To study the various facets of the research process with special emphasis on quantitative research
3. To hone the skills in undertaking research and in writing about the same.
4. To develop an understanding about the scientific approach to human inquiry
5. To acquire the skills for data analyses and research writing.

UNIT I: Introduction (9 hours)

Meaning: Research, Social Research, Scientific Research and Social Work Research; Scope and Objectives of Social Work Research; Types of Research, Social Work Research Ethics; Relevance of Research for Social Work; Approaches to Research- Quantitative and Qualitative Research.

UNIT II: Problem Conceptualization and Research Design (9 hours)

Research process. Identifying the research issue- selecting the specific research problem- Reviewing Literature –Formulating the objectives-Clarifying the Concepts, variables: Conceptualization and Opertionalisation, Constructs, Formulating Hypothesis. Research design: Meaning, Types.

UNIT III: Tools of Data Collection and Sampling Techniques (9 hours)

Sample Design – Selection of Sample: Meaning of Sample, Universe, Sampling Method (probability and non probability) techniques. Pilot study and Pretesting of the tools. Scaling Techniques: concept and types(L.L. Thurstone and Likert Scale) Reliability and validity of tools. Methods of Data Collection - Meaning, Sources: Primary and Secondary, Tools: Observation, Questionnaires. Interview Schedule, Interview Guide, Group Interviews, Mailed questionnaire, Introduction to qualitative research: meaning, characteristics, strategies and methods (observation, interviews, documents and audio visual material). Approaches - Mixed Method Approach, Historical Approach, Concept of Participatory and Development Research.

UNIT IV: Data Processing and Analysis (9 hours)

Content checking- Editing data- Classification – Coding –Tabulation-Analysis.Data Presentation, Data Interpretation.Levels of Measurements (nominal, ordinal, interval and ratio).Types of Analysis - Univariate, Bivariate, multivariate.Descriptive Statistics: Percentages, Measures of Central Tendency [Mean, Median, Mode], Measures of Dispersion [Range, Mean Deviation, Standard Deviation], Measures of Association: Correlation. Hypothesis Testing: Chi-square Test (concept and application) & t Test (concept). Concept of time series analysis.Use of Computers

for Statistical Analysis-Statistical Packages available.Use of Computers for Statistical Analysis-IBM SPSS, EXCEL.

UNIT V: Research Proposal and Report Format (9 hours)

Research Writing: Research Reporting: Format of a Research Report- Writing Research Proposal – Writing Research Abstracts- Referencing Styles.

Teaching Methodology:

Lectures, Reading material, Discussions, Assignments, Case analysis, Field work and News clippings

Suggested reading

1. C. R. Kothari 2004, Research Methodology: Methods and Techniques, New Age International Publishers (P) Ltd, New Delhi.
2. Ram Ahuja (2009), Research Methods, Rawat Publications, New Delhi.
3. SaravanavelP(2009) Research Methodology, KitabMahal, Allahabad.
4. Navnitham PA, business statistics, Jai Publishers, Trichy
5. Henn M, Weinstein M, Foard N (2006), A short introduction to Social Research, sage Publications India Pvt Ltd, New Delhi.
6. Duane, Monette, R. & Thomas, Sullivan, J. (1998). *Applied social Research: Tool for Human Services*. New York, NY: Harcourt Brace College Pub.
7. Gupta, S.C. *Fundamentals of Statistics*, Himalaya Publication Co.
8. Goode, William.J &Paul K.Hatt.*Methods in Social Research*. New York, NY: Mc.Graw Hills.
9. Gopal, M.B.*An Introduction to Research Procedure in Social Science*. Bombay, Bombay: Asia Publication House.
10. Kothari, C.R.(1997). *Research Methodology, Method and Techniques*, New Delhi, New Delhi : Vishwa Prakashan.
11. Ramachandran, P.(1990).*Issues in Social Research in India*.Bombay, TISS.
12. Ramachandran, P. (1993).*Survey Research for social work*. Bombay, Bombay: Institute for Community Organization Research.
13. Rubbin, Allen and Babbie, Earl.(2004). *Research Methods for Social Work with infotrac*.California, US Thomposon and Wadsworth Publishing.
14. Wilkinson, T.S &Bhandarkar, P.L.*Method and Techniques in social Research*. Himalaya Publications.
15. Young, Pauline. V.*Scientific social Survey and Research*.

CORE PAPER – 7

PAPER TITLE: SOCIAL WELFARE ADMINISTRATION

SUBJECT CODE:	THEORY	100 MARKS

Teaching hours : 45
Credits : 3

Objectives:

1. To acquire Knowledge of the basic process of administration
2. To understand the procedures and policies involved in establishing and maintaining social welfare organizations
3. To develop skills to participate positively in administrative process
4. To understand the organizational and administrative structure of social welfare programme at each and every level of implementing organization
5. To provide effective social welfare services to the needy and suffering.

UNIT I (9 Hours)

Social Welfare Administration: Basic concepts scope, principles, public administration and social Work Administration as a method of social work. Distinction between social administration, social work administration. Social security administration and other forms of administration. Traditional forms of Social Welfare: Charity, mutual-aid, religious organizations; community support network; Development impact on human existence.

UNIT II (9 Hours)

Social Welfare Organizations: Concept, nature and types. Administration of social welfare services; Structure and functions of social welfare organizations, Principles of administration in social welfare. Policy and Programmes of Social Welfare in India with special reference to weaker sections. Social Work Agency: Organizational structure Boards and committees: Executive: Functions & Qualities - Administrative Process: policy formation, Planning decision making, Co-ordination, Communication.

UNIT III (9 hours)

Social Welfare Administration Process : Planning- Organization, Staffing, Orientation, Placement,.Allocation of responsibilities. Organizational Communication, Decision making, Coordination-impact assessment, Monitoring, Evaluation- Public Relations and Networking. Office administration: office management and maintenance of records. Project Proposal Writing.

UNIT IV (9 hours)

Financial Administration : Fund raising practice-community resource mobilization. Grant in aid from state and central government. Rules regarding investment-preparation of Annual budget, Accounting and Auditing – Accounts and Record maintenance.

UNIT V **(9 hours)**

A study of: Central Social Welfare Board, State Social Welfare advisory Boards – Indian Council of Social Welfare – Indian Council of Child Welfare- Nehru yuvak Kendra – Y.M.C.A – C.A.SA. – C.A.R.E. Ministry, Department of Social Welfare--Role of voluntary agencies in social welfare, problems faced by voluntary agencies. Co-ordination and co-operation between voluntary and government welfare agencies.

Teaching Methodology:
Lectures, Reading material, Discussions, Assignments, Case analysis, Field work and News clippings.

Suggested reading:

1. Allison, M. & Kaye, J. (2005). *Strategic Planning for Nonprofit Organizations*. 2nd ed. New York,NY: John Wiley & Sons.
2. Chowdry, Paul. (1992).*Social Welfare Administration*. New Delhi, New Delhi: Atma Ram and Sons.
3. Dimitto, D.M. (1991).*Social Welfare: Politics and Public Policy*. New Jersey, NY: Prentice Hall.
4. Edwards, R.,& Yankey, J., & Altpeter, M. (Eds.). (1998). *Skills for Effective Management of Nonprofit Organizations*. Washington, DC: NASW Press.
5. Proehl, R. (2001). *Organizational Change in the Human Services*. Thousand Oaks, CA: Sage Publications.
6. Sankaran & Rodrigues, (1983).*Handbook for the Management of Voluntary Organisations*.Chennai, CH: Alpha Publications.
7. Shanmugavelayutham, K.(1998).*Social Legislation and Social Change*.Chennai, CH:Vazha ValamudanPublishers,.
8. Sulivan, Michael. (1987).*Sociology and Social Welfare*.Winchester,USA: Allen and Unwin.

JOURNALS :

- Combat law
- Economic and Political Weekly
- Women's collective
- Social Scientist

WEBSITES:

1. www.supremecourtofindia.nic.in

ELECTIVE - III

PAPER TITLE: SOCIAL POLICY AND SOCIAL LEGISLATIONS

SUBJECT CODE:	THEORY	100 MARKS

Teaching hours: 30
Credits 2

Objectives :

1. To understand social policies in India in terms of themes, trends and deliveries.
2. To explore the relationship between state, market and civil society in formulating various models of inclusive policies.
3. To understand the significance of various Social Legislations
4. Define public policy and other related terms
5. Analyze the importance of public policy

UNIT I: Welfare State (6 Hours)

Welfare State - Concepts: Rights, Justice, Citizenship, and Welfare State. Relationship between Civil society, State, Governance and Development. Types of Welfare State, Globalization and Welfare State. Critique of Welfare State Theories

UNIT II: Social Policy and Social Legislation (6Hours)

Introducing Social policy and Social legislation. Post-colonial Welfare State: Policy making processes and structures in India – The role of Executive, Legislature, and judiciary. Role of Political parties, Pressure groups, Non-Governmental Organizations, Mass Media. Policy implementation: The role of Governmental agencies, Role of Non-governmental organizations (NGOs), citizens participation, and Social Workers. Problems in implementation of policies. Policies at the Central and State Government Levels (with reference to Women, Children, Disabled and Disadvantaged). Liberalism, Globalization and changing nature of social policy in India.

UNIT III: Social Legislations related to Children (6 Hours)

The Prohibition of Child Marriage Act, 2006. Child Labour (Prohibition & Regulation) Amendment Act, 2016. Pre-Conception & Pre-Natal Diagnostic Techniques Act (Prohibition of Sex Selection), 2003. The Juvenile Justice (Care and Protection of Children) Act, 2015. Right of Children to Free & Compulsory Education Act, 2009 or Right to Education Act, 2009. Central Adoption Resource Agency Guidelines, 1991. The Protection of Children from Sexual Offences Act, 2012.

Social Legislations related to Women: The Immoral Traffic (Prevention) Amendment Act, 2006. Dowry Prohibition Act, 1961. Medical Termination of Pregnancy Act, 2014. Indecent Representation of Women (Prohibition) Act, 1986. Protection of Women from Domestic Violence Act, 2005. Sexual Harassment in Workplace (Prevention, Prohibition & Redressal) Act, 2013.

UNIT IV: Social Legislations for Weaker Sections (6 Hours)

Bonded Labour System (Abolition) Act, 1976; The Mental Health Act, 2017; The SC/ST (Prevention of Atrocities) Act 2014. The Rights of Persons with Disabilities Act, 2016; The Unorganized Workers' Social Security Act, 2008.

UNIT V: Human Rights (6 Hours)

Fundamental Rights & Human Rights in the Indian Constitution. Protection of Human Rights Act, 1993; Consumer Protection Act, 1986; Right to information Act, 2005; Mahatma Gandhi National Rural Employment Guarantee Act, 2005(MGNREGA). Enviornment protection Act,1986; Public Interest Litigation (PIL).

Suggested reading:

1. Clasen, J., *Comparative Social Policy: Concepts, Theories and Methods* (1999) Oxford: Blackwell
2. Lewis, Gail, *Rethinking Social Policy* (2000) London: Sage
3. Bhattacharya & Sarkar, Harihar &Partha, *The Politics of Social Exclusion in India: Democracy at the Crossroads* (2009) New York: Routledge
4. Midgley & Livermore, James & Michelle(2009), *The Handbook of Social Policy*, New York: Sage Publications
5. Sainsbury, D. (ed.), (1999).*Gender and Welfare Regimes*. Oxford: Oxford University Press.
6. Williams, Fiona (1989) *Social Policy: A Critical Introduction: Issues of Race, Gender& Class* (1989) Cambridge: Polity Press
7. Alcock, A. Erskine and May. (eds), (2003). *The Student's Companion to Social Policy*.(2nd edt). Blackwell.
8. Lewis, Gail et al (ed.) (2000). *Rethinking Social Policy*. London: Sage.
9. Marshall, T.H. (1975).*Social Policy in the Twentieth Century*. London: Hutchinson & Co
10. Pierson, Christopher and Castles, Francis (ed). (2006). *The Welfare State: Reader*. Cambridge:Polity Press.
11. Sundarum, R.M., (1987). *Growth and Income Distribution in India*.New Delhi, New DelhiPolicy and Performance Since Independence, Sage.
12. Vivekanandan, B. &Nimmi Kurian (eds), (2005).*Welfare State and the Future*. Hampshire: Palgrave Macmillan.

Periodicals and Journals

Journal of Comparative Social Policy
Journal of Comparative Social Welfare
Economic and Political Weekly
Women's Collective
Social Scientist

WEBSITES:

1. www.supremecourtofindia.nic.in
2. www.judis.nic.in
3. www.pucl.org
4. www.lawyerscollective.org

ELECTIVE – IV

PAPER TITLE: GENDER AND DEVELOPMENT

SUBJECT CODE:	THEORY	100 MARKS

Teaching Hours: 30
Credits: 2

Objectives:

1. To develop an understanding of the perspective of women and development in Indian society.
2. To develop a capacity to examine the social systems that affect women in meeting growth needs and special needs.
3. To develop an ability to identify areas of work with women and understand strategies to change the situation in terms of personal liberation as well as in terms of making women apart of the developmental process.

UNIT I: Status of Women (10 hours)

Concept of development with reference to women; Sex, gender, Sex Ratio, gender census, Gender and development– meaning, strategic and practical needs. Gender Census, Women in development, GID (Gender Institutions and development database). Gender Mainstreaming, Gender budgeting. Self Help Groups: benefits, procedures and best practices.

Patriarchy and patriarchal structures in India; Feminism and Women's movements- Madar sangam, Chipko movement, Objectivism. Gender analysis framework: Moser gender planning Framework (Carolyn Moser), Social Relations Approach(Naila Kabeer), Harvard Analytical Framework/Gender Roles Framework, Gender Analysis Matrix (Parker), Women's Empowerment Framework (Longwe).

UNIT II: Education and Employment (5 hours)

Education: Differences between male and female children in enrolment and educational achievement, problems in education of the girl child, participation in higher education; NGO and Government efforts to improve women's education.

Employment: work participation of women (capitalist patriarchy), trends, exploitation of women, marginalization and casualization of women's labour, feminization of poverty, and multiple roles of women - Role conflict.

UNIT III: Women and Health (3 hours)

Health issues of women in India: Health problems, maternal health, maternal mortality, family planning choices and impact on health, HIV/AIDS and impact on women in India.Access to health services-government policies and NGO efforts.

UNIT IV: Women in difficult circumstances (5 hours)

Women in difficult circumstances: prostitution, female headed households, women and displacement, women and disasters (riots and war), violence against women, transgender. Legal rights of women (salient features only): Marriage, divorce, maintenance, inheritance, adoption, employment, maternity benefits. Legal provisions: Dowry, sati, rape, violence, harassment, trafficking.

UNIT V: International Conventions (7 hours)

International conventions and efforts: programmes for women-State and Center, Role of National and State Women's Commissions ,Development programmes for women-Government policies and; Constitutional provisions; reservations for women, CEDAW, Beijing declaration.

Suggested Readings

1. Bhasin, K. (1984). *Women and media–analysis, alternatives and actions,* Kalifor Women, New Delhi.
2. Blumberg &Dwaraki (1980). *India's educated women: options and constraints*, New Delhi:Hindustan Publishing corporation.
3. Devendar, Kiran .(1985). *Status and position of women in India*. NewDelhi: Shakthi Books.
4. Hamilton, Roberta (2014). *liberation of women: a study of patriarchy and capitalism Routledge(New York).*
5. Ministry of Women and development- Annual report 2017-18: http://wcd.nic.in/annual-report
6. Kanhere, U.S. (1995). *Women and Socialization*.New Delhi: Mittal Publishers.
7. Kaushik, Susheela. (1993). *Women's Oppression: patterns and perspective*, Shakti Books, New Delhi.
8. LWF. (1990). *Women's Human Rights*. Lutheran World Foundation, Geneva.
9. Desai and Thakkar(2001). *Women in Indian society*, National book trust. New Delhi
10. M.KoteswaraRao (2005).Empowerment of women in India.Discovery publication house. New Delhi

CORE PAPER – 8

CONCURRENT FIELD WORK – II

SUBJECT CODE:	FIELD WORK	100 MARKS

Credits: 6
No. of days: 30 (Two days a week)

Objectives:
The broad aim of concurrent field work at this stage (First year – II Semester) is to provide opportunities to the students for applying the knowledge and the information gained in the class room to reality situations. It also provides an opportunity to:

1. Working with communities, groups, individuals / families and manage Organizations tasks.
2. To provide an opportunity for learning skills through the practices of primary methods of social work (case work, group work and community organization).
3. To inculcate professional growth and development.
4. To conduct counseling/home visits.
5. To prepare records.

Areas of learning:
Concurrent practice learning tasks are listed in six areas. They are,

1. Understanding both the agency and the clients as systems.
2. Developing knowledge of administrative procedures, programme management and utilizing these skills in practice.
3. Developing skills of problem solving process and practice based research.
4. Using instruction to learning practice.
5. Developing as a professional person.

Process:

- Weekly two days agency visits.
- Recording.
- Faculty –student individual conference / supervisory conferences.

SOFT SKILLS –II

PAPER TITLE: COMPUTING SKILLS

SUBJECT CODE:	THEORY	100 MARKS

Lecture Hours: 30
Credits: 2

Objectives:
The major objective in introducing the computer skills course is to impart training for students in Microsoft Office which has different components like MS-Word, Excel, Access, Power point etc., at two levels based on their knowledge and exposure. It provides essential skills for the user to get adapted to any work environment ,as most of the systems in any work place have MS Office installed for their day to day activities. The course is highly practice oriented rather than regular class room teaching.

UNIT I: Word processing:
Formatting – Paragraph and character styles, templates and wizards, table and contents and indexes, cross referencing; Tables and Columns-Creating manipulating and statistical – databases – creating, sorting, filtering and linking.

UNIT II: Spreadsheets.
Workbook, Building, Modifying, navigating; Workbook, Auto fill, copying and moving cells, inserting and deleting rows, printing; Formulas and functions – trouble shooting formulas, Functions and its forms like data base, financial, logical, references. mathematical and statistical data base – Creating, sorting, filtering and linking.

UNIT III: Presentations
Power point – exploring, creating and editing slides, inserting tables and charts – special effects – clip art, creating and drawing shapes, inserting multimedia content – presentations – planning, animation, handouts, slide – show.

UNIT IV: Data bases.
Access – Components, creating a data base and project, import and exporting, customizing; tables – creating and setting fields; Queries – Types, creating, Wizard, Reports – creating and layout.

UNIT V: Information management.
Outlook- Starting ,closing, contacts, tool bars , file management ; e-mail reading composing, responding ,attachments, signature, junk – mail, tasks-screen, sorting, creating, deleting. Assigning, updating, scheduling- calendar.
Note: All units need an approach through practical exposure.

References

1. Mansfiels, Ron. *Working in Microsoft Office*. Tata McGraw Hill.
2. Davis,Guy Hart. *Microsoft Excel 2007*. Tata McGraw Hill.

Examination

1. Internal assessment could be based on theory and / or practical.
2. End semester is based on practical.

COURSE COMPONENT

SUMMER PLACEMENT

SUBJECT CODE:	FIELD WOEK	

Credits: 2
No. of days: One month continuously

At the end of 1 year during summer vacation, the students should do internship (non- supervised) for a period of 30 days in an agency / industry related to his / her specialization so as to utilize the summer vacation fruitfully to develop the professional self in one-self.

Objectives:

1. Knowing about the basics of the working of an industrial organization/ social welfare organizations.
2. Experiencing direct practice with the client systems and the management operations of the work of the setting.
3. Integrating theoretical learning with the practice.
4. Exploring the possibilities and area for carrying out Research project to be carried out at the later stage of the course, and
5. Experience self in the role of the professional worker.

Process:

1. The learner must volunteer to locate a setting (own choice)about two or three Months in advance and explore the possibilities of a 4 week practice learning practice placement.
2. The practice learning setting should preferably have a professionally trained social worker on the team of a staff.
3. The learner is to record the learning and submit comprehensive report(in the format provided by the department) at the beginning of the II academic year both to the department (compulsory)and to the setting (on requirement).
4. Also, each student is expected to make a presentation on the placement experiencing before the class and faculty (in the format provided by the department).
5. In the report a Joining & Completion certificate obtained from the agency has to be compulsorily Enclosed.

SEMESTER – III

SPECIALIZATION : COMMUNITY DEVELOPMENT

CORE PAPER – 9

SPECIALIZATION PAPER – I

PAPER TITLE: RURAL COMMUNITY DEVELOPMENT

SUBJECT CODE:	THEORY	100 MARKS

Teaching hours: 45
Credits: 3

Objectives

1. To understand the rural communities and the need for rural community Development
2. To provide knowledge of the various methods, programmes, strategies and developmental efforts towards rural community development.
3. To understand the role and contribution of professional social work in Development process

UNIT I (5 hours)

Community development- definition, concepts, objectives, history of community development Rural development- Rural community development, concepts, definition, objectives, principles, approaches. Gandhian Ideology on village/ rural development, Gandhian ideology and Karl Marx. ; Model of China, Indonesia, Philippines.

UNIT II (12 hours)

Early period of Rural reconstruction programmes schemes: Sriniketan, Marthandom, Gurgaon, Baroda, Firka, Etawah, Nilokheri. Post independent rural development programmes& schemes: Pradhan Mantri Gram Sadak Yojana, Swarna Jayanthi Gram Swarozgar Yojana, Sampoomma Grameen RozgarYojana, National Food for Work Programme, Jai Prakash Rozgar Guarantee Yojana, Antyodaya, Minimum Needs Programme, Rural Water Supply Programme, Rural Sanitation Programme, Indra Awas Yojana, Accelerated Irrigation Benefit Programme, Water Shed Development Programme, Accelerated Rural Electrification Programme, Integrated Rural Energy Programme, Pradhan Mantri Gramodava Yojana, PURA, NERG. Rural resources for development. Land, water, forest, live stock, bio-energy, human resources. Land reforms, Land tenure, Ceiling act, Agriculture and rural development.

UNIT III (10 hours)

Analysis of rural problems: Poverty, rural bondedness, unemployment and under Employment, casteism, housing, illiteracy, conservation, agricultural laborers, marginal and small farmers. Concept of feminization of poverty – measuring poverty; Participatory rural approach (PRA); Poverty groups and poverty alleviation programmes- SC, ST's, BC's.

Primary health care in rural areas: Definition, Human development index (HDI), Constitutional provisions and national policies, right to health, national health policies 1983&2002, reports on PHC Bhore committee (1946), Shrivastav committee (1975), Community health care, health care service levels (primary, secondary, tertiary)

UNIT IV (10hours)

Political structure & Politics: Central-various cabinets/ministries, structure and functions Related to community development State- Legislative assembly, various ministries structure and functions related to community development Rural administrative structure- Panchayatraj institutions amendments 73rd & 74th, Tamilnadu Panchayat Act 1958. Democratic decentralization.

UNIT V (8 hours)

Rural marketing &rural credits: Market system grading and weighment.

Rural credit facilities-specific needs of rural credit, micro-finance, and expectations of credit seekers. Rural credit banks-NABARD, SCBS, DCCB, P ACS, commercial banks, Regional rural banks (RRB).

Role of a community development worker in rural community development. Public- private partnership in rural development.

Teaching methodology

Lecture, Discussion, Assignment, seminar, Documentary films, Exposure visits, Case Studies presentation

Suggested readings

1. Datt & Sundaram. *Indian economy*. New Delhi, New Delhi: S.Chand co.
2. Jain. C.M. & Cangan. T. *Rural development in India*
3. Karaley,G.N. (2005). *Integrated Approach to Development Policies,* Programmes *and*
   Strategies.New Delhi, New Delhi: Concept Publishing Company.
4. Madan.G.R.*Changing pattern of Indian villages*.
5. Mukarji. B.*Community development in India.*
6. Reddy, Venkata. *Rural development in India.* Mumbai, Mumbai: Himalaya Publishing House.

CORE PAPER - 10

SPECIALIZATION PAPER – II

PAPER TITLE: DEVELOPMENT AND SOCIAL WORK PRACTICE

SUBJECT CODE:	THEORY	100 MARKS

Teaching hours: 45
Credits: 3

Objectives:

1. To help the students to gain an insight about Indian Economy.
2. To get a grasp about Human resources and economic development
3. To gain knowledge about the role of agriculture and industry in economic development.
4. To gain knowledge about globalization and implications of international agencies on economic development.

UNIT I: Concept of Development **(9 hours)**

Developed and Developing Economies – Concept, Theories, Processes. Indian Economy – Characteristics/Features, Issues of Development. Women as Contributors of Development. Unorganized Sector & Unemployment in Indian Economy. Relationship between Economics and Social Work.

UNIT II: Human Development, Sustainable Development Goals **(9 hours)**

Development Indices – Human Development Index, Gender Development Index, Gender Empowerment Measure, Poverty Index, Hunger Index. Human Development in India. Millennium Development Goals – Concept, Targets. Sustainable Development Goals – Concept, Targets, Indian Application of SDGs.

UNIT III: Agriculture and Economy **(9 hours)**

Indian Agriculture – Introduction, Features, Primary Sector occupations. Low Agricultural Productivity – Causes, Land Fragmentation, Farm Size, Climate Change. Solution - Cooperative farming, Food Security, Food Grain Self-Sufficiency, Food Sovereignty. Policies for Agricultural Development – Green Revolution, Second Green Revolution, Organic Farming, Mechanization of Agriculture, New Agricultural Techniques, Current Agricultural policies.

UNIT IV: Industry and Development **(9 hours)**

Industrial Sector in Indian Economy – Introduction, Features. Industrialization in Indian Economy – Development of Secondary and Tertiary Sector (Service Sector and IT). Public, Private Sectors of Indian Economy. Small Scale Industries – Village and Cottage Industries, Contribution to Indian Economy, Five Year Plans, Industrial Policy (Central Government Level & State Government Level Policy), Planning Commission, NITI Ayog (National Institution for Transforming India). Special Economic Zones (SEZ) – Introduction, Features, Issues

UNIT V: Globalization & World Trade Organization (WTO) (9 hours)

Globalization – Concept, Effect on Indian Economy. World Trade Organization (WTO) – Principals, Functions, Impact. Other International Bodies – World Bank, General Agreement on Tariffs & Trade (GATT), Trade Related Aspects of Intellectual Property Rights (TRIPS), International Monetary Fund (IMF).

Methodology of Teaching:

Lectures, Reading material, Discussions, Assignments, Case analysis, Field work and news clippings.

Suggested reading

1. Datt, Ruddar. & Sundaram.(1999). *Indian Economy.* KPM. Sultan Chand.
2. Dhandekar. (1994). *Indian Economy 1947 – 92: Agriculture*. V M Sagar Publications.
3. Patel, Surendra, J.(1995). *Indian Economy towards the 21st Century*. Universal lawPublication.
4. Parik, Kirit. & Radhakrishna, (2005) *Indian Development Report.* OUP.
5. World Development reports,(2009). World Bank Publication. Oxford University Press.
6. Human development Reports UNDP publication.
7. Jalan, Bimal *The Indian Economy: Problems & Prospects* (2006) New Delhi: Penguin

CORE PAPER - 11

SPECIALIZATION PAPER – III

PAPER TITLE: WORKING WITH CHILDERN AND YOUTH

SUBJECT CODE:	THEORY	100 MARKS

Teaching Hours: 45
Credits: 3

Objectives:

1. To sensitize the students on the problems of children and youth in the society
2. To develop an understanding of the need and importance for child and youth Development
3. To enhance understanding of the role of social work in child and youth welfare

UNIT I (9 hours)

Definition of Child and Youth. Demographic profile of the children and youth in India; Rural urban differences; Importance statistics related to the status of children in India and Tamilnadu; female child in India; Gender differences in child rearing and socialization. Socialization of youth: Influence of family peer, neighborhood, Reference groups religion. Impact of westernization, modernization and urbanization

UNIT II (9 hours)

Health and nutritional status and need of children and youth, Health Services-ICDS, MCH, School health and NGO Programmes; role of UNICEF and WHO; Various types of health intervention for children. Educational status and needs of children; the problems in education universal primary Education- SSA, Transits School Social Work- objective Activities.

UNIT III (9 hours)

Children in especially difficult circumstances: the destitute and abandoned children- Services for the destitute childe- Institutional and Non-institutional- Foster Care and Adoption, delinquent child- Juvenile justice system; child trafficking-dimensions and Interventions; Child Abuse: Dimensions, Causes and interventions; Street and Working Children: causes interventions (Govt. and NGO), children of sex workers, Displaced Children, Natural Disasters and children living with HIV/AIDS, Children of prisoners.

UNIT IV (9 hours)

Children and youth in of special care: Physically challenged children – extend, Causes, policies and programmes, other interventions; mentally challenged children- types, interventions' Emotionally challenged children: types, intervention', Child Guidance Clinic Specific problems of youth: Unemployment and Youth unrest behavioral problems: Drugs abuse, alcoholism, suicide and sexual issues. Functional disorders: Eating disorders, obesity. Emotional problem: Identity crisis, Alienation, career conflict.

UNIT V **(9 hours)**

Constitutional safe guards, National Policy, Plan Action, State and Central Government Programmes for children UN Charter for child rights, laws relating to Children, Child rights advocacy. Government and NGO programmes for children and youth in India-Nehru YuvaKendra , Rajeev Gandhi National Institute for Youth Development.

Teaching Methodology

Class discussion, Assignments/ Paper presentation, Flied visits, Documentaries

Suggested Reading

1. DCI. (1997). *International Standards concerning Child Right.* Geneva, DCI.
2. Devi, Lakshmi. (ed).(1998).*Child and Family Welfare*.New Delhi, New Delhi: Anmol Publications.
3. Gandhi, Anjali. (1996). *School Social Work.* New Delhi, New Delhi: Common Wealth Publishers.
4. Gore. M.S. (1978). *Indian Youth-Process of Socialization*. New Delhi, New Delhi: VYK.
5. Mander, Harsh & Rao, Vidya (1996).*An agenda for Caring, Interventions for Marginalized groups*. New Delhi, VHAI.
6. Muralidar, Nair &Ram. (1989). Indian youth-A profile.
7. MSSRF (1994). *Policy for the Young Children in Tamilnadu*. Chennai,
8. MSSRF. NIPCCD. (2002). *The Child in India-A Statistical Profile*, NIPCCD, New Delhi.
9. Paul, Fred. M. (1992). *Youth in a Changing Society*. New York, NY: Rout ledge and Kegan Paul.
10. Rane, Asha. (1994). *Street Children : A Challenge to the Social Work Profession*. Bombay, TISS.
11. Thirupathi. S.N.(ed). (1996).*Child Labour in India.*New Delhi, New Delhi: Discovery Publishing House.
12. UNICEF. (1994). *The Child and the Law.*New Delhi, New Delhi: UNICEF.

SPECIALIZATION : HUMAN RESOURCE MANAGEMENT [HRM]

CORE PAPER – 9

SPECIALIZATION PAPER – I

PAPER TITLE: LABOUR LEGISLATIONS

SUBJECT CODE:	THEORY	100 MARKS

Teaching hours: 45
Credits: 3

Objectives:

1. To help the students to learn basic facts concerning Labour Law
2. To enable them to realize the need to have suitable skills for the practice of Labor Law
3. To assist the students to acquire attitudes those are apt in the practice of Labor Law

UNIT-I: Introduction (9hours)

Labour Law in Indian constitution, industrial jurisprudence
Labour law distinguished from Industrial Law

Unit-II: Legislation pertaining to working conditions (9 hours)

The Factories Act 1948
The Industrial Employment (Standing orders) Act 1946
The Tamil Nadu Shops and Establishment Act 1947
The Contract Labour (Regulation and Abolition) Act 1970
Catering and Establishment Act

Unit III: Wage Legislations (9 hours)

The Payment of Wages Act 1936
The Minimum Wages Act 1948
The Payment of Bonus Act 1965
The Equal remuneration Act 1976

Unit IV: Social security legislations (9 hours)

The Employee's state Insurance Act 1948
The Employees Provident Fund and Miscellaneous Provisions Act 1952
The Maternity Benefit Act 1961
The Payment of Gratuity Act 1972

Unit V: Industrial Relations Legislations (9 hours)

The Industrial Dispute Act 1947
The Trade Union Act 1926

Teaching Methodology

Lectures, assignment, seminar, guest lectures, Case laws presentation and discussions

Suggested reading

1. Relevant Bare Acts
2. Kapoor,N.D.,(2001). *Hand Book of Industrial Law.* Sultan Chand & sons.
3. Kapoor,N.D.,(2002). *Elements of Industrial Law.* Sultan Chand & sons.
4. Srivastava.S.C.(1994). *Industrial Relations and Labour Laws*. Vikas Publishing House Pvt Ltd
5. Taxman's (2001). *Labour Laws*. Taxman Allied Services P Ltd.

CORE PAPER – 10

SPECIALIZATION PAPER – II

PAPER TITLE: HUMAN RESOURCE MANAGEMENT

SUBJECT CODE:	THEORY	100 MARKS

Teaching hours: 45
Credits: 3

Objectives:

1. To introduce the students to the different functional areas of HRM & HRD.
2. To impart necessary skills to manage the HR.
3. To sensitize the students on the emerging trends in the field of HR.

UNIT I (9 hours)

Management: Concepts, Objectives, Scopes and functions; Human Resource Management (HRM) & Human Resource development (HRD)-Concept clarification –P.M., HRM & HRD; Objective and scope –HRM& HRD as part of general management HR-Challenges and opportunities.HR policies, Procedures and programmes. Roles and Responsibilities of HR Manager.

UNIT II (9hours)

Human Resource Planning (HRP); Job analysis and Job design; Recruitment, selection, placement procedures; psychometric tests. Job changes and employee retention; Career planning and career development, succession planning, Dual career, repatriates.

UNIT III (9hours)

Compensation Management: Job Evaluation-Assessing job worth and developing wage structures. Wage salary administration, wage policy, wage boards; Incentives, Performance based pay & employee benefits; Executive compensation and International compensation. Personnel taxation. Current trends in compensation management-Employee Stock Option Plan.

UNIT IV (9hours)

Performance Appraisal & Potential Appraisal-Methods Performance appraisal; Traditional and modern Methods 360 degree appraisal. Performance councelling; Performance management. Employee motivation; Managing discipline; Grievance handling. Managing employee health and safety-Quality of Work Life (QWL);

UNIT V

Employee separation – retirement, resignation, dismissal and VRS.
HR Audit. HRIS & HR Consultancy & HR Outsourcing, Global HRM and future of HRM.

Teaching method

Lecture, assignments, seminar, group discussions, management gains and gust lecture case study.

Suggested readings

1. Bhattacharya,Dipak Kumar, (2002). *Human Resources Management.*New Delhi, Excel Books.
2. Bhatia. S.K.(2006). *Human Resource Management-Competitive advantage*. New Delhi, Deep & Deep Publication Pvt. Ltd.
3. Jyothi, P. and Venkatesh, D.N.(2006). *Human Resource Management*. New Delhi, OxfordUniversity Press.
4. Rao, T.V. (2016). *Performance Management: Towards organizational Excellence.* India: Sage Publications.
5. Aswathappa. (2010). *Human Resource Management.* Tata McGraw-Hill Education.

Journals:

1. Hardward Business Review
2. HRM Review
3. HRD times
4. Human Capital
5. Indian Journal of Industrial Relation.
6. Indian Journal of Social Work
7. Indian Journal of Training and Development
8. Indian management
9. Personnel Today
10. Corporate Governance.

Magazines:

1. Business Today 2. Business World 3.Business India 4. Economic and Political weekly

CORE PAPER – 11

SPEICLIZATION PAPER – III

PAPER TITLE: EMPLOYEE RELATIONS AND WELFARE

SUBJECT CODE:	THEORY	100 MARKS

Teaching Hours: 45
Credits: 3

Objectives:

1. To provide knowledge on the industrial relation system in India.
2. To familiarize the students with the various IR process.
3. To give insight in to the concept of welfare & social and organizational responses thereof

UNIT I: Industrial Relations (9 hours)

Concept; Stake holders; Characteristics of a model industrial relation (IR) system. Emerging trends in IR; Employee Relations across organizations in different sectors; Impact of Globalization and liberalization on IR . IR systems and issues in India, USA, Russia & Europe.

UNIT II: IR Climate (9 hours)

Industrial conflict: Meaning, Causes, Consequences, manifestations, Interventions (Statutory and Non Statutory machinery for prevents and settlement dispute) Industrial Peace

UNIT III: Proactive & Reactive IR (9 hours)

Collective Bargaining: Meaning, objectives, process, skills; Grievance redressal -Meaning and process: Employee discipline – Meaning & disciplinary procedures Employee empowerment-Meaning and mechanism

UNIT IV: Employee Welfare (9 hours)

Employee welfare: Meaning, Objectives, Philosophy, Scope, limitations and types of employee welfare. Statutory and Non-statutory welfare measures

UNIT V: Social Security (9 hours)

Concept, need types and schemes for the organized sector in India. Social Security in India and other countries.

Additional Reading (Does not form part of assessment)

ILO, EFI, NASSCOM, ASSOCHAM, FICCI, CII, NCL

Teaching Methodology

Lecture, General reading, Discussions, Assignments, Case analysis, filed work, News Clippings.

Suggested Readings

1. Mamoria, Dr. C.B. & Mamoria, Dr. S. *Dynamics of Industrial Relations*. Himalaya Publishing House.
2. Nair, N.G &Nair, Lata.(2001). *Personnel Management and Industrial Relations*.New Delhi,Sultan Chand and Co.Publishing House Pvt .Ltd.
3. Pylee M.V.& George,Simon. (1995). *Industrial Relation and Personnel Management*. Vikas.
4. Ratnam, Venkatta. C.S., (2001). *Globalization and Labor Management relation*. Response Books.
5. Roberts, B.C. *Industrial relation- Contemporary Problems and Perspectives*. Asia Publishing House
6. Scott, Bill.*The skill of Negotiating*. Mumbai, Jayco Publishing house.
7. Sharma, A.M., *Industrial Relation: Conceptual & Legal framework*. Himalaya Publishing House.
8. Sinha, G.P.& Sinha, P.R.L, *Industrial Relation and Labor Legislation*. Oxford and IBH Company.
9. Tandon, S. K, *Collective bargaining and the Indian Scene*. Sultan Chand Publications.

ELECTIVE – V

SPECIALIZATION PAPER – IV [FOR HRM ONLY]

STRATEGIC HUMAN RESOURCE MANAGEMENT

SUBJECT CODE:	THEORY	100 MARKS

Teaching hours: 30
Credits: 2

Objectives:

1. To introduce to the students emerging field of strategic management.
2. To help the student to understand the nature of the changing global business environment and role of HR in it.
3. To enable the students to appreciate the various method and techniques of strategic Human Resource Management.

UNIT I: Strategic Management (9 hours)

Fundamental elements of strategy-Vision, Mission, Goals and objectives; Forms of Strategy-Intended and realized strategies; use of the strategic management Process Rational Planning, instrumentalism and organizational learning; Difference between Strategic management and other types of management. Recruitment Strategies, compensation strategies, Evaluation strategies and Retention strategies.

UNIT II: Strategic Human Resource Management (SHRM) (9 hours)

Major trends in organizations and business environment in HRM Engineering challenges to Human Resource Management: Strategic Perspective in Human Resource Management; Concept, Aims and foundations of SHRM- Evolutionary stages, theories and models of SHRM.

UNIT III: Emerging trends & SHRM (9 hours)

Human Resource Environment: Technology and organization structure- Management trends – Demographic trends- utilization of human resources- International developments-Human resource legal environment.

UNIT IV: Integrating Strategy and HRM (9 hours)

Strategy role of Human resource planning , efficient use of human resource; Dealing With employee selection, surpluses and employees shortages. Talentship management, Employee value proposition. Reward and development system code strategically oriented performance measurement system, compensation system, employee development.

UNIT V: High Performance Practices (9hours)

Individual practices & Systems high performance human resource practices Performance management; Human resource evaluation. HR Scorecard using MBO, SPolicy deployment for aligning HRM with Business.

Teaching methods:

Lecture, Guest lecture, seminar and Assignments , Group discussion, Case study.

Suggested readings

1. Bhatia S.K. (2006). *Human Resource Management-A competitive advantage*. New Delhi (658.3 B): Publishing Pvt. Ltd.
2. Greer, Charles. R. (2001). *Strategic Human Resource Management- A General Managerial approach*. (2nd Edn), New delhi: (658.3 G). Pearson Education (Singapore) Pvt. Ltd.
3. Miller, Alex., & Dess, Gregory G., (1996). *Strategic Management* (2nd Edn)., New York (658.3 M) McGraw-Hill Companies Inc.
4. Sadler, Philips. (2004). *Strategic Management.* (2nd Edn), New Delhi (658.4 S). Kogan Page India Pvt. Ltd.
5. Shrma, Anuradha & Khandekar, Aradhana. *Human Resource Management -An Indian Perspective*, New Delhi (658.3A): Response Books.

ELECTIVE PAPER – VI

SPECIALISATION PAPER – V [FOR HRM ONLY]

PAPER TITLE: QUALITY MANAGEMENT

SUBJECT CODE:	THEORY	100 MARKS

Teaching Hours: 30
Credits: 2

Objectives:
1.To introduce the students to the basic concepts of quality management
2.To provide an overview of the various quality interventions
3.To highlight the relevant of quality for human resource management

UNIT I: Introduction to Quality (6 hours)
QUALITY concept, dimensions, determinants, benefits. Quality gurus (frederactaylor, Shewart, Deming, Juran, Feigenbaum, Crosby, Ishikawa, Taguchi, Shingo) and their key Contributions. Awards and prices for quality (Baldiige, deming). Quality function Deployment (QFD).

UNIT II : Quality management (6 hours)
Quality management- Concepts and principles. Approaches to quality management(Quality control& Quality Assurance) Quality control: Concept and tools- old and new; seven old quality control tools (check Sheet, pareto chart, flow chart cause and effect diagram, histogram scatter diagram,Control char)- Meaning and applications. Seven new quality control tools (AffinityDiagram, relations diagram, tree diagram, metrics diagram, L-shaped metrics, arrow diagram Process decision programme chart).

UNIT III: QUALITY ASSURANCE INITIATIVES (6 hours)
Quality assurance – concept and means- ISO – International Standard Organisation(The organization, benefit, ISO 9000 Standards, ISO 1400 Standard Applications),COPC (Customer Operations Performance Ccentre) Inc Standards (Meaning and Scope), Six sigma (concept objectives benefits and application).

UNIT IV: TOTAL QUALITY MANAGEMENT (6 hours)
Meaning, principles by Edward Deming, key elements (Ethics, Integrity, trust, Training, team work,leadership, reorganization, communication).

UNIT V: QUALITY AND PEOPLE MANAGEMENT (6 hours)
Quality in the human resource function. Meaning, important and benefits People capacity maturity model (PCMM- meaning objectives, levels, process areas).Teaching methodology Lecture, General reading , discussions, assignments, case analysis, field work, news Clippings.

Teaching methods:
Lecture, Guest lecture, seminar and Assignments , Group discussion, Case study.

Suggested Readings

1 . Bedy, Kanishka. (2006). *Quality management.* Oxford University Press. 2 .Chandran., S.A. (1985). *Quality circles* – Ess Publications

3 . Greg, et, Bounds., al. (1994). *Beyond total quality management :toward The emerging paradigm*. Max Webber Verlag Munchen.

4 . Gopal, Kanji K., & Asher, Mike. (1996). *100 methods for total quality Management.* Sagar Publications.

5 . Joel, Rose, E. (1995). *Total Quality management.* Vanitha publication.

6 . Michael, George. L. (2002). *Lean 6 sigma : Combining 6 sigma quality with lean speed*. Tata McGraw: Hill Publishing company Ltd.

7 . Michael, George.L. (2003). *Lean six sigma for service: How to Use Lean speed and six sigma quality to improve services and transactions.* Tata Mc Graw: Hill publishing.

9. Lal , meera. (1994). *Quality management through quality circles- an Indian model*. Authors Press.

10. Sontakey, D.R (1997).ISO 900 Quality system an over view .CBWE

SPECIALIZATION : MEDICAL AND PSYCHIATRIC SOCIAL WORK

CORE PAPER – 9

SPECIALIZATION PAPER – 1

PAPER TITLE: MENTAL HEALTH AND PSYCHIATRIC DISORDERS

SUBJECT CODE:	THEORY	100 MARKS

Teaching Hours: 45
Credits 3

Objectives:

1. To acquire knowledge of the phenomenology, symptomatology and treatment of Common Mental Disorders.
2. To develop skills in identifying Mental Disorders in Health Care and Community settings.
3. To develop the capacity of the student to apply knowledge and skills of the methods of Professional Social Work, as a member of the Mental Health Team, in
4. Field Work setting in Psychiatry

UNIT I **(9 Hours)**

History of Psychiatry- Concept of Mental Health- Mental Health in India- Mental Health Problems- Changing Trends in Mental Health Care- View of Mental Health and well-being.

UNIT II **(9 Hours)**

Psychiatric Interviewing - Case History, Taking and Mental State Examination, Psycho-Social and Multidimensional Assessment, Use of Mental Health Scales in assessment.

UNIT III **(9 Hours)**

Mental Disorders overview of classification of mental Disorders – ICD 10, DSM, Study of the Clinical Signs, Symptoms, Causes and Treatment of the following Common Mental Disorders: Organic Mental Disorders- Mental and Behavioral Disorders due to psychoactive substance use, Schizophrenia,Mood (Affective Disorders) (Mania, Depression, Bipolar, RDD).

UNIT IV **(9 Hours)**

Neurotic stress related and somatoform disorders(Phobia, General Anxiety Disorder, Obsessive Compulsive Disorder, Post Traumatic Stress Disorder, Dissociative Conversion,Somatization, hypochondrical, Somatoform autonomic dysfunction); Study of the Clinical Signs, Symptoms, Causes and Treatment of: Behavioral syndromes associated with physiological disturbances(eating, sleep, Sexual dysfunction); Disorders of adult personality and behavior; Mental Retardation; Disorders of Psychological Development(speech & Language, articulation,epilepsy, Scholastic, spelling, arithmetic, Motor function, Pervasive developmental Childhood Autism); Behavioral and emotional disorders with onset in childhood and adolescence(Hyperkinetic, conduct disorder, emotional, separation anxiety); Addictive Behaviour- Social Media ,Selfitis, gambling, Television addiction)

UNIT V **(9 Hours)**

Mental Health Care Act 2017;Rights of Persons with Disabilities (RPWD) Act, 2016; Narcotic drugs and Psychotropic Substances Act 1985, Socio-cultural factors in Psychiatry – Magico-religious practices – Cultural beliefs – Stigma.

Teaching methods:

Lecture, Guest lecture, seminar and Assignments , Group discussion, Case study.

Suggested Readings:

1. NirajAhuja (2011), A short textbook of psychiatry, 7th Edition, Jaypee Brothers Medical Publishers (P) Ltd, New Delhi.
2. MangalS.K(2015), Abnormal Psychology, Sterling Publishers (p) Ltd, New Delhi.
3. The ICD-10 Classification of Mental and Behavioural disorders (2004), A.I.T.B.S. Publishers & Distributors, New Delhi.
4. Bhugra ,Gopinath., & Vikram Patel., (2005). *Handbook of Psychiatry- A South Asian Perspective*. Mumbai: Byword Viva Publishers Pvt. Ltd.
5. Coleman, & James, (1996). *Abnormal Psychology Modern Life*. Mumbai: Tarapore Vala and Sons.
6. Kaplan , Harold, I., & Sadock, B.J., (1989). *Comprehensive Text Book of Psychiatry*. London: Williams & Wilkins, Baltimore.
7. Kapur, M., (1995). *Mental Health of Indian Children*. New Delhi: Sage Publications.
8. Mane, & Gandevia., (1998). *Mental Health in India: Issues and Concerns*. Mumbai: Tata Institute of Social Sciences.
9. WHO. (2004). The ICD-10 Classification of Mental and Behavioral Disorders,
10. Diagnostic Criteria for Research, AITBS Publishers and Distributors, Delhi
11. Ahuja Neraj, (2002), A short textbook of psychiatry, 5th Edition, New Delhi.

CORE PAPER – 10

SPECIALIZATION PAPER – II

PAPER TITLE: PUBLIC HEALTH IN INDIA

SUBJECT CODE:	THEORY	100 MARKS

Teaching Hours: 45
Credits : 3

Objectives:

5. To develop an understanding of multidimensional approach to Health.
6. To understand the administration of the basic health infrastructure in the country
7. To relate the knowledge of Social Work practice to Public Health situation in India.

UNIT I **(9 Hours)**

Understanding Health: Definition- A critical review of various interpretations of health. Introduction to Public Health & Epidemiology. Socio Political, economic and cultural factors influencing health. Preventive, Promotive and Rehabilitative aspects of Public Health. Various systems of medicine practiced in India.

UNIT II **(9 Hours)**

Community Health: Principles, Models of Intervention and the role of Professional Social Worker. Rural and Urban health in India: Health Status, Health Problems and Health Services with specific focus on marginalized and vulnerable groups.

UNIT III **(9 Hours)**

National Health Programmes-Health Policies and Committees. Legislations pertaining to Health – A critical review. Health administration and Planning: Structure and Functions at National and State and District levels- Primary Health Centres - Corporation and Municipal health services. Hospital Administation and Management.

UNIT IV **(9 Hours)**

Understanding health from the Human Rights perspective – Environment issues and health – Media and health. Health Movements and Campaigns. Role and Specific skills required for Medical Social Work Practice.

UNIT V **(9 Hours)**

Partners in Preventive, Promotive and Rehabilitative aspects of health care: Non-Governmental Organisations, Health Network, Corporate Sector, Educational and Religious Institutions. Latest reports of National and International Organisations working in the area of Health. Current review and analysis from scientific journals, health magazines.

Teaching methods:

Lecture, Guest lecture, seminar and Assignments , Group discussion, Case study.

Suggested Readings :

1. Ajit. (2005). *Social Dimensions of Health*. New Delhi: Rawat Publications.
2. Bajpai. (1998). *Social Work Perspectives on Health*. New Delhi: Rawat Publications.
3. Mishra. (2000). *Indian Health Report*. New Delhi: Oxford University Press.
4. Narayana. (1997). *Health and Development*. New Delhi: Rawat Publications.
5. Park & Park. (2003). *Textbook of preventive and social medicine*.
6. Pokrana. (1994). *Social Beliefs, Cultural Practices in Health and Disease*. New Delhi: Rawat Publications.

Websites

1. www.who.org World Health Reports (1995-22050
2. www.tnhealth.org Annual Report
3. www.mohfw.nic.in Annual Report
4. www.nfhsindia.org National Family Health Survey, India
5. www.vhai.org State of India's health report, Report of independent Commission on health in India and other reports.

CORE PAPER – 11

SPECILIZATION PAPER – III

PAPER TITLE: MEDICAL SOCIAL WORK

SUBJECT CODE:	THEORY	100 MARKS

Total Hours: 45
Credits : 3

Objectives:

1. To enable the students to develop appropriate values, knowledge, skills and techniques for effective Social Work practice in the field of Health.
2. To enable the students to understand the psycho- socio- cultural realities associated with patient care in the Hospital and Community setting.
3. To acquire the knowledge with respect to the inter-disciplinary approach for persons with disease and disability.

UNIT I **(10 Hours)**

Medical Social Work: Definition and Objectives, Historical Development of Medical Social Work in the West and in India, Need for Medical Social Work in our Country, Current trends in Medical Social Work in India. Difference between Medical Social Work and Medical Sociology. Definition and important concepts. Concept of patient as a person : Patient as a whole, Social Assessment of patient's family, Preparation of Social Case Work history(With examples from field work practice), Patient's Rights and Medical Ethics, Psycho-Social Problems of patients and families during the process of treatment and hospitalization,

UNIT II **(8 Hours)**

Organisation and Administration of Medical Social Work in a Hospital Setting- Role of the Medical Social Workers in the Department- Staff Developmental Programmes for Medical Social Workers-Application of various Social Work Methods in Hospital Setting- Specific skills required for Medical Social Work Practice.

UNIT III **(10 Hours)**

Concept of long term hospitalization: Impact of long term hospitalization on the patients and the families- Role and Functions of Medical Social Worker : Rural and Urban Community Settings, Promoting health needs and functions, Maternity and Children's Hospital, Cancer, Chronic Illness (Diabetes, Nephritises, Cardio-Vascular Disorders, HIV/ AIDS, Tuberculosis) Blood Bank, Organ Transplant Centers, Trauma Care Centers, Palliative care, Hospice settings, NGOs managing Health Services and Hospitals.

UNIT IV **(9 Hours)**

Concept of Disability: Causes, Management and Rehabilitation of Physical Disabilities- Rehabilitation : Definition, Objectives, Principles, Approaches and Models – Commmunity Based Rehabiliation - Multi Disciplinary approaches in Medical Social Work: Importance of Team Work and Case Conference.

UNIT V **(8 Hours)**

Field work in the Medical Social Work Practices- Role of the trainee- Importance of Recording and Supervision-Evaluating the current trends in the Field Work practices- Measures to strengthen Field Work practice- Inter-Disciplinary Studied, Health Insurance,Medical Social Work Research.

Teaching methods:

Lecture, Guest lecture, seminar and Assignments , Group discussion, Case study.

Suggested Readings :

1. Ahuja, Ram. (2006). *Social Problems in India*. New Delhi: Rawat Publication.
2. Blaxter, Mildred. (2004). *Key Concepts on Health*. New Delhi: Polity Publishers.
3. Bradshaw & Bradshaw. (2004). *Health Policy for Health Care Professional*. New Delhi: Sage Publications.
4. Brannon & Feist. (2000). *Health Psychology*. Toronto: TLARC Publication..
5. Dowding & Barr. (2002). *Managing in Health Care*. London: Pearson Education Ltd.
6. Dziegielewski, Sophia, (2003). *Changing Phase of Health Care, Social Series II Education*. New Delhi: Sara book.
7. Ghelert, Sarah. (2006). *Hand book of Health Social Work*. London: John Wiley & Co.
8. Sirohi, Anand. (2005). *Modern Perspectives in Social Work*. New Delhi: Dominant Publishers.
9. Cockerham, William. C. (1998). *Medical Sociology*. New Jersey: Prentice Hall.
10. Zastrow, Charles. (2000). *Introduction to Social Work and Social Welfare*. Belmont: Wadsworth Publication.

JOURNALS:

Health Action, CHAI, Secunderabad.

Health Care Law, ICFAI, Hyderabad.

Health for the Millions, VHAI,New Delhi.

Indian Journal of Social Work, TISS, Mumbai.

Journal of Indian Council of Medical Research.

Social Welfare, CSWB, New Delhi.

ELECTIVE- V

SPECIALIZATION PAPER – IV [FOR CD AND MPSW]

PAPER TITLE: COUNSELLING

SUBJECT CODE:	THEORY	100 MARKS

Teaching Hours: 30
Credits: 2

Objectives:

1. To introduce the students to the concept, definition and need for Counseling.
2. To equip the students on the emerging areas of Counseling.
3. To equip the students on the skills and techniques of Counseling.
4. To learn the core elements that facilitates counseling
5. To learn the counselling approaches in different settings.

UNIT I **(6 hours)**

Counseling – Definition, Objectives. Qualities of a Counselor. Individual Vs Group Counseling, Difference between Counselling, Case Work & Psycho-therapy, Ethics in counseling – Code of Ethics & Practice of Counselling.

UNIT II **(6 hours)**

Counseling skills ,**Counselling** Process, **Stages in Counselling**, Techniques in Counselling, Egan's Skilled Helper Model.

UNIT III **(6 hours)**

Counselling Approaches: Person Centered, Rational Emotive Behavioural Therapy, Transactional Analysis. Alternative Therapies:Art Therapy, Yoga/Meditation.

UNIT IV **(6 hours)**

Counseling in different situations –Industrial/Work place, Martial, Family, De-addiction counselling. Counselling in terminal Situations. Crisis Counseling, Terminal Illness (Palliative, Hospice, AIDS, Cancer), School Counseling, Career Counselling, Grief Counselling. Suicidal Counselling.

UNIT V **(6 hours)**

Counseling in emergency and Disaster Situations (Migrants, Refuges, Trauma CARE, Victims of Communal Riots).

Teaching methodology: Lectures, interactive discussion, Group assignment/ discussion, providing, reading, material for reflection and discussion, Article/news item reviews, Field based case studies/discussions and analysis. Field visits/guest lectures. Demonstration: Role Play and mock exercises.

Suggested reading:

1. Dave, Mearns. (1997).*Person Centered Counseling Training*. New Delhi, New Delhi: Sage Publications.
2. Joyce & Charlotte, Sills; (2002). *Skills in Gestalt Counselling & Psychotherapy*. New Delhi, New Delhi: sage publications.
3. Michael, Carroll.(1996).*Workplace counseling: A systematic approach to employee care*. New Delhi, New Delhi: Sage publications..
4. Naryana, Rao. S. (1991). *Counseling & Guidance*. (2nd ed). New Delhi, New Delhi: Tata Mcgrawhill publishing company Ltd.
5. Ray, Wolfe & Windy Dryden.(1996).*Handbook of Counseling Psychology*. New Delhi, New Delhi: Sage Publications.
6. Ramanth, Sharma. & Rachana, Sharma. (2004). *Guidance and Counselling in India*. New Delhi: Atlantic publishers and Distributiors.

ELECTIVE - VI

SPEICLIZATION PAPER – V [FOR CD AND MPSW]

PAPER TITLE: SOCIAL ENTERPRENEURSHIP

SUBJECT CODE:	THEORY	100 MARKS

Teaching Hours: 30
Credits: 2

Objectives:

1. To provide an understanding nature and process of social entrepreneurship development.
2. To motivate students to go for entrepreneurship development

UNIT I: Social Entrepreneurship and social entrepreneur (6 hours)

Social entrepreneurship – Concepts, definition, nature and characteristics and scope, Historical development Social Entrepreneur: concepts, Definitions, types, characteristics, competence Determinants of entrepreneurial successes, Stages to become an efficient entrepreneur, Development models, importance of an entrepreneur, entrepreneurs in economic development.

UNIT II : Growth Strategies of social entrepreneur and entrepreneur development (6 Hours)

Programmes (EDP) Factors Influencing entrepreneurial group factors affecting entrepreneurial growth. Developing the entrepreneurship plan- Environmental assessment, Role of NGO in Promoting entrepreneurship, NGO's network, intervention, support system etc.

UNIT III: Women Social entrepreneurship (6 Hours)

Definition, Environmental analysis, Challenges, strategies, Empowerment, factor's related to success and failure, self-help group, legal issues, initiatives or promotion of women social entrepreneurship, family support dual role, role conflict, resource, available problems; Rural entrepreneurship, small scale industry (SSI); Growth of SSI sector- exports.

UNIT IV: Setting up of small business enterprise (6 Hours)

Identifying the business opportunities, formalities for setting up of small business Enterprise, Environment pollution related clearance, strategies adopted importance of Financial management, working capital management, accounting and book keeping Financial statement importance of marketing, customer relationship management, Marketing services, human relations management, etc., Micro enterprise development.

UNIT V: Entrepreneurial support system. (6 Hours)

Small industries development bank of India (SIDBI), National Small industries Corporation (NSIC), National Research Development Corporation (NRDC), Entrepreneurship development institute of India, National Institute for Entrepreneurship Of small business development, State financial corporation (SFCS), Commercial Banks, District Industries Centers (DICS), National Institute of Small Industries Extension Training (NISIET), State trading corporation of India(STC), Chamber of Commerce and industry and industrial associations, confederation of Indian industry (CII).

Practical Exposure:
Visit to the small scale industry successful enterprise.
To meet the successful entrepreneurs, supporting NGO's
Project- Case studies

Teaching methodology :
Lecture, Discussion, seminars ,assignments, documentary, filims, filed visits, presentation Of case studies of successful Entrepreneurship, interviews with Entrepreneurs.

Suggested reading

1. Anil Kumar. S. (2003). *Entrepreneurship*. New age International Publishers Ltd. New Delhi.
2. Charantimath, Poornima. (2006). *Entrepreneurship Development small business Enterprises.* Dorling Kindersley India Pvt ltd.
3. Kuratko, Ronald, F. (2001). *Entrepreneurship: A Contemporary approach*. London: Harcour College publishers.
4. Mohan, S., & R. Elangovan. (2006). *Current trends in Entrepreneurship*. New Delhi. Deep & deep Publication Pvt. Ltd.
5. Singh, Jasmer Saini. (2005). *Entrepreneurship Development programmes and practices.* New Delhi: Deep & deep Publication Pvt Ltd.
6. Gupts, M.C. (1987). *Entrepreneurship in small scale industry*. Anmol Publications New Delhi.
7. Industrial policy resolutions- Govt of India Publication Small in Beautiful-E.F.
8. Schumacher, Harper& Row, New York 1972.
9. Small business finance – a simple –approach- Lambden Johnc & target.
10. David, 1990 (Pitman Publishing, Landon).
11. The journal of Entrepreneurship –vol-15,no-2.

CORE PAPER – 12

[FOR ALL SPECIALIZATIONS]

CONCURRENT FIELD WORK-III

SUBJECT CODE:	FIELD WORK	100 MARKS

Credits: 6
No. of days: 25-30 days
(Two days a week at 15 hours per week)

General Objectives

Second year (III and IV semester) field work in specific is focused and specialized Setting based. The broad aim is to provide opportunities for students to apply the knowledge learnt in the class room situations and to plan, implement and evaluate these experiences while working with individuals, groups and communities. This will be in keeping with the Agency's philosophy, policy and goals and use of guided supervision.

Specific objectives:

Common:

1. To study and understand the working of an agency.
2. To study and understand the agency's goals, policies and philosophy.
3. To understand analyze the person in the environment.
4. To develop skills in documentation.

For Social Work Specialization:

1. To understand needs of various groups and the agencies response to meet these needs.
2. To study the impact of the need(need –fulfillment gap)/disease/problem/disability on the individual family and society
3. To participate in the activities of the agency.
4. To practice the methods of social work in the agency
5. To develop the personal and professional self.

For HR Specialization:

1. To gain the knowledge on the business environment.
2. To get an exposure on the HR department and its functional areas
3. To get hands-on training in the HR functional areas
4. To practice the methods of social work in the agency
5. To develop the personal and professional self.

SOFT SKILLS-III

PAPER TITLE: MANAGERIAL SKILLS

SUBJECT CODE:	THEORY	100 MARKS

Credits: 2
Teaching Hours: 20

Objectives:

1. To help students to understand the mechanism of stress particularly negative emotions such as an anxiety, anger and depression for effective management
2. To introduce the basic concepts of body language for conflict management
3. To give inputs on some of the important interpersonal skills such as group decision making, negotiation and leadership skills
4. To make students learn and practice the steps in time management
5. To impart training for empowerment thereby encouraging the students to become successful entrepreneur

UNIT I: Stress Management

Definitions and manifestation of stress. Stress coping ability stress inoculation Training, Management of various forms of fear (examination fear, stage fear or public Speaking anxiety), depression and anger.

UNIT II: Conflict Management Skills

Types of Conflict(Intra personal, intra group and intra group conflicts). Basic concepts cues, Signals, symbols and secrets of body language. Significance of body language in Communication and assertiveness training, conflict stimulation and conflict resolution techniques for effective management.

UNIT III: Interpersonal Skills

Group Decision Making(Strength and weakness).Developing characteristics of Charismatic and transformational leadership. Emotional intelligence and leader shipEffectiveness- Self-awareness, Self-management, self-motivation, empathy and socialSkills. Negotiation skills-preparation and planning, definition ground rules,clarification and justification, bargaining and problem solving, closure and implementation.

UNIT IV: Time management

Time wasters – procrastination. Time management personality profile. Time management Tips and strategies. Advantages of time management.

UNIT V: Towards Empowerment:

Stimulating innovation and change-coping with 'temporariness.' Network culture. Power tactics and power in groups(coalition).managerial empowerment and entrepreneurship. Prevention of moral dwarfism especially terrorism. Altruism(pro social behavioral/helping behavior). Spiritually (clarifications)practices-toleration of fellow human being expression.

Practical training

Relaxation exercises- Western (Autogenic Relaxation) and Indian techniques. Role Play. Transactional analysis.

References

1. Hurlock E.B. (2006). *Personality Development*. (28th reprint). Tata McGraw Hill.
2. Robbins S.B. (2005). *OrganisationalBehaviour*. New Delhi: Prentice Hall of India.
3. Smith, B.(2004). *Body Language*. Delhi: Rohan Book Company.
4. Swaminathan V.D & Kaliappan K.V. (2001).*Psychology for Effective Living*. Chennai: The Madras Psychological Society.

COURSE COMPONENT

STUDY TOUR

SUBJECT CODE:	FIELD WORK	

Credits: 1
No. of days: 4-5 days

In the study tour component the learners are provided learning opportunity related to their areas of specialization in different other locations (geographical, social and cultural) outside their own locality. This arrangement provides them an opportunity to meet different people and to come to know different systems of service delivery / institutions.

Objectives:

1. To understand different governmental and developmental services in the context of emerging social realities.
2. To understand the programmers / strategies, administration / management of the services / programmes and participation of the client system in problem solving.
3. Through the experience of group living appreciate its value in terms of self development,inter- personal relationship and mutual responsibility.

Process:

1. Learners are helped to participate in planning, implementing and evaluating the experience with the help of the faculty.
2. Since it will be a mid- semester arrangement it will have to be considered as a part of the field work that particular semester and reports are to be submitted on the visits made.
3. In this process learners are helped in planning, implementing and evaluating learning experiences.

Skill development:

Acquire skills in planning ,organizing and evaluation of the study tour, learn conscious use of time, communication skills, team spirit, handling relationships ,conflicts and differences of opinions ,decisions makings, evaluation, appreciation ,sharing resources, sharing tasks, coping skills in problem situations with cooperation and coordination.

Suggested readings:

1. UGC Model Curriculam on Social Work Education, UGC, New Delhi,2001.
2. Field Work Manual, Madras School of Social Work, 2008-2009.

SEMESTER – IV

SPECIALIZATION : COMMUNITY DEVELOPMENT

CORE PAPER – 13

SPECIALIZATIONPAPER – VI

PAPER TITLE: URBAN COMMUNITY DEVELOPMENT

SUBJECT CODE:	THEORY	100 MARKS

Teaching Hours: 45
Credits: 3

Objectives:

1. To enable students gain an understanding of concepts related to urban development.
2. To help students understand urban poverty and related issues.
3. To provide an overview of development strategies in the urban context.

UNIT I: Concepts of Urbanization **(9 hours)**

Industrialization, Urbanization, Urban Area, Suburb, Urbanism, Urban Sprawl, Exurb, Slums, Squatter Settlement, Ghetto, Metro, Megalopolis, Urban Agglomerations, Planned Cities
Urban Development – Introduction, Urban Community Development, Urbanization Theories – Centre-Periphery Theory, Concentric Zone Theory (Ernest Burgess), Sector Theory (1939, Homer Hoyt), Multiple Nuclei Theory (1945, Harris and Ullman)

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UNIT II: Urban Problems **(9 hours)**

Urban Problems – Definition, Causes, Consequences. Migration (mass and forced), Housing Problems, Transportation Problems, Slums, Displacement. Gated Community, Slum Improvement, Government Programs.

UNIT III: Urban Community Development in India **(9 hours)**

Urban Local Government Bodies – Municipalities, Corporations, Structure & Functions, 74th Amendment Act, 1992, National Buildings Organization (NBO), Tamil Nadu Institute of Urban Studies (TNIUS) – Role & Functions. Role of Government in Urban Development – Housing & Urban Development Corporation (HUDCO), Corporation of Chennai, Chennai Metropolitan Development Authority (CMDA), Other Urban Development projects- Delhi & Hyderabad Projects, Jawaharlal Nehru Urban Renewal Mission, Tamil Nadu Urban Development Fund, Tamil Nadu Urban Development Project.

UNIT IV: Marginalized Groups in Urban Areas **(9 hours)**

Marginalized Groups - Urban Displaced, Street & Working Children, Homeless, Human Trafficking of Women and Children. Other Problems – Pollution, Solid Waste Management, Disaster Management.

UNIT V: Social Work and Urban Community Development (9 hours)

Role of Community Development Professional – Conscientization, Organizing, Developing Local Leadership, Conflict Resolution, Peoples' Participation & Advocacy, NGO Intervention, Slum Clearance Board

Teaching Methodology

Class discussion, Group assignments, Field visits, Case studies.

Suggested reading

1. Davis, Milk. (2006). *Planet of slums*, London and New York. Verso.
2. Desai & Pillai. (1972). *Slums and Urbanisation*. Bombay: Popular.
3. Bhattacharya, B. (1979). *Urban Development in India*. New Delhi: Shree publishing.
4. Bose, Ashish. (1971). India's Urbanisation. New Delhi: McGraw Hill.
5. Mohanty, Bidyut. (1993). *Urbanisation in Developing countries,ISS and Concept.* New Delhi.
6. Clinard, Marshall. B. (1972), *Slums and Urban Community Development*. New York: The Free Press.
7. Neuwirth, Robert. (2005). *Shadow Cities:A Billion Squatters; A New Urban World*. Routlegdeew. New York and London.

CORE PAPER – 14

SPECIALIZATION PAPER – VII

PAPER TITLE: DALIT AND TRIBAL DEVELOPMENT

SUBJECT CODE:	THEORY	100 MARKS

Teaching hours: 45
Credits: 3

Objectives

1. To understand the current status of dalit and tribal communities.
2. To gain knowledge on the process of dalit and tribal disempowerment.
3. To learn strategies and processes of dalit and tribal empowerment.
4. To know about national and international efforts towards dalit and tribal empowerment.

UNIT I: Dalits and Development (9 hours)

Understanding caste, oppression and oppressive practices in acaste society; Untouchability; Social Exclusion and Inclusion, Dalits in south asian countries; Development and under development of Dalits-Social Sector Expenditure and Development of Dalits; Access to Health and Education and right to development- status and comparison with non Dalits.

UNIT II: Dalits and Constitution (9 hours)

Constitutional protection; State and Civil Society in Dalit empowerment; Government Programmes; Protection of Civil Rights Act, Elimination of Racial Discrimination under the UN Commission Human Rights; INGOs and participation of Dalits; Labour Market Discrimination; Dalits and Development Deprivation. Dalit Movements.

UNIT III: Tribal Communities (9 hours)

Concepts of tribal, adivasi, indigenous, aborigines; tribal social systems and structures; belief systems,culture-indigenousvs.mainstream;perspectivesontribalsinsocial sciences; International Indigenous/Tribal communities; Tribal Self determination; Tribal Social Work-formulation, approaches, concepts and strategies.

UNIT IV: Tribal Issues (9 hours)

Globalisation and tribals; labour relations and exploitation; politics of tribal welfare and development; issues of governance facing tribals; education; health; food security; land rights; disaster; development displacement resettlement, rehabilitation; religion and its impact on Tribals; natural resource management and sustainable development; livelihood; agriculture and rural markets; peace and conflict; social movements and protest; reservation and positive discrimination; tribal sub-plan; Special component plan.

Unit V: Social Work with Dalits and Tribals (9 hours)

Social Work Methods for Dalit and Tribal persons: Social analyses; advocacy; social activism; networking; micro/macro planning; leadership building and cadre based organisations; social mobilisation. Fair-trade; arts and craft manufacturing and marketing; sustainable livelihood management; organizing political movement; skills of individual and community conscientisation processes.

Teaching Methodology

Class discussion, Group assignments, Field visits, Case studies.

Suggested Readings

1. Danda Ajith, K. (1991). *Tribal Economy in India*. Inter-India Publications, Delhi.
2. Alexander, K.C., & et.al. (1991). *Tribals;Rehabilitation and development*. Jaipur, Rawat publications.
3. Singh, Kumar Awadesh. (2003). *Dynamics of Tribal Economy*, New Delhi: Serial Publications.
4. Deogaonkar, S.G, (1994). *Tribal Administration and Development.* New Delhi, Concept Publishing Company.
5. Thakur, Devendra & et.al, (1995). *Role of Voluntary organizations in Tribal Development*, NewDelhi, Deep andDeep Publications.
6. Government of India.(2001). *Report of the Steering Committee on Empowering the Scheduled Tribes*, Planning Commission, Delhi.
7. Kumar, B.B. (1998). *TheTribal Societies ofIndia*. Osmon, Delhi.
8. Tiwari, P.D. & Trpathi R.S. (ed). (1992). *Dimensions of Scheduled Tribes Development in India*. Uppal Publishing House, Delhi.
9. Singh, K.S., (1982). *Tribal Movements in India*. (Vol. 2), Manohar Publications, Delhi,
10. Pandian, Soundra. M. (2000). *Tribal Development in India*, Anmol Publications Pvt.Ltd., New Delhi,
11. Sikidar, Sujit. (1991). *Economic Development of Tribal India*, Ashish Publishing House, New Delhi.
12. Banarjee Shankar, Thara., & Budhadeb, Chaudari. (1990). (Ed.), *Tribal transformation in India*. Vol.II. Inter India Publications, New Delhi.
13. Kamble, N.D, (1981). *Atrocities on Scheduled Castesin Post Independent India*, Ashis Publishing House, New Delhi.
14. Judgean, Paramjit. S. & Gurpreet Bal, D. (2009). *Mapping of Dalits*. Rawat Publications, Jaipur.
15. Sinha, R.K. (1986). *Alienation among Scheduled Castes*. Manasa Publications, Delhi
16. Singh, K.S. (1997). *Scheduled Castes*. Oxford University Press. Delhi.
17. Sukhdeo, Thorat. (2009). *Dalits in India: Search for Common Identity*. Sage Publications, New Delhi.
18. Ambedkar, B.R. (1948). *The Untouchables*. Delhi: Amrit.
19. Beteille, Andre. (1996). *Caste, Class and Power*. New Delhi: Oxford UniversityPress.
20. Freeman,J.M. (1979). *Untouchables-An Indian History*. London: GeorgeAllenand Unwin.
21. Ganguli, Debjani. (2005). *Caste and Dalit Lifeworlds:PostcolonialPerspectives*. New Delhi: Orient Longman.

22. Mohanty, R.P. (2003). *Dalits Development and Change: An Empirical Study*. New Delhi: Discovery Publishing House.
23. Paswan, & Dr.Sanjoyand, Jaideva, Dr.Pramanshi. (2003). *Encyclopedia of Dalits in India*. Delhi: Kalpaz Publications.
24. Zelliot, Eleanor. (2005). *From Untouchable to Dalit: Essays on the Ambedkar Movement*. New Delhi: Manohar.
25. Ambedkar, B.R. Annihilation of Caste

Journals

Seminar, Social Action, Economic and Political Weekly

CORE PAPER – 15

SPECIALIZATION PAPER – VIII

PAPER TITLE: MANAGEMENTOF NON GOVERNMENTAL ORGANISATIONS

SUBJECT CODE:	THEORY	100 MARKS

Teaching hours: 45
Credits: 3

Objectives:

1. To understand the meaning of Management Concepts, Principles and Process in the context of Non Profit Sector.
2. To provide knowledge on Project Management.
3. To gain insights into the Government Programmes of various Ministries and Departments.

UNIT I **(7hours)**

Historical Development of NGOs, Definition, Meaning, Characteristics, Types, Voluntary Organisation, Community Based Organisation, Movements, Groups, Trusts, Civil Society Agencies, Registration of Voluntary Organisations, Certificate of Incorporation, Certificate of Commencement of Business, By-laws, Memorandum of Association, Articles of Association, Board, Trustee, Committees, Executive Committee, Adhoc Committees, Duties and Responsibilities of Office Bearers, President, Secretary, Treasurer, Vice President, Joint Secretary, Managing Trustee, Share Holders, Stake Holders, Target Groups and Partners in Development. Conduct of Meetings, Preparation of Agenda, Minutes of Meetings, Resolutions and Quorum.

UNIT II **(5 Hours)**

Laws related to NGOs: Society Registration Act 1860, Trust Act of 1912, Cooperative Societies Act 1912, Foreign Contribution Regulation Act, Income Tax Act.Companies Act 1956, National Policy on Voluntary Sector 2007

UNIT III **(8 Hours)**

Accounting and NGOs - Book Keeping and Accounting, Definition, Meaning, Types of Accounts, Golden Rules of Accounting, Single Entry System and Double Entry System of Book Keeping Banking, Types of Bank Accounts, Pass Book, Cheque Book, Bank Reconciliation Statement, Books of Accounts, Cash Book, Journal and Ledger, Negotiable Instuments, Bill of Exchange, Vouchers, Receipt Books, Assets, Liabilities, Capital Expenditure, Revenue Expenditure, Deferred Revenue Expenditure, Budgeting, Administrative Cost, Programme Cost, Final Accounts of Non Trading Concerns, Trial Balance, Receipts and Payments Account, Income and Expenditure Account, Balance Sheet,Auditing, Definition, Types, Auditors Report.

UNIT IV **(6 Hours)**

Project Planning: Baseline Survey, Participatory Project Planning Techniques, PRA, RRA, Need Assessment, Logical Frame Work Analysis, Centralised Planning Vs.Decentralised

Planning, Bottom Up Planning, Micro Plan, Grassroots Plan, Alternate Planning, Pro poor Planning, Expectations, Key Result Areas Tangible / Intangible, Project Evaluation. Proposal Writing for the Programmes of Central and State Governments - Social Welfare Board, Department of Social Defence and Donor Agencies. Report Writing: Interim Report, Term Reports and Completion Report.

UNIT V **(4 Hours)**

Management Process: Concept and Principles of Mamanagement, Operational Management, Personnel Management, Material Management, Fund Raising, Information Management and Time Management. OrganisationalBehaviour; Individual in an Organisation - Groups in Organisation- Group Behaviour, Leadership and Team Building, - Organisational Process Communication, Supervision, Organizational Change and Development.

Suggested Readings

1. Brown, Andrew, 1970 Management Development and MBO, Sonalaya Publications, Bombay
2. Chandra, Snehalata, 2003 Guidelines for NGOs Management in India, KanishkaPublishers,New Delhi
3. Chambers, R, 1994 The Origins and Practice of Participatory Rural Appraisal, World Bank · Keith Davis, 1964 Readings in Human Relations, Mc Grew Hill Book
4. Lewis & Wallace, 2000 New roles and Relevance; Development of NGOs and Challenge of change, Kumarian press, Chennai.
5. Paul Samuel, Managing Development Programmes, The Lessons of Success, Boulder Co West View Press, Washington.
6. Padaki&Manjulika, 2005 Management Development in Non-Profit Organisation, Sage Publications, New Delhi
7. Roy Sam, M, 2002 Project planning and Management focusing on Proposal writing, CHAI, Secunderabad.
8. Sen, Amartya, 2005 Human Rights and Human Development, UNDP Human Development Report

SPECIALIZATION : HUMAN RESOURCE MANAGEMENT

CORE PAPER – 13

SPECIALIZATION PAPER – VI

PAPER TITLE: ORGANISATION BEHAVIOUR

SUBJECT CODE:	THEORY	100 MARKS

Teaching Hours: 45
Credits: 3

Objectives:

1. To help students to gain knowledge about the dynamics of human behavior in organization setup.
2. To enable them to gain understanding on the factors influencing human behavior in organization.
3. To import necessary skills essential for the management of human behavior in organizations.

UNIT I : Introduction to organization Behaviour (9 hours)

Organization behavior: Concept, Definition, Relevance, Scope, Emerging trends (knowledge organizations, Learning organizations, organizational structuring). Challenging (Diversity, Ethics). Theoretical Framework of organizational behavior (Cognitive, Behaviour, Social learning)

UNIT II: Foundations of Individual Behaviour (Micro- perspective) (9 hours)

Meaning and implication to organization behavior. Perception, Personality, Values and Attitudes, Learning and reinforcement, Organization commitment, Motives, Goal setting, Reward systems, Job satisfaction, Morale, Stress.

UNIT III: Foundations of Group and Team Behaviour (Meso – Perspective) (9 hours)

Teams Nature, features, difference between teams and groups, types, factors influencing effective functioning of teams, informal work groups, power (meaning & types) political behavior (meaning, characteristics, manifestations), Conflict and Negotiation, Leadership, interpersonal communication.

UNIT IV: Key pillars of Organisational Behaviour (9 hours)

Motivation: Meaning, Need, Theories (Maslow, Herberg, Alderfer, Vroom, Attribution theories). Organisation strategies for Motivation.

Leadership : Meaning Attributes of a good leader, leadership styles, Theories (trait theory, Path-Goal theory, Contingency theory, transformational leadership theories, Daniel Goldman theory of EQ & leadership)

Unit V: Foundation of organization Behaviour (Macro Perspective) (9 hours)

Communication Meaning ,Types , Facilities, Barriers); Decision-making ; Organizational culture; Organizational climate; Organizational citizenship Behaviour; Whistle –blowing behavior.Organisational Development. Role of behavioral Scientist power and conflict management.

Teaching methods

Lecture, Case studies, assignments, seminars, group discussion, management games and guest lectures.

Suggested Reading

1. New strom, John W., & Davis, Keith. (1997). *Organisational Behaviour*. (10th Ed). Mcgraw Hill New York.
2. Robbins, Stephen. B. (1996). *Organisational Behaviour*. (7th Ed). Prentice Hall of India pvt. Ltd. New Delhi.
3. Fred Luthans, (1998). *OrganisationalBehaviour*. (8th Ed). Irwin McGraw Hill, Boston.
4. Rao, V.S.P., & Narayana, P.S. (1994).*Organisational Theory and Behaviour*. Kanoark Publishers pvt, Delhi.

Journals & Magazines

Harvard Business Review, HRM, Review, HRD times, Human Capital, Indian Journal of Industrial Relations, Indian Journal of Social Work, Indian journal of Training and development, Indian Management, Personnel Today, Corporate Governance and Organizational Behaviour.

CORE PAPER – 14

SPECIALIZATION PAPER – VII

PAPER TITLE: ORGANISATIONAL DEVELOPMENT

SUBJECT CODE:	THEORY	100 MARKS

Teaching hours:45

Credits : 3

Objectives

1. To help the students to build knowledge on OD
2. To help the students to develop skill in implementation of OD practices.
3. To increase the level of inter-personel trust among employees.
4. To confront problems instead of neglecting them.

UNIT I: INTRODUCTION (9 hours)

General Introduction, Objectives, Characteristics, History and Trends in OD.

UNIT II: Management of change (9 hours)

Introduction to Management of change. Process of managing Organizational change, Managing Resistance to change. Strategies and guidelines for imparting change, theories and approaches to planned change.

UNIT III: The process of organization development (9 hours)

Entering, Contracting, Diagnosing, Collecting, Analysis and feeding diagnostic Information; Designing Intervention ;Leading and Managing Changes ;Evaluating and Institutionalizing Intervention; Measuring Intervention and change.

UNIT IV: Human process intervention (9 hours)

Interpersonal and group processes approaches – T groups ,teams and team building; Organization process approach – Inter group relations Interventions, Meetings and Conflict Management

UNIT V: Techno structural interventions (9 hours)

Restructuring Organizations; Employee Involvement; Work Design.Organisational development and Approaches.

Teaching methodology

Lecturers ,Case studies, assignments, seminars, group discussion, management games and guest lecturers.

Suggested reading

1. Bhatia S.K. *Management of change and organizational development – innovative approach*.
2. Basotiag. R., & Sharma K.K, *Management of organization development.*
3. Ramnarayan., Rao, T.V. & Singh, Kuldeep. *Organization development – Interventions and Strategies.*
4. Amuthalakshmi. Prof. Umachandran, M.D.S.Prabu. *Interventions in Indian Business.*
5. Comings & Worley. *Organizational development and change.*
6. P.Lynton, & PareekUdai. *Organizational information for policy makers and change managers – Role.*
7. P. Lynton, PreekUdai. *Training for organizational transformation – Role.*
8. Mac Milan. *Organizational development and human resource development*.

CORE PAPER – 15

SPECIALIZATION PAPER – VIII

PAPER TITLE: HUMAN RESOURCE DEVELOPMENT

SUBJECT CODE:	THEORY	100 MARKS

Teaching hours: 45
Credits : 3

Objectives

1. To enable the students to understand the concepts and functions of Human Resource Management.
2. To sensitize the students on the emerging trends in the field of HRD.
3. To provide the students the attitude and skills for employment in the field of human Resource Development

UNIT I: Introduction. (5 Hours)

Concept and boundaries of Human Resource system; Functions of HR system; HRM,HRD& HR Function – Concept clarification ; Evolution of HRD : HRD in USA,HRD orientations of Japan and India ; Asian trends ; Liberalization of Indian industries & HRD.

HRD system and sub- systems ; Elements of good HRD ; Goals of HRD; Place of HRD in Industry – Integrating HRD with corporate plan ,HRD challenges in the corporate sector – Challenges for HR champions ; HRD & the future ; HRD as a profession and Professionalization of HRD in India – Professional bodies.

UNIT II: HRD Department & Functions (10 Hours)

Functions of HRD managers; The HRD Matrix. HRD competencies checklist for HR professionals; HRD practices in Indian organizations.Theory building in HRD Profession ; HRD function – Global models & Indian experiences : Pareek and Rao's framework ,Strategies HR framework approach, Integrative framework, HRD score card approach. PCMM approach ; Integrating HRD with corporate plan; Future strategies for HR managers to become effective.

Unit III: HRD Processes & Instruments – I: (10 Hours)

Role analysis and development exercises; Performance planning ,Performance analysis & review ,Performance counseling & Interpersonal feed back; Induction training, Training and Job rotation ; Potential appraisal & Development; Career planning & Development ; Self – renewal & Institution building exercises; Personal growth laboratories ; Quality circles & other team based activities ; Task forces ; Managerial learning networks.

UNIT IV: HRD processes & Instruments – II: (10 Hours)

360 Degree feed back (or) Multirater assessment and feedback systems (MAFS) objectives, advantages – RSDQ model of 360 degree feed back – Effectiveness of 360 degree feedback. Change & its management; knowledge management ; leadership and leadership development ; Management development development ; mentors & modeling ; Organizational commitment, Organizational development .Organizational learning & learning organizations.

Computerized Human Resource Information System

UNIT V: Approaches to evaluate the HR function & its impact (10 Hours)

The balance score card approach; The Strategies HR framework; The Integrative approach; Arthur Anderson's Human Capital Appraisal approach ; HRD score card. HRD audit: Basic concepts & components; Methodology – Individual interviews, Group interviews, observations, questionnaire, writing HRD audit report. Role in business improvement, Limitations. HRD styles & culture – OCTAPACE culture. Work values. Award winning HRD companies in India.

Teaching methodology:

Lecturer, assignments, group discussion ,presentations ,case study.

Suggested readings:

1. KUAMR SINGH, SANJEEV. (2008). *Human Resorce Development : HRD – IR Interface Approach*. Atlantic Publishers & Distributors, Delhi.
2. SILVERA. D.M. (1990). *Human Resource Development*. The Indian Experience, New India Publications, New Delhi.
3. RAO. T.V. (1990). *The HRD Missionary – Role and functions of HRD managers & HRD Departments*. Oxford IBH Publishing co., New Delhi.
4. RAO.T.V & PEREIA D.F. *Recent Experiments in HRD*. Oxford & IBH Publishing Co., Delhi.
5. RAO.T.V. *Future of HRD*. Macmillian, Delhi.
6. RAO.T.V. (1999). *HRD Audit*. Response Books, Delhi.
7. SURESH VYAS. (1988). *HRD Priorities*. Pointed publishers, jaipur.
8. MARGARET ANNE REID,HARYBARRINGTON. (2007). *Human Resources Develpoment*. (7thedn) Pinnacle, Delhi.
9. UDAI PAREEK, & RAO T.V. (2006). *Designing & Managing Human Resource systems.* (3rdedn), Oxford & IBH Publishing Co., New Delhi.
10. INDIAN INSTITUTE OF BANKERS. (2003).*Organization Development & HRD*. (for CAIIB Exam). MacMillain India Ltd.

SPECIALIZATION : MEDICAL AND PSYCHIATRIC SOCIAL WORK

CORE PAPER – 13

SPECIALIZATION PAPER - VI

PAPER TITLE: PSYCHIATRIC SOCIAL WORK

SUBJECT CODE:	THEORY	100 MARKS

Total Hours: 45
Credits : 3

Objectives:

1. To develop the knowledge of Psychosocial Treatment Methods for persons with Mental and Emotional Disorders.
2. To acquire knowledge of Institutional and Extra-mural approaches to provision of Mental Health Services.
3. To acquire knowledge and skill in the practice of Community Psychiatry and Rehabilitation

UNIT I **(5 Hours)**

Psychiatric Social Work as a field of Social Work in India. Historical Development of Psychiatric Social Work in U.K., U.S.A. and India.

UNIT II **(15 Hours)**

The concept of psychiatric patient, Family and mental illness. Diagnosis in Psychiatric Social Work. Social Case Work, Social Group Work and Family Therapy in Psychiatric setting.

UNIT III **(5 Hours)**

The Mental Hospital as a social system: Partial hospitalization. Therapeutic community.

UNIT IV **(5 Hours)**

Functions of the Psychiatric Social Worker in the following: Psychiatric Out-Patient Department and Psychiatric Ward (in-patients) in the Government General Hospitals, Day Hospitals, Child Guidance Clinics, Epilepsy Clinics, Adolescent Clinics, Neuroses Clinics, Geriatric Clinics.

UNIT V **(5 Hours)**

Rehabilitation of Chronic Mentally ill Patients. Community Psychiatry: Role of the Psychiatric SocialWorker in Community Mental Health Programmes, Limitations faced by the Psychiatric Social Worker in the field and solutions for the same.

REFERENCES :

- Daver, Bhargavi, (1999). *Mental Health of Indian Women*, Sage Publications, New Delhi
- Daver, Bhargavi, (2001). *Mental Health from a Gender Perspective*. Sage Publications, New Delhi
- Dhanda, Amita, (1999). *Legal Order and Mental Disorder*. Sage Publications, New Delhi
- Kapur, Malavika, (1997). *Mental Health in Indian Schools*. Sage Publications, New Delhi
- Verma, Ratna, (1991). *Psychiatric Social Work in India.* Sage Publications, New Delhi
- World Health Organization, 1986 Prevention of Mental, Neurological and Psychosocial problems
- WHO, 1991 Innovative Approaches in Mental Health Care, Psychosocial Interventions and Co-management, Geneva.

  www.who.org

CORE PAPER – 14

SPECIALIZATION PAPER – VII

PAPER TITLE: THERAPEUTIC INTERVENTIONS IN SOCIAL WORK PRACTICE

SUBJECT CODE:	THEORY	100 MARKS

Total Hours: 45
Credits : 3

Objectives:

1. To enable the student to understand the basic Principles underlying various forms of Psycho Social Intervention techniques in Clinical Settings.
2. To facilitate the development of skills in Practicing various psychosocial interventions while working with patients, their families and communities.
3. To initiate the student into integrating indigenous and holistic therapeutic practices in keeping with the principles and the code of ethics of Professional Intervention.

UNIT I **(9 Hours)**

Therapeutic intervention: Meaning, Concept. Clinical Social Work Practice: Definition. Models in Clinical Social Work Practice: Task Centered Model, Strength based Model, Resilience model. Community based Psychosocial Rehabilitation.

UNIT II **(9 Hours)**

Role of Clinical Social work Practice in different setting: Mental Health, HIV/AIDS, Deaddiction, Diabetics, Coronary Heart disease, Neurology, Nephrology, Oncology, Tuberculosis.

UNIT III **(9 Hours)**

Therapeutic Approaches, Types of Psychosocial Treatment: Cognitive Therapy, Behaviour Therapy, Interpersonal Therapy, Psychoanlysis, Gestalt Therapy, Group Therapy, Tele-counseling, Mindfulness, Transactional Analysis.

UNIT IV **(9 Hours)**

Indigenous therapeutic Techniques- Yoga, Meditation, Spiritual Healing and Relaxation Therapy

UNIT V **(9 Hours)**

Current trends in Healing- Neurolinguistic Programming, Positive Imaging, Self analysis and Healing, Pain Management techniques, Use of Art Based Therapies in the healing Process.

REFERENCES:

1. Joseph Waalsh(2010), Direct Social Work Practice Theoretical Perspectives, Cengage Learning India Private Limited, New Delhi. ISBN-13:978-81-315-1375-0
2. Sekar, Parthasarathy, Muralidhar (2011), Handbook of Psychiatric Social Work, NIMHANS Publication.
3. Egan, Gerard. (2006). *The skilled helper: A problem management and opportunity, Develpoment Approach to helping*, Wadsworth publishers, Boston, USA.
4. Hamilton, Gordon. (1955). *Theory and Practice of Social Case Work*. Columbia University Press, New York, USA .
5. Helen, (1995). *Social Case Work: A Problem Solving Process*. The University of Chicago Press, Chicago, USA.
6. Konopka, (1983). *Social Group Work: A helping Process*. Prentice Hall, New Jersy, USA.
7. Lapworth, Phil, (2001). *Integration in Counselling and Psychotherapy: Developing a personal approach*. sage publications, New Delhi.
8. Mangal, S.K. (2006). *An Introduction to Psychology*. Sterling Publishers Pvt. Ltd.
9. Windy, Dryden. (2002). *Handbook of Individual Therapy*. Sage Publications, New Delhi.
10. Coleman, *Comprehensive Textbook of Abnormal Psychology*.

CORE PAPER – 15

SPECIALIZATION PAPER – VIII

PAPER TITLE: HOSPITAL ADMINISTRATION

SUBJECT CODE:	THEORY	100 MARKS

Teaching hours:45
Credits : 3

Objectives

1. The aim of this course is to enable the students to understand the principles and practice of management and its application in hospitals.
2. At the end of the course the students would be able to accept professional management practice in different healthcare units.
3. Understand the integrated approach in management and application of Information Technology in Hospitals.
4. Manage service organizations by accepting the inbuilt challenges manage hospitals by understanding the complexity, levels and role of hospital administrator
5. Understand the current issues that have an implication in hospital administration.

UNIT I **(4 hours)**

Management Concepts and Theories: Management and Organizations, Management Role Levels of Managers and Management Skills, **Management Functions and Process** Planning Organizing Staffing Directing Controlling

UNIT II **(9 hours)**

Services, organization of clinical services and support services:- Organization and Administration of various clinical services - Outpatient service - Inpatient Services -Emergency Services - Operation Theater - ICUs - super Specialty Service including their utilization study - Nursing Care and Ward Management. Imaging - CSSD - Laboratory - Blood Bank - diet - Medical Records - Mortuary - Pharmacy -Admission and Discharge Procedure - Billing Procedure - Bio Medical Equipments Planning.

UNIT III **(10 hours)**

The need for Information systems – the Increasing Value of Information Technology – the Networking of computing – Business Process Reengineering – IT as a tool for competitive advantage. Medical records - Role of Medical Records in Health Care Delivery – General Medical Records Standards and Policies –Legal Aspects of Medical Records –Medical Audit Computerization of Medical Records – Information Needs in the Hospital – sources of Health Information – User of Health and Hospital Data.

UNIT IV **(4 hours)**

Hospital Management: Levels and Roles Governing Board, Executive Board and Advisory Board CEO, Medical Administration, Nursing Administration and Hospital Administration Middle Level Managers in Hospital and their Responsibilities.

UNIT V **(10 hours)**

Health, Dimensions of Health, Indicators of Health , Types of Healthcare Organizations, Composition of Health Sector, Types of Care, Pyramidal Structure of Health Services, Hospitals, Types of Hospitals and Role of Hospital in Healthcare, Complexity of Hospital Organization. - Health Insurance and Managing Health Care - Medical audit - Hazard and Safety in a hospital Setup.

UNIT VI **(8 hours)**

Current Issues in Healthcare: Accreditation, Tele health, Health Tourism, Health Insurance and Managed Care, Disaster Management ,Hospital Wastes Management-Bio- Medical Waste Management - Organ Transplantation - Rehabilitation Services

Textbooks

1 Robbins, Stephen P. & Coulter, Mary. **Management.** New Delhi: Prentice Hall of India Pvt. Ltd.
2 Park.J.E. & Park, K. **Textbook of Preventive and Social Medicine.** M/S Banarsidas Bhanot Publishers, Jabalpur.
3 Elaine La Monica, Management in Health Care (Macmillan Press Ltd, London)

Reference

1. Berman, Peter. (1995). *Health Sector Reform in Developing Countries*., Harvard University Press.
2. Francis, C.M. & et al. *Hospital Administration.* Jayapee Brothers Medical Publishers Pvt. Ltd. New Delhi.
3. Srinivasan.S (ed.), *Management Process in Health Care.* Voluntary Health Association of India. New Delhi.
4. Paton, Colum. *Health Policy and Management - The health care Agenda in a British political contact.* Chapman & Hall Publication (Madras).
5. Reinke, William A. (1988). *Health Planning For Effective Management*. Oxford University Press.
6. James A.O'Brien. *Management Information System*. Tata Mc-graw Hill. 7.. Srinivasan.A.V. *Managing a Modern Hospital*. Response Books
8. Smith, Jack. *Health Management Information System*. Open University Publication, U.K.
9. Sakharkar, B.M. *Principles of Hospital Administration and Planning* (Jaypee Brothers Medical Publishers Pvt. Ltd., New Delhi)

INTERDISCIPLINARY PAPER

COMMON PAPER FOR ALL STUDENTS

PAPER TITLE: CORPORATE SOCIAL GOVERNANCE & CORPORATE SOCIAL RESPONSIBILITIES

SUBJECT CODE:	THEORY	100 MARKS

Teaching Hours:30
Credits : 2

Objectives:

1. To provide the knowledge of corporate social responsibility in the business world.
2. To make the students to understand the business ethics and corporate social responsibility in global scenario.
3. To familiarize the emerging management in CSR and the policies.
4. To make them to become a CSR – social workers.

UNIT I **(4 Hours)**

CSR-Definition ,concepts and need .Concentration areas of CSR. Corporate social responsibility in India. Triple bottom approach and sustainable development.

UNIT II **(6 Hours)**

Business ethics and corporate social responsibility in global scenario: CSR- business ethics, corporate governance ,ethical decision – making in different culture, consumer protection, environment protection, gender issues in multi- culturalism, ethics and corruption.

UNIT III **(4 Hours)**

Corporate community participation & role and skills of social worker in CSR: Corporate ,NGO, Government ,Citizen ,need for partnership ,need assessment . Role and skills- Advocacy, administration ,marketing ,mediating ,budgeting ,organizing, documenting presenting ,public speaking, teaching ,supervising ,writing.

UNIT IV **(6 Hours)**

Tools of CSR: MDGs, Global Compact ,GRI ,Human Rights,SA8000, aa1000, Fair Trade, ISO 26000. Role of Social Worker in Corporate social Responsibility – Indian companies Act 2013.

UNIT V **(10 Hours)**

National and International CSR activities. Case studies and seminar presentation of CSR Initiative : UNILEVER India. ITC lever, Orchid Chemicals, Vestas Pvt Ltd, TVS Srinivasan Services Trust, Pepsico India Ltd, Nokia, Starbucks.

Methodology of teaching:

Lectures, Reading materials, Discussions, assignments, field visits, news clippings.

Suggested readings:

1. *The business of social responsibility*. Bangalore (2000). Harsh Shrivastava Books for change.
2. *Corporate social responsibility – concepts and cases*. (2005). CV. Baxi.
3. .Mahmoudi. M. Dr. (2005). *Global strategic management*. Deep & Deep Publications pvt. Ltd. Delhi.
4. Bhatia. S.K. (2005). *International Human resource management – Global perspective*, Delhi: Deep & Deep Publications Pvt. ltd.

Journals

1. Harvard business review- corporate social responsibility getting the logic right ,vol 84,issue 12,2006.
2. Indian journal of social work – CSR in the globalized business environment ,vol 66,issue 2 ,2005.
3. Indian journal of Industrial relations – CSR : present practice and future possibilities ,vol 40,issue 4,2005.

CORE PAPER – 16

RESEARCH PROJECT

SUBJECT CODE:	FIELD WORK	100 MARKS

Teaching Hours:30
Credits : 6

Objectives:

The board aim of the Research Project is to give the students necessary training to:

1. Formulate a research problem relevant to their area of specialization.
2. Develop hypothesis
3. Construct tools for data collection
4. Gain data collection experience
5. Develop skills in analyzing and interpreting the data
6. Develop report writing skills
7. Inculcate the interest in them writing research articles.

Process:

During the IV Semester period every student is required to complete a research project (empirical study) under the supervision and guidance of a faculty of the department who will guide the students on topics related to their specialization area.

Whatever be the area of their specialization the research projects need to reflect the aspects of social work education and practice in it.

Every completed research report(2 copies) certified by the respective faculty supervisor enclosed with the project completion certificate (obtained from the industry / agency) need to be submitted to the Controller of examinations section on or before March 31st of the academic year.

CORE PAPER – 17

CONCURRENT FIELD WORK – IV

SUBJECT CODE:	FIELD WORK	100 MARKS

Credits : 6
No. of days: 25 – 30
(Weekly Two days / 15 Hrs per week)

The broad aim is to continue the opportunities provided for students to apply the knowledge learnt in the class room situations and to plan, implement and evaluate these experiences while working with organizations, individuals, groups and communities. This will be in keeping with the agency's philosophy, policy and goals and use of guided supervision.

Objectives

Common:

1. To study and understand of the working of an agency.
2. To study and understand the agency's goals ,policies and philosophy
3. To understand and analyze the person in the environment
4. To develop skills in documentation

Social work specialization specific:

1. To understand needs of various groups and the agencies response to meet these needs.
2. To study the impact of the need (need - fulfillment gap)/ disease/problem/disability on the individual family and society.
3. To participate in the activities of the agency
4. To participate the methods of social work agency
5. To develop the personal and professional self.

HR specialization specific:

1. To gain knowledge on the business environment
2. To get an exposure on the HR department and its functional areas
3. To get hands-on training in the HR functional areas
4. To carry out mini- projects of interest for the organization and the individual student
5. To practice the methods of social work agency
6. To develop the personal and professional self.

SOFT SKILLS – IV

PAPER TITLE : SPOKEN AND PRESENTATION SKILLS

SUBJECT CODE:	THEORY	100 MARKS

Teaching Hours: 30
Credits : 2

Objectives:

1. Coach students to identify, classify and apply relevant skill sets.
2. Illustrate role of skills in real-life situations with case studies, role play etc.,
3. Translate performance of skills into efficient habits.
4. Enables the students to perceive cultural codes involved in presentation and design language performance accordingly.
5. Contributing to people quality of work life through top class training modules.

UNIT I: General knowledge and presentation.

UNIT II: Special language and Presentation.

UNIT III: Professional communication skills for presentation.

Recommended books:

1. Andrews, Sudhor. *How to Succeed in Interviews.* (21st reprint). New Delhi, New Delhi: Tata McGraw Hill.
2. Cathcart, Robert, S. & Samovar Larry, A. (1970). *Small Group Communication: A Reader*. (5th Ed), WMC Brown Publishers, IOWA.
3. Monippally, Matthukutty, M. (2001). *Business communication strategies.* (11th reprint), New Delhi, New Delhi: Tata McGraw Hill.
4. Tamblyn, Doni and Sharyn Weiss. (2004). *THE Big Book of Humorous Training Games*. New Delhi, New Delhi:Tata McGraw Hill.

COURSE COMPONENT

BLOCK PLACEMENT

SUBJECT CODE:	**FIELD WORK**	

Duration : 1 month
Credits : 2
(After IV Semester theory examinations)

This opportunity is provided at the end of the two years of the programme. It is designed for the learner to integrate theory and practice to enhance competencies in the area of specially selected by the student and in social work practice and experience self in that role.

Objectives:

1. Develop enhanced practice skill and integrate learning.
2. Develop greater understanding of reality situations through involvement in day to day work.
3. Develop appreciation of other's efforts and develop sensitivity to gaps in the programme.
4. Enhance awareness of self in the role of HR professional / professional social worker.

Process:

1. It is an unsupervised but a compulsory component for course completion.
2. The student will be placed in a setting (local / outstation) continuously for a period of one month.
3. The agency for the placement has to be finalized appropriately before the end of the IV semester.
4. The agency may be the one where the student has already been selected for a job placement through campus recruitment or where the student finds chances for absorption after completion of the block placement.
5. The settings are also to be communicated well in advance and written permission obtained.
6. After the completion of the block placement the student has to submit a consolidated report of the activities undertaken and the experiences gained during the training period.
7. Students will be allotted faculty members for their contact and submission of the reports.
8. The members of faculty to glance through the reports submitted and issue block field work completion certificates.

GURU NANAK COLLEGE
(AUTONOMOUS)
VELACHERY ROAD, CHENNAI – 600042
(Re-accredited at 'A-Grade' by NAAC)
Affiliated to University of Madras

MASTER OF ARTS
M.A DEFENCE AND STRATEGIC STUDIES

(SEMESTER PATTERN WITH CHOICE BASED CREDIT SYSTEM)

Regulations & Syllabus

(For the candidates admitted for the Academic year 2019-20 and onwards)

Vision

To develop professionals with demonstrable in depth knowledge and cognitive skills to deal with strategic and security affairs

Mission

- To impart knowledge and develop defence oriented aptitude and disseminate ideas of war and peace.
- To mobilize public opinion in favour of the requirements of National Security.
- To create security consciousness.
- To give mature guidance regarding national security problems and prospects.

Programme Outcomes

At the end of the program the students will be able to:

PO 1 : Scientific Knowledge: Acquire the knowledge of Defence and Strategic Studies and apply it to issues, challenges and threats to national security threats faced by the country.
PO 2 : Problems Analysis: Identify, assess, and analyze complex problems; both internal and external, and to formulate appropriate policy options.
PO 3 : Design/Development of Solutions: Develop solutions for complex national security with suitable doctrinal procedures.
PO 4 : Conduct survey to understand, assimilate, reflect, empathize and act on issues of critical importance faced by the country.
PO 5 : Modern tool usage facilitates enhanced teaching – learning process viz.., ICT tools, LMS tools, Web designing and hosting etc.

Programme Specific Outcomes

On completion of M. A., Defence and Strategic Studies the intended skill are:

PSO 1 : To acquaint the students on the various aspects of national security study and enable them to understand and assess to national security features that are emerging in the international political system. The students should be able to compare and correlate the multiple aspects of national security threats and discern alternative approaches to solve them.

PSO 2 : The students are adequately prepared to understand the critical functions of national security and the process of governance and policy formulations that are essential to achieve national security.

DEPARTMENT OF DEFENCE AND STRATEGIC STUDIES
MASTER OF ARTS
COURSE STRUCTURE 2019-21 BATCH

Semester	Part	Course Component	Subject Code	Subject Name	Credits	Hours	Internal	External	Total
Semester - I	I	Core - I	19PDEF301	Indian Art of Warfare up to 1857	4	6	50	50	100
	II	Core - II	19PDEF302	World Military History up to WWII	4	6	50	50	100
	III	Core - III	19PDEF303	International Relations	4	6	50	50	100
	III	Core - IV	19PDEF304	India's National Security and Strategic Spectrum	4	6	50	50	100
	III	Elective - I	19PDEF305	Conflict and Cooperation in South Asia	4	6	50	50	100
	IV	Soft Skills - I	19PGSL401	Soft Skills	2	-	50	50	100
Total Credits -22, Total Hours/ week- 30									
Semester - II	I	Core - V	19PDEF306	Theoretical Aspects of International Relations	4	6	50	50	100
	II	Core - VI	19PDEF307	International Law	4	6	50	50	100
	III	Core - VII	19PDEF308	Arms Control and Disarmament	4	6	50	50	100
	III	Core - VIII	19PDEF309	Strategic Thought	4	6	50	50	100
	III	Elective - II	19PDEF310	Geo Politics and Military Geography	4	6	50	50	100
	IV	Soft Skills - II	19PGSL402	Soft Skills	2	-	50	50	100
Total Credits -22, Total Hours/ week-30									
Semester - III	I	Core - IX	19PDEF311	Area Studies - India and SAARC	4	6	50	50	100
	II	Core - X	19PDEF312	Peace and Conflict Studies	4	6	50	50	100
	III	Core - XI	19PDEF313	Defence Economics and Defence Management	4	6	50	50	100
	III	Core - XII	19PDEF314	Science, Technology and National Security	4	6	50	50	100
	III	Elective - III	19PDEF315	Defence Journalism	3	6	50	50	100
	IV	Internship	19PINT401	Visit to Defence Establishments/ NGO's/ Library	2	-	50	50	100
		Soft Skills - III	19PGSL403	Soft Skills	2	-	50	50	100
Total Credits -23, Total Hours/ week-30									
Semester - IV	I	Core - XIII	19PDEF316	Wars in Contemporary Period	4	6	50	50	100
	II	Core - XIV	19PDEF317	Post Independent Wars of India	4	6	50	50	100
	III	Core - XV	19PDEF318	Introduction to Industrial Security	4	6	50	50	100
	III	Core - XVI	19PDEF319	Specialized Warfare	4	6	50	50	100
	III	Core -XVII	19PDEF320	Research Methodology and Dissertation	6	6	50	50	100
	IV	Soft Skills - IV	19PGSL404	Soft Skills	2	-	50	50	100
Total Credits -24, Total Hours/ week-30									
Grand Total Credits -91, Total Hours/ week-120									

Note: A Compulsory internship programme is scheduled for the P.G Students of Defence and Strategic Studies in Third Semester. The students shall commence their internship programme at the end of Second Semester. The report of the internship carried out by the students shall be submitted within 30days after its competition. This internship report would be evaluated by a committee of faculties of the parent department

CORE – I: INDIAN ART OF WARFARE UP TO 1857

SUBJECT CODE :19PDEF301	**THEORY / PRACTICAL**	**100 MARKS**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

This paper attempts to familiarize the students with the evolution of the art of warfare in India. It is to establish that the art of warfare changes with changes in political governance, nature of threat, and weapon systems.

UNIT I: (18 Hours)

Development of Military System as out lined in the Vedic and Epic Literature Indian Philosophy of War –Manu-Kautilya , Military Organisation, Weapon, Patterns of Warfare

UNIT II (18 Hours)

Mauriyan Military System described by Megasthanese. Age of Guptas and Harshavardhan- Changes in Hindu Military System.

UNIT III: (18 Hours)

Arab and Turkish Invasion of India: New Trends of Warfare, Rajput Military System- Art of Warfare with special reference to the battle of Terrain, Sultanate Period- Pattern of Warfare with special reference to the economic reforms of AlaudinKhilji.

UNIT IV (18 Hours)

Mughal Military System – New Trends- Causes of Failure, Maratha Military System- Land and Sea Warfare- Impact of Western influence during 18th Century, Sikh Military System- Pattern of Warfare of Khalsa Army.

UNIT V: (18 Hours)

Anglo-Sikh Warfare with special reference to the battle of Sobraon, Presidency Armies- development with special reference to the battle of Assaye 1803 A.D, Indian War of Independence 1857 A.D

REFERENCE BOOKS:

1. Singh, S.D. Ancient Indian Warfare with special reference to the vedic period
2. Basham, A.L. The wonder that was India
3. Dikshitar, R.C. War in Ancient India
4. Fuller, J.F.C. The Generalship of Alexander the Great
5. Majumdar, R.C. Classical account of India

WEBSITES:

1. https://www.tandfonline.com/doi/abs/10.1080/15027570701539636?journalCode=smil20
2. https://nios.ac.in/media/documents/military_history_375/Book-1/Chapter-4.pdf
3. https://pratiyogitaabhiyan.in/general-studies/history-general-studies/invasion-of-arabs-and-turks-in-india-notesmcq-pdf-download/
4. https://indianculture.gov.in/ebooks/military-system-marathas
5. http://www.columbia.edu/cu/lweb/digital/collections/cul/texts/ldpd_6260651_000/

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	3	30
Section B	**Short Answer** Answer any 5 out of 7 questions	13-19	6	30
Section C	**Essay** Answer any 4 out of 6 questions	20-25	10	40

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE – II: WORLD MILITARY HISTORY UP TO WWII

SUBJECT CODE: 19PDEF302	**THEORY / PRACTICAL**	**100 MARKS**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

On successful completion of the paper, the candidates will be able to narrate the evolution of warfare from early times. This paper outlines the wars which were fought from 4th century BC to 19th Century AD. To make the students understand the evolution of wars in the world from early period.

UNIT I: Military system in Ancient Greece: (18 Hours)

Greek Military Organization,
Greeco Persian War (Battle of Marathon, Thermopylae and Salamis),
Rise of Alexander's Empire (Battle of Isus, Arbela)

UNIT II: Military System in Ancient Rome: (18 Hours)

Roman Military organization,
Rome- Carthage Conflict (Battle of Canne, Zama)
Julius Caesar's Military Campaigns

UNIT II: Military System in Medieval Empire: (18 Hours)

Military Reforms of GustavusAdolphus
French Revolution – Causes and Consequences
Napoleon's art of war (Battle of Ulm, Jena ,Trafalgar and Waterloo)

UNIT IV: World War I: (18 Hours)

Causes
Trench and Static Warfare, Use of Gas
Role of Naval and Air Power
Military lessons

UNIT V: World War II: (18 Hours)

Causes
Blitzkrieg Tactics,
Role of Air Power and Naval Power
Military Lessons.

REFERENCE BOOKS:

1. Howard, Michael. War in European History, Oxford: Oxford University Press, 1977.
2. Keegan, John., A History of Warfare, New York: Vintage, 1993.
3. Fuller, J.F.C., A Military History of the Western World, New York: Funk &Wagnalls Company, 1955
4. Neilberg, Michael,S., Warfare in World History, London / New York : Routledge,2001.
5. AndreCorviser, (ed.), A Dictionary of Military History, Oxford: Blackwell Publishers,1994.

WEBSITES:

1. https://www.researchgate.net/publication/318733836_Ancient_Greek_Military_Theory_and_Practice_Aeneas_Tacticus_I
2. https://www.research.manchester.ac.uk/portal/files/54581116/FULL_TEXT.PDF
3. https://weaponsandwarfare.com/2017/04/03/gustavus-adolphus-reforms/
4. http://www.historiasiglo20.org/4ESO/WWI.pdf
5. https://www.britannica.com/event/World-War-II

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	3	30
Section B	**Short Answer** Answer any 5 out of 7 questions	13-19	6	30
Section C	**Essay** Answer any 4 out of 6 questions	20-25	10	40

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE – III: INTERNATIONAL RELATIONS

SUBJECT CODE : 19PDEF303	**THEORY / PRACTICAL**	**100 MARKS**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

Ever since states were identified on their territoriality, the need for jealously guarding their territoriality and if possible expanded has been the prime motive of international relations. To grasp its historical progress and the expanding scope of relationship amongst the states becomes imperative for the students of defence and strategic studies.

UNIT I: (18 Hours)

International Relations: Concepts, Nature, Scope & Development; Contending Theories of International relations: Realist Theory, Decision Making Theory, Systems Theory & Game and Bargaining Theory

UNIT II: (18 Hours)

National Interest: Definition, types & methods of securing National Interest, Role of National Interest in the formulation of Foreign and Defence Policies.

UNIT III: (18 Hours)

State, Nation & Nation-State System; Origin, Issues of Ethnicity, Pluralism, Multiculturalism and Nation-State System in Contemporary times.

UNIT IV: (18 Hours)

The United Nations: Purposes, Structure and Powers, The Principal Organs, Contribution to World peace and Security

UNIT V: (18 Hours)

Collective Security: Meaning, basic postulates and its working under the League & UN; Balance of Power; Nature, strategies and its relevance in contemporary times; and , Arms Control and Disarmament since World War-II

REFERENCE BOOKS:

1. John Baylis& Steve Smith, Globalization of World Politics
2. Columbus, Theodore A.Wolfe, Introduction to International Relations
3. Dyke, Vernon Van, International Politics
4. Morgenthau, Hans J., Politics among Nations
5. Palmer and Perkins, International Relations

WEBSITES:

1. http://ycis.ac.in/CEGC%20Library/English/International%20relations%20-
2. %20key%20concepts.pdf
3. https://www.yourarticlelibrary.com/international-politics/national-interest-meaning-components-and-methods/48487 3.https://www.politicalsciencenotes.com/essay/state/theories-on-the-origin-of-state-essay- theories-political-science/1513
4. http://www.kyymca.org/wp-content/uploads/2015/01/KUNA-USG-Packet.pdf
5. https://www2.hu-berlin.de/transcience/Vol2_Issue2_2011_23_29.pdf

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	3	30
Section B	**Short Answer** Answer any 5 out of 7 questions	13-19	6	30
Section C	**Essay** Answer any 4 out of 6 questions	20-25	10	40

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE –IV: INDIA'S NATIONAL SECURITY AND STRATEGIC SPECTRUM

SUBJECT CODE : 19PDEF304	THEORY / PRACTICAL	100 MARKS
SEMESTER: I	CREDITS: 4	TOTAL HOURS: 90

COURSE OBJECTIVES:

This paper encompasses all aspects of National Security of India - its national values, interests, objectives, foreign policy and nature of threats both internal and external.

UNIT-I: (18 HOURS)

Freedom struggle and the development of the concept of Nationhood in India,
Pluralism in India:Strengths and Weaknesses

UNIT-II: (18 HOURS)

India's National Security Objectives and Aspirations in a Changing world
Contemporary Strategic Environment of India

UNIT-III: (18 HOURS)

India's Internal Security Challenges: Nature and Dimensions
Domestic and Trans-national terrorism against India: Problems and Options

UNIT-IV: (18 HOURS)

Insurgency in North East, Jammu & Kashmir, Punjab and Spread of Naxal Violence
Counter- Insurgency strategies and successful case studies

UNIT-V: (18 HOURS)

India's Technological Prowess as 'Force Multiplier'
Conflict resolution and transformational mechanism in India's case.

REFERENCE BOOKS:

1. N. Manoharan, Security Deficit: Comprehensive Internal Security strategy for India, Pentagon Press, 2012
2. Brig. R.A. Singh, India's National Security: Through Ages, Raj Publication, 2006
3. RumelDahiya, Ashok K. Behuria, (eds.) India's Neighborhood- Challenges in the Next Two Decades, IDSA,2012
4. Maj. Gen. Depankar Banerjee, Security in South Asia: Comprehensive on Cooperative, Manas Publication,2003
5. Col. Ved Prakash, Terrorism in India's North East, Manas Publication , New Delhi

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1. https://www.mentorstudypoint.in/downloads/(Bipan_Chandra.pdf
2. https://manifesto.inc.in/pdf/national_security_strategy_gen_hooda.pdf
3. https://idsa.in/strategicanalysis/IndiasInternalSecurityChallenges_vmarwah_1003
4. http://visionias.in/beta/sites/all/themes/momentum/files/interview_issues_2016
5. /Insurgency_in_NE.pdf
6. http://www.indiandefencereview.com/news/unpredictable-china-are-we-prepared/3/

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	3	30
Section B	**Short Answer** Answer any 5 out of 7 questions	13-19	6	30
Section C	**Essay** Answer any 4 out of 6 questions	20-25	10	40

Distribution of Questions:

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Section A	Unit – 1	2	
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	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

ELECTIVE – I: CONFLICT AND COOPERATION IN SOUTH ASIA

SUBJECT CODE : 19PDEF305	THEORY / PRACTICAL	100 MARKS
SEMESTER: I	CREDITS: 4	TOTAL HOURS: 90

COURSE OBJECTIVES:

To introduce the region of South Asia and particularly to conflict and cooperation in a dynamic and volatile region which contains two of the world's nuclear state and also the rising power of the region. To understand the role of great power interventions in the region and also other aspects like power distribution, norms, political, military and economic conflict and cooperation in the region. Give an attempt to understand what factor or combination of factors drives these issues.

UNIT I: (18 HOURS)

Geo-Political setting of South Asia.
Socio-Cultural and Economic structure of South Asia.

UNIT II: (18 HOURS)

Power rivalries in South Asia: USA. USSR, U.K and China,
Strategic Importance of Afghanistan, Myanmar and China for South Asia.

UNIT III: (18 HOURS)

Internal problems and conflicts in South Asian Region (Country profiles)
Role of Pressure Groups (Religious, Linguistic, Caste, Tribes, Women, Youth, Civil Society and Media) in the politico-military scenario of the South Asian countries.

UNIT IV: (18 HOURS)

Prospects of Sub-regional cooperation in South Asia
Regional Cooperation in South Asia under the aegis of SAARC

UNIT- V: (18 HOURS)

Conflict Map of South Asia: Regions, Issues and Parties
Peace Initiatives and movements in South Asia

REFERENCE BOOKS:

1. K.E.Boulding, Conflict and Defence : A General Theory, Newyork,1962
2. Anima Bose (ed), Peace and Conflict Resolution in World Community, New Delhi, 1919
3. Bhaskar Rao, Global Perceptions on Peace Education, New Delhi, 1996.
4. Peter Ackerman & Jack Duvall, a Force More Powerful: A Century of Non-Violent Conflicts, New York, 2000.
5. Boutros- Ghali, an Agenda for Peace: Preventive Diplomacy, Peace Making and Peace Keeping, (U.N.Report) New York, 1992.

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1. https://www.orfonline.org/expert-speak/south-asias-changing-geopolitical-landscape-47458/
2. https://link.springer.com/book/10.1007/978-981-13-7240-7
3. https://www.epw.in/system/files/pdf/1964_16/13/pressure_groups_democracy_ and_development.pdf
4. https://www.nti.org/learn/treaties-and-regimes/south-asian-association-regional- cooperation-saarc/
5. https://www.upf.org/peace-and-security/south-asia-peace-initiative

Question Paper Pattern

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Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	3	30
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	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE – V: THEORETICAL ASPECTS OF INTERNATIONAL RELATIONS

SUBJECT CODE : 19PDEF306	**THEORY / PRACTICAL**	**100 MARKS**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

To introduce the students to the most significant orthodox and critical theoretical approaches within international relations. To develop the ability to analyse the current issues with a theoretical framework of international relations.

UNIT I: Nature and Scope (18 HOURS)

The Boundary Problem
Evolution of the Discipline
The Level of Analysis Problem

UNIT II: Positivist Theories (18 HOURS)

Liberalism and Neo-Liberalism
Realism and Neo-Realism
Marxism and Neo-Marxism

UNIT III: (18 HOURS)

The English School
Chinese Traditions in International Relations
Indian Tradition and Kautilyas's Real-politique.; M.K.Gandhi.

UNIT IV: Post-Positivist Theories (18 HOURS)

(a) Constructivism (b)Critical Theory
Post-Modernism
Feminism

UNIT V: Thinking International Relations Theory Differently (18 HOURS)

Post-Colonialism
Subaltern Realism: IR Theory and the Third World
Globalisation and International Relations Theory

REFERENCE BOOKS:

1. Chris Brown, Understanding International Relations (New York: St. Martin Press, 1997)
2. Fred Halliday, Rethinking International Relations (London: Macmillan: 1991)
3. Jennifer Sterling-Folker, Making Sense of International Relations Theory (Boulder: Lynne Reinner Publishers, 2006)
4. Hans Morgenthau, Politics among Nations (New Delhi: Kalyani, 1997)
5. John Baylis and Steve Smith (eds.), The Globalisation of World Politics: An Introduction to International Relations (Oxford: Oxford University Press, 2001 and later editions)

WEBSITES:

1. https://www.e-ir.info/2017/01/09/international-relations-theory/
2. https://www.britannica.com/topic/realism-political-and-social-science
3. https://www.researchgate.net/publication/257679707_Introduction_Chinese_ Traditions_in_International_Relations
4. https://www.e-ir.info/2018/01/04/feminism-in-international-relations-theory/
5. https://www.e-ir.info/2020/12/23/rehabilitating-realism-through-mohammed-ayoobs- subaltern-realism-theory/

Question Paper Pattern

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Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	3	30
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	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE VI: INTERNATIONAL LAW

SUBJECT CODE : 19PDEF307	**THEORY / PRACTICAL**	**100 MARKS**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES

This paper aims at introducing to the student different aspects of International Law. The laws which govern the conduct of war, Laws of neutrality and the organization of the International court of Justice are covered in this paper.

UNIT I: Introduction (18 HOURS)

Definition, Basis of International Law, History and its development
Nature, Source and Codification
Distinction between International and Municipal laws

UNIT II: Laws of Land and Sea and Air Warfare (18 HOURS)

Laws of Land Warfare
Laws of Maritime Warfare
Laws of Aerial Warfare
War Crimes and Genocide

UNIT III: Laws of Neutrality (18 HOURS)

The laws of Neutrality
Right of Angary
Contraband and Doctrine of Continuous Voyage

UNIT IV: Management of International Law (18 HOURS)

Settlement of International Disputes
War its Legal Character and Effects (c) Enemy Character

UNIT V: Legal Mechanisms (18 HOURS)

Blockade - Concept, Establishment, Kinds and Penalties for breach
Prize Courts, Organization, role and functions of International Court of Justice.

REFERENCE BOOKS:

1. Tandon, M.P, and Rajesh Tandon, An Introduction of International Law, Allahabad: Allahabad Law Agency, 1987.
2. Kapoor, S.K., International Law, Allahabad; Allahabad Law Agency,1989.
3. Chavan, R.S., An Approach to International Law, New Delhi: Sterling, 1971.
4. Starke, J., An Introduction to International Law.
5. Oppenheium, International Law.

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1. https://www.britannica.com/topic/international-law/Historical-development
2. https://www.loc.gov/rr/frd/Military_Law/pdf/rules_warfare-1940.pdf
3. https://digitalcommons.du.edu/cgi/viewcontent.cgi?article=1944&context=djilp
4. https://www.longdom.org/articles/peaceful-settlement-of-disputes.pdf
5. https://digitalcommons.law.yale.edu/cgi/viewcontent.cgi?article=2185&context=ylj

Question Paper Pattern

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	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE – VII: ARMS CONTROL AND DISARMAMENT

SUBJECT CODE : 19PDEF308	**THEORY / PRACTICAL**	**100 MARKS**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

Disarmament efforts from the formation of nation state system is attempted in this paper which gained momentum after the Second World War and also Arms control measures are applied to Nuclear states which is being appraised in this paper.

UNIT-I (18 HOURS)

Armament Meaning, Development and New trends.
Basic Concepts and theories-.
Concept and correlation between Disarmament & Arms Control.
Objectives and conditions of Disarmament & Arms Control.

UNIT-II (18 HOURS)

Elements of Arms Control Mechanism: Agreements, Verification, Inspection, & Control regimes.
Measures of Arms Control & Disarrangement.

UNIT-III (18 HOURS)

Weapons of Mass Destruction- Nuclear Weapons, Chemical, Biological and Weather Weapons.
Weapons of Mass Destruction (WMD) Control Treaties: NPT, TTBT, PTBT, CTBT, FMCT, BW Conventions & Control Mechanism.

UNIT-IV (18 HOURS)

Nuclear policies of Nuclear powers & Non-Nuclear powers w.r.t. Non-Proliferations and Arms Control.
Trends in Military Expenditure: India and the world

UNIT-V (18 HOURS)

Arms Trade Treaty (ATT) and its implications for Regional &Global Security.
Social and Economic consequences of Disarmament & Arms Control.

REFERENCE BOOKS:

1. Emile Beniot& K.E. Bonlding, Disarmament and the Economy, Harper & Raw Publisher, New York, 1963
2. R. Faramazyan, Disarmament and the Economy, Progess Publishers, Moscow, 1981
3. P.K.Mishra, Arms Race Disarmament and Indian Ocean, UDH publishing House, Delhi, 1989
4. Garin Kennedy, The Military in the Third World, The Garden City Press, London, 1974
5. Singh V.K., Problems & Prospects of Development through Disarmament, Ph.Dthsis, Gorakhpur,1992

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1. https://sipri.org/research/armament-and-disarmament
2. https://www.unidir.org/files/publications/pdfs/arms-control-verification-en-320.pdf
3. https://www.armscontrol.org/treaties
4. https://www.sipri.org/sites/default/files/2020-04/fs_2020_04_milex_0.pdf
5. https://www.un.org/disarmament/convarms/att/

Question Paper Pattern

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	Unit – 5	2	
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	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE – VIII: STRATEGIC THOUGHT

SUBJECT CODE : 19PDEF309	**THEORY / PRACTICAL**	**100 MARKS**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

This paper aims to introduce the various thoughts by various strategic thinkers like Kautaliya,Gandhi,Nehru,Jomini,KarlMarx,Liddlehart,Maotsetung.etc. were covered.

UNIT – I Introduction: (18 HOURS)

Concept and components of Strategic thought

Contributions of Kautilya's (Philosophy of war). Gandhi (non-violence) and Nehru (Non-Alignment).

UNIT-II 18th C thinkers: (18 HOURS)

Jomini: Concept of Mass army, Strategy, Tactics and Logistics

Clausewitz: War and its relationship with politics.

UNIT-III Thinkers Up to World War I: (18 HOURS)

Karl Marx, military concept of social revolution.

Dupicq& Foch

UNIT – IV Strategic thoughts between two World Wars (18 HOURS)

Liddell hart: Total war, deterrence & British concept of warfare

A.T. Mahan: Theory of Sea Power (c) Douhet, Mitchel &Seversky: Theories of air warfare.

UNIT- V Thinkers after World War II: (18 HOURS)

Mao & Che Guevara – Guerilla Warfare

REFERENCE BOOKS:

1. John Burton,G/ofofl/ Conflict: The Domestic Sources of International Crfs/s(Brighton, Wheatsheaf: 1984)
2. L.Whetten {ed.),The Political Implications of Soviet Military, Power,{Crane Russak, New York: 1977).
3. Helmut Sonnervieldi,Soviet Perspectives on Security XAdelphi Paper no. 150, IISS,London: 1979).
4. Derek heehaeri,Soviet Military Thinking,(Allen & Unwin:London,1981).
5. Thomas W.Wolfe, Military Power and Soviet Policy (Rand Corp.,Santa Monica: CaUf P- 5388: 1975)

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1. https://mpra.ub.uni-muenchen.de/9962/1/MPRA_paper_9962.pdf
2. http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A2001.05.0051%3Achapter%3D6
3. https://www.jstor.org/stable/j.ctt1647cr1
4. https://www.britannica.com/topic/The-Influence-of-Sea-Power-upon-History-1660-1783
5. https://www.jstor.org/stable/177959?seq=1

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	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
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	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

ELECTIVE – II: GEO POLITICS AND MILITARY GEOGRAPHY

SUBJECT CODE : 19PDEF310	**THEORY / PRACTICAL**	**100 MARKS**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

To enable the student, understand the influence of Geography on the nature and function of war. Geography has had great influence on the scope and outcome of several decisive battles across the globe. Geography is the fundamental determinants of the national power and decides on the politico strategic structure of the states.

UNIT I Introduction (18 HOURS)

Fundamentals of military geography (Accessibility, Visibility, Location, Distance, Climate etc.,) Role and Importance of Geo – Politics

Geographic components of National Power.

UNIT II Geo – Political Thought: (18 HOURS)

Theories of Haushofer

Mackinder and

A.T.Mahan.

UNIT III Applied Military Geography: (18 HOURS)

Basics of Global Positioning System (GPS),

Global Information System (GIS) and

Remote Sensing.

UNIT IV Geo – Strategic significance of India: (18 HOURS)

Geographical Location

Natural resources, Land mass, Rivers, Minerals & Oil

Importance of Andaman, Nicobar and Lakshadweep Islands

Unit V India's Borders (18 HOURS)

Nature and characteristics of land borders

Maritime boundaries

Concept of Territorial waters and Exclusive Economic Zone.

REFERENCE BOOKS:

1. Das, S.T., Geo-Strategies, Allahabad: KitabMahal, 1985.
2. Black, Jeremy, Cambridge Illustrated Atlas, Warfare, Renaissance to Revolution: 1492- 1792, (Cambridge: Cambridge University Press, 1996).
3. Chandler, David G., Atlas of Military Strategy: The Art, Theory and Practice of War, 1618-1878, (1980 reprint, London: Arms and Armour, 1996)
4. William D Puleston, The Life and Work of Alfred Thayer Mahan, U.N.S. (New Haven, CT,1939)
5. Earl Meade, 5. Edward, Makers of Modern Strategy: Military Thought from Machiavelli to Hitler,1948.

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1. https://www.yourarticlelibrary.com/india-2/national-power-elements-evaluation-and-limitations/48489
2. https://lotusarise.com/heartland-and-rimland-theory-upsc/
   http://www.mpgmahavidyalaya.org/userfiles/07_chapter3.pdf
   https://www.ijsr.net/archive/v4i1/SUB1525.pdf
3. https://byjus.com/free-ias-prep/exclusive-economic-zone-eez/

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Section C	**Essay** Answer any 4 out of 6 questions	20-25	10	40

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE – IX: AREA STUDIES – INDIA AND SAARC

SUBJECT CODE : 19PDEF311	**THEORY / PRACTICAL**	**100 MARKS**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

To understand the main argument of area studies in the furtherance of knowledge. To analyse the aim, evolution and direction of SAARC as an enabling regional institution for South Asia. To highlight the nuances of the immense potentials present in South Asia with particular reference to Indi and SAARC.

UNIT-I Introduction (18 HOURS)

Strategic Location of South Asia
Political composition of South Asia

UNIT-II Pakistan & Bangladesh (18 HOURS)

Strategic Location
Government and its Politics
Role of external powers and its impact on India

UNIT-III Sri Lanka and Maldives (18 HOURS)

Strategic Location
Government and its Politics
Role of external powers and its impact on India

UNIT-IV Afghanistan, Nepal& Bhutan (18 HOURS)

Strategic Location
Government and its Politics
Role of external powers and its impact on India

UNIT-V Regional Organisation – SAARC (18 HOURS)

Aim and Objectives
Scope and Function
Assessment of SAARC

REFERENCE BOOKS:

1. Jai Prakash Sharma, Federal systems of India and Pakistan: A comparative perspective, (Jaipur, India : Exclusive distributor, 1987).
2. Jaddish P jain, China, Pakistan, and Banglasdesh, (New Delhi, Radiant Publishers, 1974).
3. Saeed Shafqat (edited), Contemporary issues in Pakistan studies, (Lahore: Azad, 1998).
4. K.K. Bhardwaj, Pakistan's March to Democracy and Liberalism, (New Delhi, Anmol Publications, 1999).
5. Rajvir Singh, U.S. – Pakistan and India: Strategic Relations, (Allahabad, Chugh Publications, 1985).

WEBSITES:

1. https://saylordotorg.github.io/text_world-regional-geography-people-places-and-globalization/s12-south-asia.html
2. https://www.files.ethz.ch/isn/47558/Pakistan.pdf
3. https://maritimeindia.org/significance-of-the-maldives-to-india/
4. https://nios.ac.in/media/documents/Military_Studies_374/Book-1/Chapter-8.pdf
   https://www.yourarticlelibrary.com/economics/trade-economics/saarc-main-objectives-of-saarc/40408

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	3	30
Section B	**Short Answer** Answer any 5 out of 7 questions	13-19	6	30
Section C	**Essay** Answer any 4 out of 6 questions	20-25	10	40

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE – X: PEACE AND CONFLICT STUDIES

SUBJECT CODE :19PDEF312	**THEORY / PRACTICAL**	**100 MARKS**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

The course seeks to provide basic knowledge and understanding of peace and conflict studies in general, and develop conflict sensitivity and conflicting mapping skills through number of case studies in particular. It seeks to offer students concepts and theories to analyse conflicts, develop and support arguments, and learn to structure and write in a multidisciplinary manner. To reduce violent conflict and promote justice by means of negotiations and nonviolent action.

UNIT-I **(18 HOURS)**

Peace and Conflict Studies: Meaning, Nature and Scope

Conceptual analysis of Conflict and Peace

UNIT-II **(18 HOURS)**

Conflict management in the regional context

Gandhian Approach and its relevance today for Conflict Resolution

UNIT-III **(18 HOURS)**

Causes of war

Regional Conflicts and Role of United Nations

UNIT-IV **(18 HOURS)**

Confidence & Security Building Measures (CSBM)

Peace Building, Peace Making, Peace Keeping and Peace Enforcement

UNIT-V **(18 HOURS)**

Pacific and Coercive Settlement of Dispute

Peace Research and Peace Movements

Concept and theories of Conflict Resolution; IGOs and NGOs in Conflict Resolutions.

REFERENCE BOOKS:

1. K.E.Boulding, Conflict and Defence: A General Theory, Newyork,1962
2. Anima Bose (ed), Peace and Conflict Resolution in World Community, New Delhi, 1919
3. BhasksrRoa, Global Perceptions on Peace Education, New Delhi, 1996.
4. Peter Ackerman & Jack Duvall, A Force More Powerful: A Century of Non-Violent Conflicts, New York, 2000.
5. Boutros- Ghali, An Agenda For Peace: Preventive Diplomacy, Peace Making and Peace Keeping, (U.N.Report) New York, 1992.

WEBSITES:

1. https://www.studocu.com/in/document/savitribai-phule-pune-university/ma-defence- strategic-studies/lecture-notes/lec-01-unit-1-peace-and-conflict-studies-nature-and- scope/2712957/view
2. https://www.mkgandhi.org/articles/ChhayaRai.htm
3. https://www.britannica.com/topic/war/The-causes-of-war
4. https://www.peaceinsight.org/en/articles/peacemaking-peacekeeping-peacebuilding-peace-enforcement-21st-century/?location=&theme=
5. http://egyankosh.ac.in/bitstream/123456789/24690/1/Unit-15.pdf

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	3	30
Section B	**Short Answer** Answer any 5 out of 7 questions	13-19	6	30
Section C	**Essay** Answer any 4 out of 6 questions	20-25	10	40

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE – XI: DEFENCE ECONOMICS AND DEFENCE MANAGEMENT

SUBJECT CODE :19PDEF313	**THEORY / PRACTICAL**	**100 MARKS**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

Economic and Management are imperatives and vital factors in all activities of mankind to gauge its success. This applies to the study of defence sector of a country in its endeavor to meet its security needs. Knowledge about budgeting, defence allocation, resource augmentation, indigenization etc., are essential to understand the functioning of the defence sector of the state and also a clear insight into the principles and concepts of management.

UNIT-I **(18 HOURS)**

a) Concepts; theories of war & war economics.b)Economic warfare Impact of war on economy c)Economic Potential of War and Economic Weapon Cost of war

UNIT-II **(18 HOURS)**

a)Defence production in India b)Economic problem and planning for Indian Defence (c)War Finance (d)Defence Budget and National Security

UNIT-III **(18 HOURS)**

a) Comparative Study of Defence Budget of India , Pakistan & China b)The new international economic order – Regional economic groupings c) Introduction of administration d)Definition of administration and management e)Principles and process of defence management.

UNIT-IV **(18 HOURS)**

Planning (1) Definition and features (2) Steps in planning (3) Management by objectives (4) Decision Making process and techniques. Organizing Structure, function and characteristics of military organizations

UNIT-V **(18 HOURS)**

Staffing (1) Sources of Manpower supply (2) Selection process for officers and other ranks in Indian Armed Forces and Para-Military Force Directing and controlling (1) Military leadership (2) Parameters of morale and motivation (3) Control techniques.

REFERENCE BOOKS:

1. Rehinking the Economics of war: The intersection of Need, Creed and Greed Edited by Cynthia J Arnson, Published:28october 2005
2. Economics of war and Peace: Economic Legal and Political perspectives, Edited by Ben Goldsmith , Published : Emerald Group Publishing Limited, Published:01 July 2010, ISBN13:99780857240040
3. The Economics of war : The Economics of war by Pal Poast, Publisher: McGraw Hill Higher Education, Published:21 March,2008,ISBN 13:9780073133997
4. Principles of Management, M. Govindarajan and S. Natarajan, PHI Learning Pvt. Ltd.,
5. Principles of Management, Tripathi, Tata McGraw-Hill Education

WEBSITES:

1. https://www.economicshelp.org/blog/2180/economics/economic-impact-of-war/
2. https://idsa.in/idsastrategiccomments/DefenceBudgetasaStrategicToolof NationalSecurity_AKumar_230607
3. https://www.managementstudyguide.com/management_administration.htm
4. https://www.businessmanagementideas.com/management/decision-making-management/decision-making-definitions-types-techniques-methods-process-and- steps/18249
5. https://www.managementstudyguide.com/management_functions.htm

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	3	30
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Section C	**Essay** Answer any 4 out of 6 questions	20-25	10	40

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE – XII: SCIENCE, TECHNOLOGY AND NATIONAL SECURITY

SUBJECT CODE :19PDEF314	**THEORY / PRACTICAL**	**100 MARKS**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

The Close relationship between science and technology plays an important role in Nation's defence and security. This relationship in turn determines its technological direction towards military preparedness. This paper examines this interactive relationship and helps in broadening the horizon of knowledge in this area.

UNIT –I Introduction (18 HOURS)

Relevance of Science and Technology in National Security Affairs.
Concept of Military, Non-Military and Dual Use Technologies

UNIT –II Emergence of New Technologies during Industrial Revolution and Their Effects (18 HOURS)

IC Engine
Electricity
RADAR
Radio

UNIT –III Areas of Military Research upto WW II (18 HOURS)

Energy Technologies
Atomic Science
Oceanography
Electronics

UNIT – IV Technologies Since WWII (18 HOURS)

Information Technology
Bio- Technology
Artificial Intelligence
Stealth Technology

Unit – V Science and Technology base of India: Brief Survey (18 HOURS)

REFERENCE BOOKS:

1. Croissant, W. Bauchspies and S. Restivo, Science, Technology and Society: A Sociological Approach (Blackwell, 2005).
2. Hackett, Ed., et al. 2007. Handbook of Science and Technology Studies. MIT Press 3rd edition.
3. Hess, D. Science Studies, New York: NYU Press, 1997.
4. Jasanoff, S., G. Markle, J.C. Petersen, and T. Pinch (eds), Handbook of Science and Technology Studies. Beverly Hills: Sage, 1993. 2nd edition.
5. Restivo, S. Science, society, and Values: Toward a Sociology of Objectivity. Lehigh, 1993

WEBSITES:

1. https://cra.org/crn/2009/11/the_critical_role_of_science_and_technology_ for_national_defense/
2. https://www.britannica.com/technology/history-of-technology/The-Industrial-Revolution- 1750-1900
3. https://www.britannica.com/science/atom
4. https://idsa.in/system/files/monograph33.pdf
5. https://dst.gov.in/survey-of-india-zone

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	3	30
Section B	**Short Answer** Answer any 5 out of 7 questions	13-19	6	30
Section C	**Essay** Answer any 4 out of 6 questions	20-25	10	40

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

ELECTIVE – III: DEFENCE JOURNALISM

SUBJECT CODE :19PDEF315	**THEORY / PRACTICAL**	**100 MARKS**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

Defence journalism, though very much a part of modern day journalism, has practically very little literature for reference. There is an urgent need to understand essential information, facts, sources, and the qualities required to become a successful defence journalist. Also, provide knowledge how to be responsible Defence Journalist. Depending on branch of service and specific Military Occupational speciality, military journalists learn to do a surprising variety of jobs.

UNIT I Introduction Journalism: (18 HOURS)

Meaning, relevance and scope
News Organization structure and functioning
Media: concept, kind and characteristics.

UNIT II Defence News: (18 HOURS)

Purpose and meaning
Kinds and source
Theories of news selection

UNIT III Reporting (18 HOURS)

Format, Language and Grammar
Kinds: Eye Witness, Computer assisted Features
Concepts of Graphics and animation
Interviewing skills.

UNIT IV Editing: (18 HOURS)

Abbreviations and definition of military terms
Proof – reading symbols
Caption writing and picture editing.

UNIT V Hurdles in Defence writing: (18 HOURS)

Media Ethics
Media Laws
Military vs.Media debate
News Photography.

REFERENCE BOOKS:

1. Menon, P.K., Practical Journalism, Jaipur :Aavishkar Publishers & Distributers, 2005.
2. Dhara,R., Journalism, Calcutta : Industry Publishers,1945.
3. Basu, R.N., Handbook of Journalism, Jaipur: Pointer Publishers, 2005.
4. Kamath,M.V., The Journalist's Handbook, New Delhi : Vikas,1980.
5. Professional Journalism, New Delhi: Vikas, 1983.

WEBSITES:

1. https://www.enotesmba.com/2012/07/mba-notes-media-characteristics.html
2. http://studylecturenotes.com/what-is-news-meaning-definition-and-sources-of-news/
3. https://www.tribuneindia.com/news/schools/how-to-write-a-news-report-108029
4. http://egyankosh.ac.in/bitstream/123456789/7594/1/Unit-2.pdf
5. http://muslimmirror.com/eng/defence-journalism-challenges-and-opportunities/

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	3	30
Section B	**Short Answer** Answer any 5 out of 7 questions	13-19	6	30
Section C	**Essay** Answer any 4 out of 6 questions	20-25	10	40

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE - XIII: WARS IN CONTEMPORARY PERIOD

SUBJECT CODE : 19PDEF316	**THEORY / PRACTICAL**	**100 MARKS**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

After going through this paper students will have an understanding of wars that were fought after the end of World War – II . This paper deals with the evolution of limited wars after the end of World War – II. To make the students learn about some of the important wars that was fought after 1945.

UNIT – I : Korean War (18 HOURS)

Concept, meaning and scope of limited wars
Causes of Korean War
Main events
Role of UNO

UNIT – II: Vietnam War (18 HOURS)

Causes
Main events
Lessons learnt

UNIT – III: Arab Israeli Wars, 1967 & 1993 (18 HOURS)

Causes
Main events
Role of Air power
Lessons learnt

UNIT – IV: Iran – Iraq War (18 HOURS)

Causes
Highlights of the war
Result and lessons learnt

UNIT – V: Gulf of War I & II (18 HOURS)

Causes
Highlights of the war
Role of the UN

REFERENCE BOOKS:

1. Hastings, Max, The Korean War, (London: 1987)
2. Herring, George, America's Longest War (New York, 1996)
3. Fraser, T.G., The Arab - Israeli Conflict (London: 1995)
4. Agwani, M.S., The West Asian Crisis, New Delhi: 1995.
5. Colvocoressi, P., World Politics: 1954 - 2000, New Delhi: Pearson Education,2001.

WEBSITES:

1. https://www.sparknotes.com/history/american/koreanwar/summary/
2. https://www.history.com/topics/vietnam-war/vietnam-war-history
3. https://history.state.gov/milestones/1945-1952/arab-israeli-war
4. https://www.britannica.com/event/Iran-Iraq-War
5. https://www.britannica.com/event/Persian-Gulf-War

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	3	30
Section B	**Short Answer** Answer any 5 out of 7 questions	13-19	6	30
Section C	**Essay** Answer any 4 out of 6 questions	20-25	10	40

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE-XIV POST INDEPENDENT WARS OF INDIA

SUBJECT CODE : 19PDEF317	**THEORY / PRACTICAL**	**100 MARKS**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

This paper aims at introducing to the students different aspects of Post Independent wars and military operations of India. It helps the students to understand how India fought wars with its Neighbours and what were the lessons that India learned where covered in this paper.

UNIT I Introduction: (18 HOURS)

Partition of British Indian Army

Early Challenges: Annexation of Junagadh – 1947. Operations Polo (Integration of Hyderabad 1948), Operation Vijay (Integration of Goa 1961).

UNIT II Operation in Kashmir – 1947 – 48 (18 HOURS)

Events leading to annexation

Operations of Indian Army

Military lessons.

UNIT III Chinese invasion of India – 1962 (18 HOURS)

Causes of War

Important Operations of War

Military Re – organization.

UNIT IV (18 HOURS)

Indo – Pakistan War of 1965: Outline of the Operations, Role of Artillery

Operation Cactus- Lily.

Liberation of East Pakistan1971- Origin and Causes of War.

UNIT V Internal Security Operations (18 HOURS)

Operation Blue Star – 1984

Operation Rhino (Northeast Region)

Operation Vijay.

REFERENCE BOOKS:

1. Sinha Lt. Gen - Slender was the Thread
2. Johari, Sitaram - Chinese invasion of NEFA
3. Mankekar D.R - Pakistan Cut to size
4. Subramaniam. K. - Liberation War
5. Subramaniam. K - Kargil Report

WEBSITES:

1. https://www.britishmilitaryhistory.co.uk/documents-india-1930-1947/
2. https://indianarmy.nic.in/Site/FormTemplete/frmTempSimple.aspx?MnId=q5WN8tZPRKrs9b7ZIIo4+Q==&ParentID=71dwwK41JrMuZLBgQd2mNQ==
3. https://nios.ac.in/media/documents/military_history_375/Book-2/Chapter-17.pdf
4. https://history.state.gov/milestones/1961-1968/india-pakistan-war
5. https://www.britannica.com/topic/Operation-Bluestar

Question Paper Pattern

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Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	3	30
Section B	**Short Answer** Answer any 5 out of 7 questions	13-19	6	30
Section C	**Essay** Answer any 4 out of 6 questions	20-25	10	40

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE-XV: INTRODUCTION TO INDUSTRIAL SECURITY

SUBJECT CODE : 19PDEF318	**THEORY / PRACTICAL**	**100 MARKS**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES

This paper attempts to familiarize the students with latest management techniques and their applicability for better management techniques. To identify new challenges to the security of industrial undertakings and reassess the threat perception. To understand the purpose of Industrial awareness programmes to understand the importance of training which continues to play a vital role in ensuring the safety of country's infrastructure.

UNIT I: Introduction (18 HOURS)

Definition, Meaning and Scope/Concepts
Security, Type of Security, Types of security services.
Industries- Meaning and types

UNIT II: Security Awareness (18 HOURS)

Meaning and Concept ,
Introduction to IPC, Cr PC, CPC.
The Security Awareness program
Cyber Security, Forensic Science – Relevance & scope

UNIT III: Role of private Security Service (18 HOURS)

Functions of security: (a) Preventive Security (b) Protective Security (c) Detective security (d) Punitive security

UNIT IV: Perimeter security (18 HOURS)

Barrier Planning
Fencing standards.
Types of Security Fences.

UNIT V: Industrial Visit and Report Writing **(18 HOURS)**

REFERENCE BOOKS:

1. Bailin, Paul S. Private Security Services to 2004. Cleveland, Ohio: The Freedonia Group, Inc., 2000.
2. Cunningham, William C., and Strauchs, John J. "Security Industry Trends: 1993 and Beyond." Security Management 36, no. 12 (1992)
3. Inbau, Fred E.; Farber, Bernard J.; and Arnold, David W. Protective Security Law. Boston: Butterworth-Heineman, 1996.
4. Mccrie, Robert D. "A Brief History of the Security Industry in the United States." In Business and Crime Prevention. Edited by M. Felson and R. V. Clarke. Monsey, N.Y.: Criminal Justice Press, 1997.
5. Nalla, Mahesh K.; Hoffman, Vincent J.; and Christian, Kenneth E. "Security Guards Perceptions of Their Relationship with Police Officers and the Public in Singapore." Security Journal 7 (1996)

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1. https://ncert.nic.in/vocational/pdf/iesg101.pdf
2. https://mrcet.com/pdf/Lab%20Manuals/IT/CYBER%20SECURITY%20(R18A0521).pdf
3. https://ncert.nic.in/vocational/pdf/iesg101.pdf
4. https://www.ifsecglobal.com/perimeter-security-the-big-picture/
5. https://www.academia.edu/30800511/INDUSTRIAL_VISIT_REPORT_A_Report_on_Industrial_visit_to

Question Paper Pattern

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Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	3	30
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Distribution of Questions:

Sections	Units	No. of Questions	
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Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE-XVI: SPECIALIZED WARFARE

SUBJECT CODE : 19PDEF319	**THEORY / PRACTICAL**	**100 MARKS**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

After completing the paper the students will understand the types of war prevalent in the world. This paper describes the various types of warfare that are taught in the world. To understand the different types of war waged by nations at large.

UNIT – I: Psychological Warfare (18 HOURS)

Definition and nature of Psychological Warfare
Types of Propaganda
Brain washing and Rumour—Nature, Techniques and its Effects

UNIT – II: Biological and Chemical Warfare (18 HOURS)

Concept and objectives
Characteristics
Types of Agents and its effects

UNIT – III: Guerilla Warfare (18 HOURS)

Concept and objectives
Characteristics of Guerilla Warfare
Elementary knowledge of Insurgency and Counter Insurgency

UNIT – IV: Nuclear Warfare (18 HOURS)

Concept and origin of Nuclear Warfare
Development of Nuclear Weapons
Effects of Nuclear Explosion- Flash, Thermal Radiation, Nuclear Radiation

UNIT – V: Terrorism & International Terrorism (18 HOURS)

Definition &Causes Types and Techniques Nature and Trends

REFERENCE BOOKS:

1. Philip M. Taylor, Munitions of the Mind: War Propaganda from the Ancient World to the Nuclear Age, (Wellingborough, 1990)
2. Qualter, T.H., Propaganda and Psychological Warfare, (New York, 1962)
3. SIPRI, The Problem of Chemical and Biological Warfare (4 Vols, New York, 1971)
4. Brown, F.J., Chemical Warfare : a Study in Restraint, (Princeton,1968)
5. Walter Laqueur, Guerilla, (London,1977)

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1. https://www.thoughtco.com/psychological-warfare-definition-4151867
2. https://www.worldatlas.com/articles/chemical-and-biological-warfare-major-threat-in-the- 21st-century.html
3. https://www.thoughtco.com/guerrilla-warfare-definition-tactics-examples-4586462
4. https://www.britannica.com/technology/nuclear-weapon
5. https://www.britannica.com/topic/terrorism

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	3	30
Section B	**Short Answer** Answer any 5 out of 7 questions	13-19	6	30
Section C	**Essay** Answer any 4 out of 6 questions	20-25	10	40

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

CORE-XVII: RESEARCH METHODOLOGY AND DISSERTATION

SUBJECT CODE : 19DEF320	**THEORY / PRACTICAL**	**100 MARKS**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

To identify and discuss complex issues inherent in selecting a research problem, selecting an appropriate research design, and implementing a research project. To identify and analyse the concepts and procedures of sampling, data collection, analysis and reporting.

UNIT-I Some Social Science Paradigms (18 HOURS)

a) Social Science Research Methodology: Concerns of Social Science Research, Qualitative and Quantitative inquiries b) Ontology and Epistemology c) Theory and its role d) Deductive and Inductive Theory

UNIT –II Developing a Research Proposal (18 HOURS)

Introduction, The Proposal: a) overview of the study- introduction/background of the study b) literature review- need and scope, concepts and variables c) statement of Research Problem d) the need for Research objectives or aims e) why research questions? f) What is Research Hypothesis? Do we need any? g) Selecting a Research Methodology- choice of an appropriate research design (experimental and non- experimental) h) Scope of the Study/Significance of the Study/Limitations of the Study

UNIT –III Research Design (18 HOURS)

Introduction A) Qualitative Research Design a) Nature of Explanations b) Dimensions of Qualitative Research c) The Qualitative Procedure, B) Generating Qualitative Data: observations, interviews, focus group discussions etc., C) Triangulation D) Types of Qualitative Methods: Case Study, historical method, participant observation E) Quantitative Methods: Survey Research

UNIT – IV Sampling (18 HOURS)

Population/Universe b) Sampling frame c) Sampling unit d) Types: Probability and Non- Probability e) Probability: Simple Random, Stratified Random, Systematic Random, Multistage Cluster f) Non-Probability: Judgement/Purposive, Convenience, quota,snowball

UNIT-V Analyzing Qualitative Data (18 HOURS)

a) Data processing- Qualitative b) Data Analysis

REFERENCE BOOKS:

1. Pennings, Paul, Keman Hans, and Kleinnijenhuis : Doing Research in Political Science: An Introduction to Comparative Methods and Statistics, 2nd edition, London, Sage Publications,2006
2. McNabb, David E.: Research Methods for Political Science: Quantitative and Qualitative Methods, New Delhi, Prentice Hall,2004C.R,Kothari, Research Methodology: Methods and Techniques, New Age International (P) Limited, Publishers,2004
3. Babbie, Earl: The Practice of Social Science Research, 7thed, Belmont, (California) Wadsworth Publishing Company,1995.
4. Blaxter, L.Hughes,C, and Tight.M, How to Research, Buckingham, Open University Press,1996

WEBSITES:

1. https://www.academia.edu/40309984/LECTURE_NOTES_Research_Methodology
2. https://www.researchgate.net/publication/325545912_RESEARCH_PROPOSAL
3. https://www.yourarticlelibrary.com/marketing/research-design-introduction-contents-and-types/48714
4. https://study.com/academy/lesson/what-is-sampling-in-research-definition-methods-importance.html
5. https://research-methodology.net/research-methods/data-analysis/

Question Paper Pattern

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	3	30
Section B	**Short Answer** Answer any 5 out of 7 questions	13-19	6	30
Section C	**Essay** Answer any 4 out of 6 questions	20-25	10	40

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

GURU NANAK COLLEGE
(AUTONOMOUS)

(Affiliated to University of Madras and Re-Accredited at 'A' Grade by NAAC)

Velachery Main Road, Velachery, Chennai – 600042.

M.PHIL., Economics

(SEMESTER PATTERN WITH CHOICE BASED CREDIT SYSTEM)

Syllabus

(For the candidates admitted in the Academic year 2019-20 and thereafter)

VISION

- To uphold high standards of academic excellence in teaching and research.
- To grow to gain wide-spread recognition for Post-Graduate and Ph.D. programmes.
- To promote academic activities like research, internships, training, etc.
- To organize International/National Seminar/Workshop programmes to facilitate interaction with academicians and experts.
- To focus on a set of skills relevant to strengthening students' competency to gain employment.

MISSION

- To provide students with a strong theoretical foundation in Economics.
- To train and equip students with the requisite skills to carry out Applied Economics Research.
- To promote experiential learning through the application of knowledge to new challenges.
- To provide the social capital necessary for establishing a healthy society by instilling values, ethics and confidence in young minds.
- To provide students with a strong foundation in economic theory, strengthened by critical thinking and sharp analytical skills required for policy analysts.

PROGRAMME OUTCOMES

PO1: To understand foundation and philosophy in Research and topic chosen for research

PO2: To provide students with an advanced theories and concepts in Economics

PO3: To give knowledge about the environmental awareness and the Environmental Protection Act

PROGRAMME SPECIFIC OUTCOME

PSO1: To recognize and explore topics relevant to academic and policy-making arenas.

PSO2: To formulate social sciences hypotheses and use empirical models to test.

M.PHIL ECONOMICS				
COURSE STRUCTURE 2019-20 BATCH				
SEM	**COURSE COMPONENT**	**SUBJECT NAME**	**CREDITS**	**HOURS**
I	Core – I	Research Methodology	5	6
	Core – II	Advanced Economic Theory	5	6
	Internal Paper	Environmental Economics	5	6
	Thesis Work	Thesis and Viva - Voce	21	
		TOTAL	**36**	**18**

CORE PAPER I: RESEARCH METHODS IN ECONOMICS

SUBJECT CODE:18LECOC01	THEORY & APPLICATION	MARKS 100
SEMESTER: I	CREDITS: 5	TOTAL HOURS: 6

Objective: The objective of this course is to enrich the knowledge of the students with the methodological aspects of conducting a research especially in the field of Economics.

Unit I: Understanding Research

Introduction to Research, Foundation and Philosophy in Research- Epistemology, Positivism and Empiricism, Types of Research, Steps in Research Process, Selection of Issues of Research in Social Sciences with Special Reference to Economics. The Scientific Thoughts, Identification and Defining the Research Problem, Setting Objective/s, Formulation of Research Hypothesis. Research Design, its Nature and Classification, Preparation of Appropriate Research Design Concept of Literature Review and its role in research.

Unit II: Data and its Collection and Sampling Considerations

Data: Meaning and types - Primary, Secondary, Quantitative and Qualitative data, Cross section, Time series and Panel data. Collection of data - tools and methods; Questionnaire designing, sampling design. Sampling and non- Sampling errors, Indian Statistical System, important data collecting and reporting agencies at national and international levels, Data Processing and Graphical representation,

Unit III: Probability Distribution and Testing of Hypothesis

Probability Distributions-Normal, Binomial and Poisson distribution; Triangular Distribution and Step Distribution; Estimation, Testing of Hypothesis- Parametric Tests (Z Test, t-Test, Chi-square Test, F Test, One-Way & Two-Way ANOVA), Non-Parametric Tests (Run Test, MannWhitney U-Test, Wilcoxon Signed Rank Test, Kruskal-Wallis Test), Introduction to Multivariate Analysis Techniques- Factor Analysis, Cluster Analysis, Multidimensional Scaling, Discriminant Analysis, Application of Statistical Packages- STATA / IBM Modular / E-Views.

Unit IV: Econometric Methods

Regression Analysis- Ordinary Least Squares (OLS) Methods and Its Assumptions; Violation of OLS Assumptions: Multicollienearity, Autocorrelation, Heteroscedasticity; Multiple Regression Analyses; Dummy Variable and Distributed Lag Models, Nonlinear Regression Models, Estimation of Simultaneous Equation model. Time Series Econometrics- Stationarity and Random Walk Model, Unit Root Tests – ADF, PP, KPSS; Co-integration, Engel-Granger

Test, Johansen Test - Error Correction Models, VAR. Overview of Regression with Panel Data, Fixed and Random Effect Regressions.

Unit V: Research Results Reporting, Referencing Techniques and Plagiarism

Report Writing, Types of Research Reports, Structure of a Research Report, Presentation of Tabular Data and Figures. Oral Presentation of Research Report. Preparing Bibliography, Foot Notes and Annexure. American Psychological Association (APA) and Harvard Style of Reference Writing. Ethics in Research, Plagiarism in Research and Ways to Avoid Plagiarism, Introduction to Software Packages of Detecting Plagiarism.

REFERENCES:

1. Donald R Cooper, Pamela S Schindler & J K Sharma (2013); Business Research Methods, 11th ed., Mcgraw Hill.
2. Enders, A. (2014); Applied Econometric Time Series, 3rd ed, Wiley.
3. Greene, W.H. (2012); Econometric Analysis, 7th ed., Pearson Education Inc.
4. Gujarati, D; Porter, D. C. & Gunasekar, S. (2015); Basic Econometrics,
5. Macgraw Hill.J Jonker, & B J W Pennink (2009); The Essence of Research Methodology, Springer Publishing Company.
6. Kate Turbian; A Manual for Writers of Research Papers, Theses and Dissertation, University of Chicago.
7. Maddala and Lahiri (2011); Introduction to Econometrics, 4th ed., Wiley
8. William G Zigmund, Berry J. Bubbin, Jon C Carr & Mitch Griffin (2013); Business Research Methods; 9th ed., Cengage Learning.

CORE PAPER – II: ADVANCED ECONOMIC THEORY

SUBJECT CODE:17LECOC02	THEORY	MARKS 100
SEMESTER: I	CREDITS: 5	TOTAL HOURS: 6

Objective: The objective of this paper to enable the students to understand and identify recent Economic theories and policy developments.

Unit I: Advances in Microeconomic Theory

Demand Theory: Preference based approach under Choice under certainty and uncertainty. Theory of Production - Homogeneous, Homothetic, CES, Cobb Douglas, Translog Production function, Economics of Information – Informational Asymmetrics and adverse selection, Principal Agent Frame work, Moral Hazard, Hidden Action Modelling, Adverse Selection in Markets, Efficiency wage model. Dynamic Issues in Economics, Inter-temporal Choice-Inter-temporal production-Introduction to chaos theory, some economic models with chaos

Unit II: Advances in Macroeconomic Theory

Post Keynesian Economics - Review of Hicks, Hansen, Patinkin, Synthesis of Keynesian model, Monetarism, Portfolio Theory and theory of Financial Markets, Disequilibrium in economic Theory, Adjustment by Price or quality, Neo-classical Macroeconomics, Rational expectations and Public Policy- New-Keynesian economics- Endogenous Growth Theories, Convergence and Divergence in growth.

Unit III: Contemporary issues of Indian Economy

Contemporary economic issues in India- Infrastructural Development- Environmental Issues and Global Warming in the Indian Context- Pigovian taxes –taxable permits and tradable permits in the Indian context, Externalities and its measurement, Recent Tax reforms (GST) and Expenditure reforms and Deficit, Inflation Targeting and monetary policy in India. Interfaces of Monetary and Fiscal policy in India. FDI in Retail and Insurance, Global Recession and its impact on India Economy Policy framework adopted in India, WTO and India- recent developments, Recent Employment Generation Programmes and Social Safety framework in India, Issues in Health and Education, Agrarian crisis, Issues in Common Property Resources in India.

Unit IV: Trade and Development Dynamics

Developments in International Trade Theory-Paul Krugman's contribution and further developments, Regional Economic Integration, Theories of Finance- Recent theories in Risk Management, Financial Inclusion, Changing role of financial institutions, Dependency Theory and Underdevelopment, New Institutional Economics.

UNIT – V: Money and Financial Institutions

Money in Macro Economy- Demand for Money - The Supply of Money - Development Financial Institutions - Monetary Management and Monetary Policy.

REFERENCES:

1. Pindyck, R.S., Rubinfeld, D.L. and Mehta, P.L., (2015), 'Microeconomics', 8th edition, Prentice Hall.
2. Varian, Hall R. (1992), 'Microeconomic Analysis' 3 rd edition, W.W. Norton & Company, New York.
3. Romer, D., (2001), 'Advanced Macroeconomics', 2nd edition, McGraw-Hill.
4. Chelliah, R.J., (1996), 'Towards Sustainable Growth: Essays in Fiscal and Financial Sector Reforms in India', Oxford University Press.
5. Krugman, R., and Obstfeld, M., (2013), 'International Economics: Theory and Policy',Pearson Education.
6. Ray, D., (2013), 'Development Economics', Oxford University Press.
7. Salvatore, D., and Reed, (2013), 'International Economics' 11th edition, Wiley.
8. Todaro, M.P. and Smith, S.C., 'Economic Development', 8th edition, Pearson.
9. Government of India, Ministry of Finance, "Finance Commission Report (latest Issue).
10. Kapila, U. (2015), 'Indian Economy since Independence', Academic Foundation.
11. Krueger A. (2003), 'Economic Policy Reforms and the Indian Economy', OxfordUniversity Press.
12. Mishra & Puri, (2015), 'Indian Economy', Himalaya Publishing House.
13. Jadhav N., Monetary Economics for India, Macmillan India Ltd., 1994
14. Gupta S.B., Monetary Economics: Institutions, Theory and Policy, 1982

ELECTIVE PAPER: ENVIRONMENTAL ECONOMICS

SUBJECT CODE: 17LECOC03	THEORY	MARKS 100
SEMESTER: I	CREDITS: 5	TOTAL HOURS: 6

UNIT – I: ENVIROMENT AND ECOSYSTEM:

Introduction - Ecosystem Components - Structure and Functions of an Ecosystem - Producer, Consumer and decomposers - Types, Characteristic - Features Structures And Function of Ecosystems - Forest Ecosystem - Grasslands Ecosystem - Desserts Ecosystem - Aquatic Ecosystem - Rivers / Streams Ecosystems - Pond Ecosystem - Ocean Ecosystem - Estuaries Ecosystem - Management and conservation of ecosystem

UNIT – II: CLIMATE CHANGE: GLOBAL WARMING ACID RAIN, OZONE LAYER, DEPLETION - Nuclear Accidents and Holocaust – Introduction to Global Warming, Causes of Global Warming, Effects of Global Warming, Acid Rain, Ozone Layer Depletion, Nuclear Accidents and Holocaust.

UNIT - III: ENVIRONMENT AND SOCIAL ISSUES

Introduction, from Unsustainable to Sustainable Development - Strategies for Sustainable Development, Sustainable Development and Unsustainable Development, Balanced and Regional Development - **Urban Problems Related to Energy** - Origin of Urbanisation, Urbanisation in India, Urban Environmental Problems, Managing Urban Environmental Problem - **Water Conservation: Rain Water Harvesting and Watershed Management** - Methods of Ground Water Recharge, Flood Water Harvesting, Importance Rain Water Harvesting, Watershed Management, Importance of Watershed Management, Reorientation of Watershed Management.

UNIT – IV: SOLID WASTE MANAGEMENT AND WASTELAND RECLAMATION:

Causes Effects and Control Measures of Urban Industrial Waste - Causes of Solid Waste - Work Components of Solid Waste - Collection Systems - Control Measures of Urban Industrial Waste - Importance of Solid Waste Disposal - Classification of Waste land - Causes of formation of Waste land - Afforesting of Waste land - Some Constraints.

UNIT - V: PUBLIC AWARENESS AND ENVIRONMENTAL PROTECTION ACTS

Reasons for Lack of Awareness - Importance of Awareness - Media and Environmental Awareness - The Environmental Protection Act 1986 - Air Pollution Act, 1981 - Water Pollution Act, 1974 - The Wildlife Protection Act, 1972 - Forest Conservation Act, 1980 - Issues Involved in Enforcement of Environmental Legislation.

(**Note**: Question paper set by individual guide and common examination under the guidelines of COE.)

REFERENCES:

1. Karpagam .M, Environmental Economics, Sterling Publishers Ltd., 1999.
2. Murthy M.S., Economic Growth and Environment, PBSA Publishers, Jaipur, 1998.
3. OECD, Environmental Benefits from Agriculture, Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi, 1997.
4. Reidar Borgstrom, Mundanthra Balakrishnan, Stein W.Bie, Tropical Ecosystems, Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi, 1994.
5. Renganathan, R., Policy Issues on Watershed Planning and Management, Kisan World, Feb. 2004.
6. Sandhya Venkateswaran, Environment, Development and the Gender Gap, Sage Publications, New Delhi, 1995.
7. Sampath Lakshmi .N, Post – Tsunami Operations in Nagapattinam District of Tamilnadu, Kisan World, June 2005.
8. Sastri.M.N, Introduction to Environment, Himalaya Publishing house, Mumbai, 1996.
9. Shafa Hussain, Population – Resource Relation and Remote Sensing, Third Concept, April 2003.
10. Shylaja P.V., Acid Rain, Kisan World, September 2004.
11. Tharakan.P.K.M., Van Den Bulcke.D, International Trade, Foreign Direct Investment and the Economic Environment, MacMillan Press Ltd, 1998.
12. The World Bank, South Asia Regional Rural Development Sector Unit, Allied Publishers, Ltd., 1999.

THESIS WORK

Research topic is assigned by the individual guide with discussion of Research Scholar

GURU NANAK COLLEGE

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Guru Nanak Salai, Velachery, Chennai – 600 042
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(Affiliated to the University of Madras)

MASTER OF PHILOSOPHY
(M.Phil. ZOOLOGY)

Regulations and Syllabus

(For the Candidates admitted in 2019 - 2020 and thereafter)

GURU NANAK COLLEGE, VELACHERY, CHENNAI-42

(Effective for the batch of Candidates admitted in 2019-2020 and thereafter)

M.Phil. DEGREE Course in Zoology

Semester	Part	Subjects	Credit	Exam hours	Ext. Max Marks
II	Paper I	Research Methodology	5	3	100
	Paper II	Recent Advances In Zoology	5	3	100
	Paper III	(Optional) i. Applied Entomology ii. Crustacean Endocrinology and Reproduction	5	3	100
	Project Work	Dissertation	21	-	300

The assignment of marks for Project is as follows:

(1.) Continuous Internal Assessment

Literature survey, Methodology and Results of the project work - 80 marks

(2.) End Semester Assessment

Project work book - 70 marks

Dissertation - 150 marks

GURU NANAK COLLEGE (Autonomous)

Velachery, Chennai-42

M.Phil. Zoology

Time: 3 Hours **Max. Marks: 100**

Answer any FIVE questions **(5×20= 100)**

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M.PHIL SYLLABUS
Paper – I
RESEARCH METHODOLOGY

(Credits: 5)

1. Principles and application of Light, Phase Contrast, Fluorescence, Scanning and Transmission Electron Microscopy, Cytophotometry and Flow Cytometry, Fixation and Staining
2. Principles and Applications of Gel Filtration, Ion-exchange and Affinity, HPLC Chromatography, Electrophoresis, Electro-Focusing, Ultra Centrifugation (Velocity and Buoyant Density) ELISA.
3. Principles and Techniques of Nucleic Acid Hybridization and Cot Curves, Sequencing Of Proteins and Nucleic Acids, Southern, Northern and Western Blotting Techniques, Dot and Slot blot, Polymerase Chain Reaction, DNA Foot Printing, Screening of Genomic AND cDNA Libraries.
4. Principles of Bio-physical Methods for Biopolymer Structure, Determination of X-ray diffraction, Fluorescence, UV, ORD/CD Visible, NMR & ESR Spectroscopy, Hydrodynamic methods, Atomic Absorption and Plasma Emission Spectroscopy.
5. Principles and Application of Tracer Techniques in Biology, Radiation Dosimetry, Radioactive Isotopes and Half-life of isotopes, Autoradiography, Cerenkov radiation, Liquid scintillation spectrometry.
6. Principles and Practice of Statistical Methods in Biological Research, Samples and Population, Basic Statistics, Average Statistics of Dispersion, Co-efficient of Variation, Standard Error, Confidence Limits.
7. Probability Distribution (Binomial, Poisson and Normal Tests of Statistical Significance, Simple Correlation and Regression, Analysis of Variance).

References:

1. Alka Prakash. Laboratory manual of Entomology. New Delhi, New Age International, 2001.
2. Kotahri, C.R. 2004. Research Methodology: Methods and Techniques. New Age International Publishers, Chennai.
3. Plummer, D.T. 1971. An Introduction to Practical Biochemistry. McGraw-Hill Book Company. London.
4. Nigel Strok – Biodiversity Assessment
5. G.S. Sandhu. Research Techniques in Biological Sciences.
6. Palanichamy, S and Manoharan, M. 1994. Statistical Methods for Biologists, Palani Paramount Publications. Palani.
7. Biochemical Methods- Sadasivam and Manickam.

Paper –II
RECENT ADVANCES IN ZOOLOGY

(Credits: 5)

1. Primary structure of proteins and nucleic acids, Conformation of proteins and polypeptides (secondary, tertiary, quaternary and domain) Structure reverse turns and Ramachandran Plot, Structural Polymorphism of DNA, RNA and 3 Dimensional Structure of RNA, Structure of Carbohydrates, Polysaccharides, Glycoproteins, Peptides

2. Glycolysis and TCA cycle, Glycogen break down and synthesis, Glycogenesis Interconversion of Hexoses and Pentoses, Amino acid metabolism, Co-ordinated control of metabolism, Biosynthesis of Purines and Pyrimidines, Oxidation of Lipids biosynthesis of Fatty acids, Triglycerides, Phosopholipids, Steroids.

3. Enzyme kinetics (negative and positive cooperativity) Regulation of enzyme activity, Active sites, Co-enzyme activator and Inhibitors, Iso-enzymes.

4. Energy metabolism (concept of free energy) Thermodynamics Principles in Biology, Energy rich bond, Weak interactions, Couple reactions and Oxidative phosphorylation, Group transfers, Biological energy transductors, Bio-energetics.

5. DNA replication, Eukaryotic genome organization (structure of chromatin, coding and non-coding sequence, satellite DNA) DNA damage and repair, Gene amplification and Sequence re-arrangement.

6. Organization of Transcriptional Units, Mechanism of transcription in prokaryotes and eukaryotes, RNA processing (Capping, Poly adenylation, Splicing, Introns and Exons, Ribonucleo proteins, Structure of mRNA, Genetic code and Protein synthesis.

7. Regulation of gene expression, Attenuation and anti-termination, Operon concept, Lytic cascade, Lysogenic repression, DNA methylation, Hetero chromatinization, Antisense RNA, Transposition protein targeting, Post translational modification and Transport of protein-Signal hypothesis environmental controls.
8. Biochemistry and molecular biology of cancer, Oncogenes, Chemical carcinogenesis, Genetic and Metabolic Disorders, Hormonal imbalance, Drug Metabolism and Detoxification, Genetic Code and Genetic Counseling.
9. Lysogeny and Lytic cycle in Bacteriophages, Bacterial transformation, Host cell restriction, Transduction, Complementation, Molecular recombination, DNA Ligases, Toposiomerases, Gyrases, Methylases, Nucleases, Restriction Endonucleases, Plasmids, Cosmids, Bacteriophages and their use in Gene cloning for DNA libraries and Genomic libraries.

10. Principles and Methods of Genetic Engineering, Gene targeting, DNA transformation technique. Application in Agriculture, Health, Medicine and Industries, Hybridoma Technology.

11. Immunoglobulin classes, Humoral and Cell-mediated immunity. Immunological memory, Adjuvants, Lymphokines, T-cell receptors, Delayed hypersensitivity reactions, HLA, Autoimmunity. Alternate Classical Complement Pathways, Regulation of Immune Response, Mechanisms of Antibody Diversity, Epitope and Monoclonal antibodies.

12. Cell and Tissue culture in plants and animals, Primary culture, Cell line, Cell clone, Callus culture, Somaclonal variations, Micro propagation, Somatic embryogenesis, Haploidy, Protoplast fusion, Somatic hybridization, Hybrids, Gene transfer by Microinjection, Transgenesis, Allopheny, Artificial Seeds.

13. Structure and organization of membrane glycoconjugates and proteins in membrane system, ion transduction, Na+, K+, ATPase. Hormone mediated message transduction, Adenyl nuclease protein kinase systems, Neurotransmitters, Acetylcholine system, Model Membranes and Liposomes.

References:

1. Becker, W, Kleinsmith, L, Hardin, J. – World of Cells.
2. Berg, JM, Tymoczko, JC and Stryer, L. – Biochemistry.
3. Evan Roitt – Immunology
4. Pelczar, J. – Microbiology
5. Perscott, L, Harley, J, Klein, D. – Microbiology
6. Primrose, SB. – Molecular Biotechnology
7. Sivastava and Goal, S.C. – Recent advances in Zoology
8. Verma, S.R. – A Text Book of Cytology

Paper III
(Guide Paper)

CRUSTACEAN ENDOCRINOLOGY AND REPRODUCTION

(Credits: 5)

Unit-I: General Biology of Crustacea

General characters of the phylum Arthropoda – Class Crustacea: General characters; Classification; Types – Various body systems – Osmoregulation – Feeding mechanisms – Diversity and conservation of Crustacea.

UNIT-II: Neuro-Endocrine System of Crustacea

Neurosecretory system of crustacean brain – Sinus gland X-organ complex – Y-organ – Hormonal regulation in molting, growth and reproduction – Hormonal manipulation of crustacean reproduction – Mechanism of vitellogenin synthesis – Fertilization – Various types of parental care of eggs - Stages of embryonic development – Metamorphosis – Different larval forms.

UNIT-III: Aquaculture of Crustacea

Prawn culture – Crab culture (fattening) – Lobster culture – Site selection and preparation of culture ponds – Physicochemical factors – Hatchery production of seeds – Food: Live feed; Artificial feed; Balanced diet (iso-nitrous and iso-caloric) – Predators and Parasites in aquaculture – Economics of Aquaculture.

UNIT-IV: Toxicology and Pathology of Crustacea

Xenobiotics substances and their toxic effects on crustacean - Toxicity tests – Causes for different diseases - Disease causing pathogens and their preventive measures in aquaculture of crustacean – Cellular stress and Immune responses – Defense and Detoxification systems – Wound healing - Apoptosis - Probiotics in health and growth of crustacean.

UNIT-V: **Genetic Engineering and Biotechnology of Crustacea**

Molecular Cytogenetics of Crustacea – Isolation and Purification of DNA and RNA - Isolation and Purification of Enzymes and Hormones – Recombinant DNA technology – Blotting techniques – PCR techniques – Gel documentation – Proteomics, Genomics and Bioinformatics of crustacean.

References:

- Joel W. Martin , Jorgen Olesen , Jens T. Hoeg. Atlas of Crustacean Larvae. Johns Hopkins University Press. 2014.
- T. J. Pandian. Reproduction and Development in Crustacea. Taylor & Francis Inc. 2016.
- G.A. Boxshall. An Introduction to Copepod Diversity: v. 166 : 2 volume set. Ray Society. , 2004.
- Elena MenteReproductive Biology of Crustaceans : Case Studies of Decapod Crustaceans.Taylor & Francis Inc. 2008.
- Keith Wilson and John walker "Principles and Techniques of Biochemistry and Molecular biology" 7th edition. Cambridge University Press, 2010.
- Desmond S. T. Nicholl,. "An Introduction to Genetic Engineering" 2008.
- Russ Hodge and Nadia Rosenthal, "Genetic Engineering: Manipulating the Mechanisms of Life" (Genetics & Evolution) 2009.

- Howe C. J., "Gene Cloning and Manipulation" 2007
- R.W. Old and S.B. Primrose. Principals of gene manipulation by, Blackwell Scientific Publications, 1985.
- J.M.Walker and E.B. Gingold, Molecular Biology and Biotechnology, Panima Publishing Corporation; 3rd Ed.,2001.
- Subodh Saxena, Genetic Engineering, Black Prints India Inc., 2014.
- Harinder Chaddha, Tissue Culture & Non-gene Biotechnology by 2011.

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DEPARTMENT OF TAMIL

Regulations and Syllabus
(For the UG Batch of 2019 – 2022)

Part –I Foundation Course–LANGUAGE- TAMIL

Batch (2019-22)

PAPER TITLE: MODERN LITERATURE AND JOURNALISM

SUBJECTCODE:19UTAM121/ 19UTAM141/19UHTA121	THEORY	MARKS: 100
SEMESTER: I	CREDITS: 3	TOTAL HOURS: 90

COURSE OBJECTIVES:

நோக்கம் : தற்கால இலக்கிய அறிமுகம் - தமிழ்மொழியின் சமகால மறுமலர்ச்சியை அறிதல் – தற்கால இலக்கிய வடிவங்களான புதுக்கவிதை, சிறுகதை, நாடகம், நாவல், முதலியவற்றின் இலக்கிய நயமும் பயனும் அறிதல் - இதழியல் - அறிமுகம் மற்றும் இதழியல் திறன்களைப் பெறுதல்.

அலகு – I- 15 மணி நேரங்கள்

மறுமலர்ச்சி இலக்கியம் (மரபுக் கவிதை)

- **இராமலிங்க அடிகள்** -*பிள்ளைச் சிறுவிண்ணப்பம்*- '*தடித்தஓர்மகனை*', 'பெற்றதம்பிள்ளைக் குணங்களை','பொய்பிழை அனந்தம்','வெம்மதிக் கொடியமகன்', 'இறக்கவும்ஆசையில்லை' எனத்தொடங்கும் 5 பாடல்கள்.
- **பாரதியார்** - கண்ணன் என் விளையாட்டுப் பிள்ளை , கண்ணன்என்காதலன் -I
- **பாரதிதாசன்** - 'தமிழின் இனிமை', 'கைமைப்பழி', 'நூலைப்படி' - எனத் தொடங்கும் மூன்றுகவிதைகள்.
- **கவிமணி தேசிக விநாயகம் பிள்ளை** - 'பெண்களின் உரிமைகள்' என்னும் தலைப்பிலானகவிதை
- **கண்ணதாசன்**-'கவிஞன் யானோர் காலக்கணிதம்'- என்னும்தலைப்பிலானகவிதை

அலகு – II 15மணி நேரங்கள்

புதுக்கவிதைகள்

நா. காமராசன் **-கறுப்புமலர்கள்**-கறுப்புமலர்கள் எனும்தலைப்பிலானகவிதை

இன்குலாப் - 'ஒவ்வொரு பூக்களையும்' எனும் தலைப்பிலான கவிதை

கவிஞர் மு.மேத்தா - 'செருப்புடன் ஒரு பேட்டி'***(கண்ணீர்ப் பூக்கள்)***

வைரமுத்து - 'மழைக்காலப்பூக்கள்', 'மரங்களைப்பாடுவேன்'

சுந்தரராமசாமி - 'ஒரு படைத்தலைவர் மேலதிகாரிக்கு மனதில் எழுதும் சொற்கள்' எனும் தலைப்பிலான கவிதை

மனுஷ்யபுத்திரன் - கால்களின்ஆல்பம்(***மனுஷ்யபுத்திரன்கவிதைகள்)***

செல்வி, சிவரமணி- 'உங்களின் வரையறைகளின் சாளரத்துக்குப் பின்னால்', ' பூமியின் மையத்துள் கொதிக்கும் தழலென 'எனத் தொடங்கும் கவிதைகள்

இலக்கணம்- -- (*செய்யுள் பகுதிக்கான இலக்கணக்குறிப்பு மட்டும்)*

அலகு – III 15மணி நேரங்கள்

சிறுகதை

வ.வே.சு.ஐயர் - குளத்தங்கரை அரச மரம்

புதுமைப்பித்தன் -சாபவிமோசனம்

ஜெயகாந்தன் - அக்னிபிரவேசம்

பிரபஞ்சன் – சைக்கிள்

அலகு – IV 15மணி நேரங்கள்

நாடகம் - நாற்காலிக்காரர் – ந. முத்துசாமி

புதினம் - வெக்கை - பூமணி

அலகு –V 15மணி நேரங்கள்

பாடந்தழுவிய இலக்கிய வரலாறு15 மணி நேரங்கள்

1. மரபுக்கவிதையின்தோற்றமும் வளர்ச்சியும்
2. புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும்
3. சிறுகதையின் தோற்றமும் வளர்ச்சியும்
4. புதினத்தின் தோற்றமும் வளர்ச்சியும்
5. நாடகத்தின் தோற்றமும் வளர்ச்சியும்

அலகு – VI1 15 மணி நேரங்கள்

இதழியல்-அறிமுகம்

1. இதழியல் வரலாறு
2. தலையங்கம் எழுதுதல்
3. நேர்காணல்
4. நூல் மதிப்பீடு
5. செய்தி எழுதுதல்,செய்திக் கட்டுரை

பரிந்துரைக்கப்பட்ட நூல்கள்

ந. முத்துசாமி, **நாற்காலிக்காரர்,**போதிவனம் பதிப்பகம், சென்னை - 2017

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தொகுப்பு நூல்- தமிழ்த்துறைப் பாடத் திட்டக்குழு, குரு நானக் கல்லூரி, சென்னை

பார்வைநூல்கள் :

- **மு. வரதராசனார் – தமிழ்இலக்கிய வரலாறு, சாகித்ய அகாதெமி, சென்னை.**
- **சக்திவேல்.சு**, இதழியல் **,** மணிவாசகர் பதிப்பகம்**,** சென்னை:2004
- **சம்பந்தன்.மா.சு.**, தமிழிதழியல் வரலாறு **,** தமிழர் பதிப்பகம்,சென்னை:1987
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Part –I Foundation Course–LANGUAGE -TAMIL

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COURSE OBJECTIVES:

நோக்கம்: இடைக்காலத் தமிழிலக்கிய வளர்ச்சியை அறிதல், ஆழ்வார் மற்றும் நாயன்மார் பாடல்களின் இலக்கியநயமும் விழுமியங்களும்அறிதல், சிற்றிலக்கியங்களின் சிறப்புகள் அறிதல் –மொழித்திறன் பயிற்சி பெறுதல்.

அலகு I **25 மணி நேரங்கள்**

அ .*தேவாரம்*– திருஞானசம்பந்தர்:

'மண்ணில்நல்லவண்ணம்வாழலாம்' எனத்தொடங்கும்திருக்கழுமலம்பதிகம்

ஆ.*நாலாயிரதிவ்யப்பிரபந்தம்* – ஆண்டாள்: *நாச்சியார்திருமொழி*

'வாரணம்ஆயிரம் 'எனத்தொடங்கும்பாசுரம்(10செய்யுள்கள்)

இ.பராபரக்கண்ணி - குணங்குடிமஸ்தான்சாகிபு :

15 கண்ணிகள்'அண்ட புவனமென்று மாடுதிருக் கூத்தினையான்' எனத் தொடங்கி ' தேடக்கிடையாத் திரவியமே தேன்கடலே' எனத் தொடங்கும் 15 கண்ணிகள்.

ஈ.இரட்சண்ய யாத்திரிகம் – எச்.ஏ. கிருட்டிணப்பிள்ளை:

சிலுவைப்பாடு - 'பொல்லாத யூதர்களும்', 'நோக்கிலணு ஒவ்வொன்றும்','மரணத்தின் கூரொடிய', 'என்று துயர் உறு மடவார்க்கு','ஈண்டினியான் புகல்வதென்', 'மற்றிரண்டு திருடரையும்', 'தன்னரிய திருமேனி' என்றவாறுதொடங்கும்பாடல்கள்.

உ.திருமந்திரம்–திருமூலர்:

'யான்பெற்ற இன்பம்' , ஊரெல்லாம்கூடி' , 'அன்பும்சிவமும்படமாடக்கோயில்', 'மரத்தைமறைத்தது மாமத யானை' எனத் தொடங்கும்ஐந்து பாடல்கள்.

ஊ.சித்தர்பாடல்கள்-

1.**சிவவாக்கியர்:**

'என்னிலே இருந்த ஒன்றை யானறிந்தது இல்லையே', 'தூரம் தூரம் தூரமென்றுசொல்லுவார்கள் சோம்பர்கள்', 'மனத்தகத்தது அழுக்கறாத மவுன ஞான யோகிகள்'

எனத்தொடங்கும் மூன்று பாடல்கள் .

2. **பாம்பாட்டிச்சித்தர்:**

'சாதிப் பிரிவினிலே தீயை மூட்டுவோம்', 'ஊசித்துளைக் குடத்தினில் பாம்பை யடைப்போம்'எனத்தொடங்கும்இரண்டு பாடல்கள்.

எ.தனிப்பாடல்கள் – காளமேகப்புலவர்:

வைக்கோல் - யானை, கதவு –ஆடு, பூசனிக்காய் –பரமசிவம் என்று பொருள் அமையும்மூன்று சிலேடைப் பாடல்கள்

இரட்டைப் புலவர் பாடல்கள்:

அப்பிலே தோய்த்து அடுத்தடுத்து, கண்ணாயிரம்உடையகந்தையேஆனாலும், புராதனமானதமிழ்ப் புலவர், குன்றும் குழியும்*என்று தொடங்கு* நான்கு*பாடல்கள்.*

அலகு –II 15 மணி நேரங்கள்

அ. முத்தொள்ளாயிரம்–

சேரன் :வானிற்குவையகம்வென்றது, அள்ளல்பழனத்துஅரக்குஆம்பல், ஏற்றுஊர்தியானும்

சோழன்:கொடிமதில்பாய்ந்துஇற்றகோடும்,முடித்தலைவெள்ளோட்டு, அந்தணர் ஆவொடு

பாண்டியன்:பார்படுப செம்பொன், நேமிநிமிர்தோள், கார்நறு நீலம் எனத் தொடங்கும் ஒன்பது பாடல்கள்.

ஆ. நந்திக்கலம்பகம் –

திருவின்செம்மையும்நிலமகள்உரிமையும்,சிவனைமுழுவதும்மறவாதசிந்தையான், அன்னையரும்தோழியரும், ஓடுகின்றமேகங்காள், வானுறுமதியை எனத் தொடங்கும் ஐந்துபாடல்கள்.

இ. கலிங்கத்துப்பரணி– செயங்கொண்டார்:

போர்பாடியது - 'எடும்எடும்'எனத் தொடங்கி'மருப்பொடுமருப்பெதிர்'எனமுடியும் எட்டுப் பாடல்கள்.

அலகு – III . 15 மணி நேரங்கள்

அ. தமிழ்விடுதூது- 'சீர்கொண்ட' எனத்தொடங்கி 'புண்ணியம்' எனமுடியும் 25 கண்ணிகள்

ஆதிருக்குற்றாலக் குறவஞ்சி–திரிகூடராசப்பக்கவிராயர்:வசந்தவல்லி பந்தாடுதல்-*செங்கையில்வண்டுகலின்கலின்*எனத்தொடங்கி ,'நகுதர்த் திகுதர்த்தகுதர்த் தொம்மெனப்' எனமுடியும் 5 பாடல்கள் -சரணம் உட்பட).

இலக்கணம் -செய்யுள்பகுதிக்குரியஇலக்கணக்குறிப்பு மட்டும்.

அலகு – IV 15மணி நேரங்கள்

பாடந்தழுவிய இலக்கியவரலாறு

1. சமயஇலக்கிய வரலாறு - சைவஇலக்கிய வரலாறு, வைணவ இலக்கிய வரலாறு
2. சிற்றிலக்கியவரலாறு
3. இசுலாமிய இலக்கிய வரலாறு
4. கிறித்துவஇலக்கியவரலாறு

அலகு –V **10 மணி நேரங்கள்**

மொழித்திறன்

1.பொருந்தியசொல்தருதல்

2. பிழை நீக்கி எழுதுதல் - எழுத்துப்பிழைநீக்கம், வல்லொற்று மிகும், மிகா இடங்கள், தொடர்ப்பிழை நீக்கம், பிறமொழிச்சொற்களைனநீக்கி எழுதுதல்

3. அகரவரிசைப்படுத்துதல்

அலகு-VI **10 மணி நேரங்கள்**

தமிழ் உரைநடை நூல்(கட்டுரைத் தொகுப்பு)

- தகவல்அறியும்உரிமைச்சட்டம் – **கையேடு,** தமிழகஅரசுவெளியீடு.
- நோய்களைக்கொண்டாடுவோம், **நம்மாழ்வார்.**
- தமிழ்- கட்டுரை , பண்பாட்டுஅசைவுகள், காலச்சுவடுபதிப்பகம், **தொ. பரமசிவன்.**
- பெண்விடுதலைச் சிந்தனைகள், பண்டிதஅயோத்திதாசர் சிந்தனைகள்தொகுதி -1 **அயோத்திதாசபண்டிதர்.**
- ஜனநாயகம்வெற்றிகரமாகச்செயல்படுவதற்குஅத்தியாவசியமானநிலைமைகள், டாக்டர்அம்பேத்கர்பேச்சும்எழுத்தும் , தொகுதி 37, (மொழிபெயர்ப்புக்கட்டுரை),**பாபாசாஹெப்டாக்டர்அம்பேத்கர்.**
- பெண்விடுதலை , **பெரியார்ஈ.வெ.ராமசாமி.**

பரிந்துரைக்கப்பட்ட நூல்

தொகுப்பு நூல்,தமிழ்த்துறைப் பாடத் திட்டக் குழு, குரு நானக் கல்லூரி(தன்னாட்சி), சென்னை.

பார்வை நூல்கள்

- **மு. வரதராசனார் – தமிழ்இலக்கிய வரலாறு, சாகித்ய அகாதெமி, சென்னை.**
- **கண்ணன்** , சிற்றிலக்கிய ஆராய்ச்சி முதல் தொகுதி, அப்பர் பதிப்பகம், சென்னை, 2002.
- **செயராமன் .ந .வீ**., *சிற்றிலக்கியத்திறனாய்வு* ,மணிவாசகர் பதிப்பகம்,சென்னை,முதல்பதிப்பு, 1977.
- **தமிழண்ணல்**,*புதிய நோக்கில் தமிழ் இலக்கிய* வரலாறு, மீனாட்சி புத்தக நிலையம், மதுரை, புதிய பதிப்பு, 2014.
- **ஜெயம்,அ., சந்திரலேகா வைத்தியநாதன்**, *தமிழிலக்கியவரலாறு*, ஜனகா பதிப்பகம்சென்னை,
- **இணையதளம் :** www.kalloorithamizh.com, www.thamizhthuthu.com. www.tamilvu.org www.noolagam.org, www.wikipedia.com

Part –I Foundation Course–LANGUAGE -TAMIL

Batch (2019-22)

PAPER TITLE : MORAL EPIC LITERATURE – CREATIVE WRITING

SUBJECT CODE: 19UTAMF143	**THEORY**	**MARKS: 100**
SEMESTER: III	**CREDITS: 3**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

நோக்கம் : சங்க மருவியகால தமிழிலக்கிய வளர்ச்சி மற்றும் போக்குகளை அறிதல் , அறஇலக்கியங்கள்முன்வைக்கும் மதிப்பீடுகளைக் கற்றல் காப்பியங்களின் இலக்கியநயம் மற்றும்அவை முன்வைக்கும்மானுட விழுமியங்களைக்கற்றல்– படைப்பாக்கத் திறன்களின்பயிற்சிபெறுதல்.

அலகு – I **25 மணி நேரங்கள்**

திருக்குறள் - (அதிகாரம் 34,95,132)

அறம் – நிலையாமை

பொருள் – மருந்து

இன்பம் – புலவிநுணுக்கம்

நாலடியார் – நட்பாராய்தல்:

கருத்துணர்ந்து' தொடங்கி 'கோட்புப்பூப் போல'(211- 215)முடிய 5 பாடல்கள்.

பழமொழிநானூறு - கல்வி: 'ஆற்றவும் கற்றார்அறிவுடையார்

'(பா.5)உரைமுடிவுகாணான் ('பா.7)

அறிவுடைமை:'அறிவினால் மாட்சிஒன்றுஇல்லாஒருவன்'(பா.27)

'பரந்ததிறலாரைப்பாசிமேல்இட்டு,(பா.33) எனத்தொடங்கும் 4 பாடல்கள்.

பிற்கால நீதிஇலக்கியம்;அவ்வையார் - நல்வழி: 'சாதிஇரண்டொழியவேறில்லை'(பா.2), ' இடும்பைக்குஇடும்பை' (பா.3)'ஒருநாள்உணவைஒழியென்றால்ஒழியாய் '(பா.11) ' மானம்குலம்கல்வி'(பா.26) - எனத் தொடங்கும் நான்கு பாடல்கள்.

அதிவீரராமபாண்டியர்- நறுந்தொகை: *'தேம்படுபனையின்திரள்பழத்தொருவிதை'(பா.16)*

*'தெள்ளியஆலின்சிறுபழத்தொருவிதை'(பா.17)*எனத் தொடங்கும் இரண்டு பாடல்கள்.

அலகு – II **15 மணி நேரங்கள்**

சிலப்பதிகாரம் **– மனையறம்படுத்தகாதை**

மணிமேகலை – ஆதிரை பிச்சையிட்டகாதை

அலகு – III **20 மணி நேரங்கள்**

கம்பராமாயணம் **– யுத்தகாண்டம்:** கும்பகர்ணன்வதைப்படலம்

'நன்றிதுகருமமென்னாநம்பியைநணுக வோடி'

எனத்தொடங்கிஇற்றைநாள்வரைமுதலியான்முன்செய்தன' வரை43 – 98வரையுள்ளபாடல்கள்

பெரியபுராணம் –மெய்ப்பொருள் நாயனார் புராணம்:

இலக்கணம் - *அணி இலக்கணம்* - முதல் மூன்று அலகில் உள்ளசெய்யுள் பகுதியில் இடம் பெறுபவை.

அலகு – III **15 மணி நேரங்கள்**

பாடந்தழுவிய இலக்கிய வரலாறு

அற இலக்கிய வரலாறு – கீழ்க்கணக்கு நூல்கள், பிற்கால நீதி நூல்கள்

காப்பிய இலக்கிய வரலாறு – ஐம்பெருங்காப்பியம், ஐஞ்சிறுங்காப்பியம்.

அலகு – V **15 மணி நேரங்கள்**

படைப்பிலக்கியம்

கதைஎழுதுதல் – கருப்பொருள் கொடுத்து ஒருபக்கக் கதைஎழுதுதல்

கவிதைஎழுதுதல் – தலைப்புதொடர்பாக மரபு(அ) புதுக் கவிதைஎழுதுதல்

நாடகம்எழுதுதல் – ஓரங்கநாடகம் (இரண்டுஅல்லதுமூன்றுகாட்சிகள்)

கட்டுரைஎழுதுதல் – பொதுக்கட்டுரைஎழுதுதல்

நடிப்பு - மெய்ப்பாடு பயிற்சி

பரிந்துரைக்கப்பட்டநூல்

தொகுப்பு நூல், தமிழ்த்துறைப் பாடத் திட்டக் குழு, குரு நானக் கல்லூரி, சென்னை.

பார்வைநூல்கள் :

- **கோபாலகிருஷ்ணமாச்சாரியார் .வை.மு**(உ.ஆ). *கம்பராமாயாணம்*, உமா பதிப்பகம், சென்னை-2006
- **சுதந்திரமுத்து.மு**. படைப்புக்கலை, அறிவுப் பதிப்பகம் ,சென்னை:2002
- **தமிழண்ணல் ,***புதியநோக்கில் தமிழிலக்கிய வரலாறு,* மினாட்சிபுத்தக நிலையம், மதுரை, புதிய பதிப்பு
- **ஜெயம்,அ., சந்திரலேகா வைத்தியநாதன்**,*தமிழிலக்கியவரலாறு*,ஜனகா பதிப்பகம்சென்னை, 2013

இணையதளம் : www.kalloorithamizh.com, thamizhthuthu.com.,www.tamilvu.org www.ta.wikipedia.org,www.noolagam.org

Part –I Foundation Course–LANGUAGE- TAMIL

Batch –(2019-22)

PAPER TITLE : SANGAM LITERATURE – FOLKLORE – COMPUTATRONAL TAMIL

SUBJECT CODE: 19UTAM144	**THEORY**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 3**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

நோக்கம் : தமிழ் செவ்விலக்கியச் சிறப்புகளைஅறிதல், தமிழரின் பண்பாடு மற்றும் வரலாற்றுச் சிறப்பை அறிதல் – நாட்டுப்புற வழக்காறுகளின் இலக்கியம் மற்றும் பண்பாட்டுப் பங்களிப்பை அறிதல்–கணினித்தமிழ் சார்ந்த தொழில்நுட்பம் மற்றும் மொழித்திறன்களைக் கற்றல்–மொழிபெயப்புப் பயிற்சி பெறுதல்

அலகு – I **15 மணி நேரங்கள்**

நாட்டுப்புறவியல் - வரலாறு-வகைப்பாடு-நாட்டுப்புற இலக்கியம்- கலைகள்.

நாட்டுப் புறப்பாடல்கள் - தாலாட்டு, காதல், ஒப்பாரி, தொழிற்பாடல்கள், வாய்மொழிக் கதைகள்நாட்டுப்புறக்கலைகள்– சிலம்பு, காவடி, வில்லுப்பாட்டு ,கரகாட்டம் , தெருக் கூத்து, தோற்பாவைக் கூத்து.

அலகு – II **25 மணி நேரங்கள்**

எட்டுத்தொகை:

நற்றிணை– 3 பாடல்கள் - *'நின்ற சொல்லர்'* (பா.எ.1- தலைவி கூற்று - குறிஞ்சி) *'அண்ணாந்து ஏந்திய'* (பா.10- தோழி கூற்று - பாலை), *'பிரசங் கலந்த'* (பா.110 – செவிலி கூற்று -பாலை)

குறுந்தொகை–*'கொங்குதேர்வாழ்க்கை'* (2) *'நிலத்தினும்பெரிதே'*(3) *'கழனிமாஅத்துவிளைந்துஉகுதீம்பழம்'*(8) *'அகவன்மகளே'* (23) *'கன்றாஉண்ணாது'*(27) *' யாயும்ஞாயும்'*(40)*வன்பரல்தென்அறல்பருகியஇரலைதன்'*(965) *' அம்மவாழிதோழியாவதும்'*(77) *'யானேஈண்டையேனேஎன்நலனே'*(97) *வினையேஆடவர்க்குஉயிரே* (135)என்றவாறுதொடங்கும் 10 பாடல்கள்

கலித்தொகை – எறித்தருகதிர்தாங்கிஏந்தியகுடைநீழல்(பா.9) பாலைக்கலி, சுடர்த்தொடீஇகேளாய்(பா.51)குறிஞ்சிக்கலி2 பாடல்கள்.

அகநானூறு –தமிழர் திருமண முறை குறித்த பாடல்கள்- உழுந்துதலைப்பெய்தகொழுங்களிமிதவை(பா.86)மருதத்திணை,மைப்பறப்புழுக்கின் நெய்க்கனிவெண்சோறு(பா.136)மருதத்திணைஆகிய 2 பாடல்கள்.

புறநானூறு - யாதும்ஊரே(192) ஈயெனஇரத்தல் (204),குன்றும்மலையும் பலபின்ஒழிய (208) , கெடுகசிந்தை (279) , ஈன்றுபுறந்தருதல் (313) எனத்தொடங்கும்ஐந்துபாடல்கள்.

அலகு – III 15 மணி நேரங்கள்

பத்துப்பாட்டு - முல்லைப்பாட்டு முழுவதும் (103 அடிகள்)

இலக்கணம் - அகத்திணை - முதல், கரு,உரிப்பொருள்கள், புறத்திணை – துறைவிளக்கம்.

அலகு – IV 15 மணி நேரங்கள்

பாடந்தழுவியஇலக்கியவரலாறு

தமிழகநாட்டுப்புறவியல் வரலாறு

சங்கஇலக்கிய வரலாறு – எட்டுத்தொகை, பத்துப்பாட்டு.

கணினித்தமிழ் வரலாறு.

அலகு – V 20 மணி நேரங்கள்

கணினித்தமிழ்-வலைப்பூ உருவாக்கம், தமிழ் இணையதளங்கள்அறிமுகம், இணையஇதழ்கள்அறிமுகம்.இணையம் என்பது உலகையே ஒருகிராமமாக மாற்றியுள்ள நிலையில் உலகம் முழுக்க பரவியிருக்கும் தமிழர்கள் தங்கள் மரபுசார் அடையாளங்களை,உறவுகளை,நட்புகளை சமூகவெளியில் பரிமாறிக்கொள்ளும் களமாக இணையதளங்கள் மற்றும் சமூகவலைத் தளங்கள்உள்ளன.இணையவெளியில் மனிதன்பரிமாறிக்கொள்ளும், படைக்கும் சிந்தனைகள்புதியஇலக்கிய வடிவைப்பெற்றுள்ளநிலையில் கணினித் தமிழ்வளர்ச்சி,இணையதளங்கள், வலைப்பூஉருவாக்கம் குறித்த அறிதல் அவசியாமாகின்றது. அவற்றின் அறிமுகமாகவேஇப்பாடத்திட்டம்அமைந்துள்ளது.)

மொழிபெயர்ப்பு – ஆங்கிலத்திலிருந்து தமிழில் மொழிபெயர்த்தல் – (*அலுவலக மொழிபெயர்ப்பு மட்டும்.*

பரிந்துரைக்கப்பட்ட நூல்:

தொகுப்பு நூல், தமிழ்த்துறைப் பாடத் திட்டக் குழு, குரு நானக் கல்லூரி, சென்னை

பார்வைநூல்கள்

- **மு. வரதராசனார் – தமிழ்இலக்கிய வரலாறு, சாகித்ய அகாதெமி, சென்னை.**
- **சக்திவேல்.,** *நாட்டுபுறவியல்*,சு. மணிவாசகர் .பதிப்பகம் ,,சென்னை -2004
- **சிதம்பரனார்.சாமி**,எட்டுத்தொகையும் தமிழர் பண்பாடும்,அறிவுப் பதிப்பகம்,சென்னை,2008
- **சிவசண்முகம்,சீ.தயாளன்.,** மொழிபெயர்ப்பியல், அன்னம் வெளியீடு , சிவகங்கை
- **தமிழண்ணல்,** *புதியநோக்கில் தமிழிலக்கியவரலாறு*, மீனாட்சி புத்தக நிலையம்,மதுரை,புதிய பதிப்பு:2014
- **பட்டாபிராமன்.பேரா,** *மொழிபெயர்ப்பு* நுட்பங்கள்,யமுனைப்பதிப்பகம், திருவண்ணாமலை, 1994

- **மணிகண்டன்.துரை**,இணையமும் தமிழும்,நல்நிலம்(ஸ்கைடெக்பப்ளிகேசன்ஸ்),சென்னை,2008.
- **முத்தையா.கே**,சங்க காலச் சமுதாயம், பாரதி புத்தகாலயம்,சென்னை,2008.
- **லூர்து .தே.** *நாட்டார்வழக்காற்றியல்*, நாட்டார் வழக்காற்றீயல் ஆய்வு மையம்,பாளையங்கோட்டை
- **ஜெயம்,அ., சந்திரலேகா வைத்தியநாதன்**,*தமிழிலக்கியவரலாறு*,ஜனகா பதிப்பகம்சென்னை, 2013
- **தமிழ்க்கம்ப்யூட்டர், இதழ்.**

இணையதளம் : www.kalloorithamizh.com, thamizhthuthu.com. www.tamilvu.org,www.ta.wikipedia.org, www.noolagam.org.

Batch (2019-20)

PAPER TITLE: Basic Tamil-I

SUBJECT CODE: 19UBAT401	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

நோக்கம் :

தமிழை மொழிப் பாடமாக கற்காத மாணவர்களுக்கு அடிப்படைத் தமிழ்க் கூறுகளை அறிமுகப்படுத்துதல்–எழுத்துகள்,சொற்கள்,தொடரமைப்பு – அறிமுகம், பிழையின்றி எழுதுவதற்கான பயிற்சி, தொடர் எழுதுதல் மற்றும் வாசித்தல்பயிற்சி அளித்தல்.

தமிழ் மொழியின் அடிப்படைக் கூறுகள்

I.*எழுத்துக்கள்* (5 மணி)

முதல் எழுத்துகள்

1. உயிர் எழுத்து, ஆய்த எழுத்து
2. மெய் எழுத்து
3. உயிர்மெய் எழுத்து

II.சொற்கள் (5 மணி)

1. பெயர்ச் சொல்
2. வினைச் சொல்
3. இடைச் சொல்
4. உரிச் சொல்

III.தொடரமைப்பு (5 மணி)

1. எழுவாய்

2. பயனிலை

3. செயப்படு பொருள்

IV.பிழை நீக்கம் (5 மணி)

1. ஒற்றுப் பிழை

2. எழுத்துப் பிழை

3. தொடர்ப் பிழை

V. i) பயன்பாட்டுத் தமிழ்ச் சொற்கள் (10மணி)

எண்கள், உறவுப்பெயர்கள், வாழ் இடங்கள், பொருள்கள்,

கலைச் சொற்கள், பிறமொழிச் சொற்களுக்கேற்ற தமிழ்ச் சொற்கள்

ii)அறிமுகம் : விழாக்கள், இயற்கை, உணவுமுறைகள்

பார்வைநூல் :

தியாகமணி.எஸ்.,அடிப்படைத்தமிழ்(Basic Tamil With English Translation)

www.ta.wikipedia.orgwww. Tamilvu.org, www.kalloorithamizh.blogspot.in

Batch (2019-20)

PAPER TITLE: Basic Tamil-II

SUBJECT CODE: 19UBAT402	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

நோக்கம் :

எளிய செய்யுள்கள் அறிமுகம், நீதி நூல்கள், நீதிக் கதைகள் முதலியவற்றைக் கற்பித்தல், தமிழர் வரலாறு மற்றும் பண்பாடு குறித்த அறிமுகம், பேச்சுத் திறன் பயிற்சி

I .நீதி நூல்கள் (5மணி)

i)ஆத்தி சூடி (1-12)ii)கொன்றை வேந்தன் (1-8)

II.திருக்குறள் -5 (5மணி)

i)அகர முதல...(1), ii)ஈன்ற பொழுதின்...(69), iii)இனிய உளவாக...(100)

iv)தோன்றின் புகழோடு..(236), v)முகநக நட்பது....(786).

III.நீதிக் கதைகள் (5மணி)

i)பஞ்சதந்திரக் கதை, ii) மரியாதைராமன் கதை (நேர்மை உயர்வு தரும்)

IV. அறிமுகம் (10மணி)

i)தமிழ் இலக்கியங்கள், ii)தமிழ் நூல்களும் ஆசிரியர்களும்,

iii)தமிழகவரலாற்றுச்சின்னங்கள்&சுற்றுலாத்தலங்கள்.

V. அறிமுகம் (5மணி)

i) பழமொழிகள், ii) விடுகதைகள்

பார்வை நூல்கள்:

தியாகமணி.எஸ்.,அடிப்படைத்தமிழ்(Basic Tamil With English Translation)www.ta.wikipedia.orgwww. Tamilvu.org, www.kalloorithamizh.blogspot.in

Batch (2019-20)

PAPER TITLE: Advanced Tamil-I

(தற்கால இலக்கியமும் இதழியலும்)

SUBJECT CODE: 19UADT401	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

நோக்கம்

பள்ளிப்படிப்பில்தமிழைமொழிப்பாடமாகப்பயின்றுகல்லூரியில்பிறமொழிப்பாடத்தை தெரிவுசெய்தமாணவர்களுக்குப் பகுதி-1 தமிழ்ப் பாடத் திட்டத்தில் சில பகுதிகளைஅறிமுகப்படுத்துதல்-தற்கால இலக்கிய வடிவமானகவிதையை (மரபு,புதுக்கவிதை)அறிமுகப்படுத்துதல்-கவிதை வடிவில் எளிமைப் புகுத்தியவர்களை அடையாளப் படுத்துதல் –மரபு, புதுக்கவிதைக் கவிஞர்கள் சிலரை அடையாளப்படுத்தி , படைப்புகளின் சிறப்புகளை அறிதல்-இதழியல் அறிமுகம் மற்றும் இதழியல் திறன்களைப் பெறுதல்.

அலகு I : *10 மணி*

பாரதியார் :கண்ணன் என் விளையாட்டுப்பிள்ளை

பாரதிதாசன் :தமிழின் இனிமை

கவிமணி தேசிக விநாயகம்பிள்ளை: பெண்களின் உரிமைகள்

அலகு II *5 மணி*

அப்துல்ரகுமான் _ ‘ குருடர்களின்யானை’ எனும் தலைப்பிலான கவிதை

மு.மேத்தா- ‘ செருப்புடன் ஒரு பேட்டி’- எனும் தலைப்பிலான கவிதை

வைரமுத்து _ ‘ மரம்’ -எனும்தலைப்பிலான கவிதை

அலகுIII- சிறுகதைகள் 5 மணி

1.வ.வே.சு. ஐயர்-குளத்தங்கரை அரசமரம் **2.பிரபஞ்சன்-** சைக்கிள்

அலகுIV : *5 மணி*

பாடந்தழுவியஇலக்கியவரலாறு

மரபுக்கவிதை, புதுக்கவிதை, சிறுகதை, இதழியல் – அறிமுகம்

அலகுV : *5 மணி*

இதழியல்: இதழியல் அறிமுகம், நேர்காணல். தலையங்கம்.

பரிந்துரைக்கப்பட்ட நூல்

தொகுப்புநூல், தமிழ்த்துறை,குரு நானக் கல்லூரி

பார்வை நூல்கள்

- **சக்திவேல்.சு,** இதழியல் , மணிவாசகர் பதிப்பகம், சென்னை:2004
- **சம்பந்தன்.மா.சு.,** தமிழிதழியல் வரலாறு , தமிழர் பதிப்பகம்,சென்னை:1987
- **மு. வரதராசனார் – தமிழ்இலக்கிய வரலாறு**, **சாகித்ய அகாதெமி, சென்னை.**
- **தமிழண்ணல்,*புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு***, மீனாட்சி புத்தக நிலையம்,மதுரை:புதிய பதிப்பு:2014
- **ஜெயம்,அ., சந்திரலேகா வைத்தியநாதன்**, *தமிழிலக்கியவரலாறு*,ஜனகா பதிப்பகம்சென்னை.

Batch (2019-20)

PAPER TITLE: Advanced Tamil-II

SUBJECT CODE: 19UADT402	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

நோக்கம்

பள்ளிப்படிப்பில்தமிழைமொழிப்பாடமாகப்பயின்றுகல்லூரியில்பிறமொழிப்பாடத்தைதெரிவுசெய்தமாணவர்களுக்குப் பகுதி- 1 தமிழ்ப் பாடத் திட்டத்தில் சில பகுதிகளைஅறிமுகப்படுத்துதல்- தமிழ் உரைநடை இலக்கியத்தை அறிமுகப்படுத்துதல்- உரைநடைக் கட்டுரைகள் எழுதியவர்களையும் ,படைப்புகளையும் அறிமுகம் செய்தல்- சங்கஇலக்கியம் , நீதீஇலக்கியம்,காப்பிய இலக்கியம், பக்தி இலக்கியம் முதலியவற்றை அறிமுகப்படுத்தி,அவற்றுள் சிறந்தவற்றின் சிறப்புகளைக்கூறுதல் –மொழித்திறன் பயிற்சிகளை ஏற்படுத்துதல்

அலகுI: கட்டுரை 5 மணி

மு.வரதராசனார்: நல்வாழ்வு –வழிபாடு முதல்உரிமையும் கடைமையும் வரை ஐந்து கட்டுரைகள்.

அலகுII: செய்யுள் 10 மணி

1. புறநானூறு– 'ஈயெனஇரத்தல்இழிந்தன்று', 'ஈன்றுபுறந்தருதல்'

2. திருக்குறள் – கல்விஅதிகாரம்

3. சிலப்பதிகாரம் – வழக்குரைகாதை

II.**பக்திஇலக்கியம்**

1. திருஞான சம்பந்தர் தேவாரம்–திருக்கழுமலப் பதிகம்(மண்ணில் நல்லவண்ணம்)

2. நாச்சியார்திருமொழி–'வாரணம்ஆயிரம்' எனத் தொடங்கும் 10 பாடல்கள்

அலகு- III **5மணி**

நந்திக்கலம்பகம்- ' திருவின் செம்மையும் ' 'வானுறுமதியை' எனத்தொடங்கும் 5 பாடல்கள்

முத்தொள்ளாயிரம் – பாண்டியன் – 'பார்படுப', 'நேமிநிமிர்தோள்', 'கார்நறுநீலம்' எனத்தொடங்கும் 3 பாடல்கள்

அலகு- IV 5 மணி

பாடந்தழுவியஇலக்கியவரலாறு

சங்க இலக்கியங்கள்,காப்பியங்கள், பக்தி இலக்கியங்கள், சிற்றிலக்கியங்கள் – அறிமுகம்

அலகு- V 5 மணி

மொழித்திறன்- அகர வரிசைப் படுத்துதல் ,கலைச்சொல்லாக்கம், பிழைநீக்கிஎழுதுதல்

பரிந்துரைக்கப்பட்ட நூல்

தொகுப்புநூல், தமிழ்த்துறை,குரு நானக் கல்லூரி.

பார்வை நூல்கள்

- **மு. வரதராசனார் – தமிழ்இலக்கிய வரலாறு**, **சாகித்ய அகாதெமி**, **சென்னை.**
- **தமிழண்ணல்**, **புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு**, மீனாட்சி புத்தக நிலையம்,மதுரை:புதிய பதிப்பு:2014
- **வரதராசனார்.மு, நல்வாழ்வு, பாரி நிலையம்**, **சென்னை**: **மறுபதிப்பு**, 2000
- **ஜெயம்,அ., சந்திரலேகா வைத்தியநாதன்**,தமிழிலக்கியவரலாறு,ஜனகா பதிப்பகம்சென்னை, 2013

GURU NANAK COLLEGE

(AUTONOMOUS)

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(Affiliated to the University of Madras)

DEPARTMENT OF SANSKRIT

Syllabus
(For the UG Batch of 2017 – 2020)

DEPARTMENT OF SANSKRIT

VISION

To make the learners embrace and practice the imbibed wisdom from Sanskrit literature in their lives.

MISSION

To disseminate the system of knowledge prevailed in ancient times to the current generation.

Part –I Foundation Course–LANGUAGE SANSKRIT

Batch -2017-2020

PAPER TITLE: PROSE and GRAMMAFR

SUBJECT CODE: 16USANF01	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 3**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

- *To develop basic knowledge of letters, verbs, and Nouns.*
- *To learn official words, phrases and technical terms*
- *To develop skills of reading, writing.*
- *To give the knowledge in various aspects of Prose.*

Unit – I : Sabdha & Lessons 1 to 8 **18hr**

(i) Masculine Gender: Rama,Hari,Guru
Feminine Gender: Lata,Nadi
Nuture Gender: Phala
(ii) History of Prose Literature

Unit- II : (i) Dhathu Present, Past and Future Tense & Lessons 9 to 15 **18hr**
Bhu, Path, Likh,Vad, Dhav, Krid, Pib, Gach, Yacch, Tisth
(ii) Historical Kavyas

Unit – III : Chandrapida Charitham 1 to 5 Pages **18hr**

Unit – IV : Chandrapida Charitham 6 to 10 Pages **18hr**

Unit – V : Chandrapida Charitham 11 to 15 Pages **18hr**

Note: No translation for semester

PRESCRIBED BOOKS :

Sanskrit for Beginners – Lessons 1 to 15

Candrapida Caritam, page 1 to 15
Published by R.S. Vadhyar & Sons, Palgha

Question Paper pattern:

Section	Question Component	Numbers	Marks	Total
A	Answer ANY 10 questions out of 12 (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
TOTAL MARKS				**100**

Unit	Sec. A	Sec. B	Sec. C
I	2	2	0
II	2	2	1
III	3	1	2
IV	3	1	2
V	2	1	1
Total	12	7	6

Part –I Foundation Course–LANGUAGE SANSKRIT

Batch -2017-2020

PAPER TITLE: Drama and History of Dramatic Literature

SUBJECT CODE: 16USANF02	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 3**	**TOTAL HOURS: 90**

Objectives

- *To inculcate interest in Drama .*
- *To Make to understand different types of sentiments.*
- *To train the students in acting in dramas.*

Unit – I : Sanskrit for Beginners – Lessons 16 to 20 **18hr**

Sabda

Masculine Gender : Pitr,Kartr

Feminine Gender : Mati, Matr

Nuture Gender : Vari

: Dhathu - Vidhi Lin, Lot for above .

Unit – II : Origin and Development of Drama Literature **18hr**

Unit – III : Svapnavavasavadattam – I & II **18hr**

Unit – IV : Svapnavavasavadattam – III & IV Acts **18hr**

Unit – V : Svapnavavasavadattam – V & VI Acts **18hr**

PRESCRIBED BOOKS :

(1) Swapnavavasavadhaththam
Published by R.S. Vadhyar & Sons, Palghat
(2) History of Dramatic Literature
(3) Grammar

REFERENCE BOOKS :

History of Sanskrit Literature
Published by R.S. Vadhyar & Sons, Palghat

Question Paper pattern:

Section	Question Component	Numbers	Marks	Total
A	Answer ANY 10 questions out of 12 (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
TOTAL MARKS				**100**

Unit	Sec. A	Sec. B	Sec. C
I	2	2	0
II	2	2	1
III	3	1	2
IV	3	1	2
V	2	1	1
Total	12	7	6

Part –I Foundation Course–LANGUAGE SANSKRIT

Batch -2017-2020

PAPER TITLE: Raghu vamsam, History of Kavya Literature and Textual Sandhis

SUBJECT CODE: 16USANF03	**THEORY**	**MARKS: 100**
SEMESTER: III	**CREDITS: 3**	**TOTAL HOURS: 90**

Objectives

- *To expose students to Ancient sanskrit Poetry*
- *To introduce ancient & medieval Literature and important poets of the period*
- *To inculcate Moral values through poetry*
- *Nurture Universal brotherhood, secularism & Humanity through champu literature.*

Unit – I : Mahakavya Lakshanam, History of Kavya Literature **18hr**

Unit – II : 1 to 35 of Ragghuvamsam 12th Sargam **18hr**

Unit – III : 36 to 70 of Ragghuvamsam 12th Sargam **18h**

Unit – IV : 71 to 104 of Ragghuvamsam 12th Sargam **18h**

Unit – V : Sandhi / Sandhicchedham (Textual) [दीर्घ, गुण, वृद्धि]
Join / Disjoin **18hr**

Note: No translation for semester III

PRESCRIBED BOOKS :

Raghu vamsam (12th Sargam)
Published by Samskritha Bhasha Pracharini Sabha, Chittoor.

II. History of Kavya Literature (Ramayana, Pancamahakavyas, Bhatti, Kumaradasa, Nilakantha Diksita, Vedanta Desika, Meghasandesa, Rtusamhara, Amaru, Caurapancasika)

III. Textual Grammar: Sandhi / Sandhicchedham

REFERENCE BOOKS : History of Sanskrit Literature
Published by R.S. Vadhyar & Sons, Palghat

Question Paper pattern:

Section	Question Component	Numbers	Marks	Total
A	Answer ANY 10 questions out of 12 (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
TOTAL MARKS				**100**

Unit	Sec. A	Sec. B	Sec. C
I	2	1	1
II	3	2	1
III	2	2	2
IV	3	1	2
V	2	1	0
Total	12	7	6

Part –I Foundation Course–LANGUAGE SANSKRIT

Batch -2017-2020

PAPER TITLE: Alankara, Prosody and History of Didactic & Gnomic Literature

SUBJECT CODE: 16USANF04	**THEORY**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 3**	**TOTAL HOURS: 90**

Objectives

- *To expose the knowledge of various meters in Sanskrit Literature.*
- *To introduce History of Alankara Literature.*
- *To make aware of various authors in Alankara Literature.*

Unit – I: (Pingala, Ketara Bhatta,) [laghu, Guru, Gana, Yati, Pada, Bhutasankhya] **18hr**
Vrtta
Anustup, Indravajra, Upendravajra, Sragvini, Totaka, Bhujanga Prayata

Unit – II : (Bharata, Bhamaha, Dandin, Jayadeva, Appayya Diksita, Jagannatha, **18hr**
Anandavardhana)
Alankaram 1 – 5
Upama, Rupaka, Ananvaya, Ullekha, Utpreksha

Unit – III : Alankaram 6 – 10 **18hr**

Dipaka Vyatireka, Arthantaranyasa,Khanda Slesa, Bhanga Slesa

Unit – IV : Mahabharata, Harivamsa, Gita **18hr**

Unit – V : Brhatkatha and its recensions, Pacatantra, Hitopadesa **18hr**

Note: Translation passages not for explanation and annotations

PRESCRIBED BOOKS :
Kuvalayananda of Appayya Diksita

REFERENCE BOOKS :
History of Sanskrit Literature

Published by R.S. Vadhyar & Sons, Palg

Question Paper pattern:

Section	Question Component	Numbers	Marks	Total
A	Answer ANY 10 questions out of 12 (each in 50 words)	1-12	3	**30**
B	**Short Answer** Answer any 5 out of 7 questions (each in 300 words)	13-19	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	20-25	10	**40**
TOTAL MARKS				**100**

Unit	Sec. A	Sec. B	Sec. C
I	2	1	1
II	2	2	1
III	2	2	1
IV	3	1	1
V	3	1	2
Total	12	7	6

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DEPARTMENT OF FRENCH

Syllabus

(For the Batch of 2019- 2022)

VISION

The main purposes of the foundation course French Language is to develop the enthusiasm among students and motivate them to learn the French language and culture and develop themselves with an extraordinary skill to build their career and personality.

➢ Honing the Listening-Speaking-Reading-Writing skills in French

➢ Preparing students to become familiar with critical and analytical thinking, preparing students to meet the demands of Globalization.

MISSION

- Students should get exposure to a foreign language & culture
- To develop the communication skills and have good command over the French language
- Motivate the students to participate in intercollegiate competitions
- To introduce and encourage students for DELF certification preparation
- Open the doors for higher education in abroad and to enhance their skills for better carrier opportunities

GURU NANAK COLLEGE (AUTONOMOUS), VELACHERY, CHENNAI-42

DEPARTMENT OF FRENCH

Part –I Foundation Course–LANGUAGE FRENCH Batch -2019-21
PAPER TITLE: PART 1: Prescribed Text and Grammar — I

SUBJECT CODE: 16UFRE01	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 3**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

- *Carry out basic interactions in French*
- *To develop the basic knowledge in French Language and the Culture*
- *Write short introductory/descriptive texts*

UNIT- I **18 hrs**

- Saluer et Prendre congé
- La présentation, s 'appeler et être et pronoms sujets,
- c 'est / il est / elle est.
- Articles définis /indéfinis, Voici / voilà/il y a
- Des cartes d' identité.
- Présenter qu elqu'un
- Parler de soi
- Les nationalités, les verbes er (commencer, habiter.
- Les chiffres I à 50.
- Des vedettes et leurs nationalités.
- Épreuves

UNIT- II **18hrs**

- Exprimer ses goûts, ses préférences.
- La négation, les articles définis.
- Les mois et les jours / le calendrier.
- Les verbes er (suite).
- L'interrogation avec intonation.
- Décrire un lieu, les noms des différentes salles...
- Les adjectifs qualificatifs et les articles partitif
- Les verbes ir et re, les verbes venir, devoir, faire.
- Les adjectifs possessifs mon, ma, mes et notre, nos.

- Épreuves

UNIT – III **18hrs**

- Donner des directions / localiser un lieu/ trouver un lieu •
- Les verbes aller et mettre.

- L'article contracté et les prépositions de lieu (en, à, au...) • L'impératif

- Les mots de caractérisation d'un lieu et les lieux urbains

- Les transports
- Épreuves

UNIT –IV **18hrs**

- Discuter et acheter des produits, Ça fait...

- Les expressions de quantité

- Les fruits, les légumes, les produits alimentaires

- Les produits propres aux pays différents.
- La négation

- Le COD

- Le conditionnel (je voudrais) et les verbes

- irréguliers: pouvoir, vouloir, prendre.

- Épreuves

18hrs

UNIT –V

- Fixer un rendez-vous avec le médecin
- L'heure et Les nombres de 51 à 100
- Les verbes sortir et partir
- L'interrogation avec est-ce que
- Les parties du corps, avoir + les expressions et les maladies communes

- Les adjectifs possessifs — notre/nos, votre/vos, sa/ses/son

- Le COI
- L'entraînement DELF et épreuves

Prescribe books: -

Krishnan, C & Albert Adeline, Le Tramway Volant -I, Saraswathi House Pvt Ltd, India, 2011.

Reference books: -

1. *BAGLIETO, David, GIRARDEAU, Bruno, MISTICHELLI, Marion -Agenda 1, Hachette,*
2. *Paris, 2011*
3. *POISSON QUINTON, Sylvie, SIREJOLS, Evelyne, Amical -1 CLE International, Paris, 2011*
4. *GIRARDET, Jacky, PECHEUR, Jacques - Écho Al, CLE International, Paris, 2010*
5. *MIQUEL, Claire, Vite et Bien-I CLE International, Paris, 2009*
6. *MERIEUX, Régine•, LOISEAU, Yves, Didier, Paris, 2004 CAPELLE Guy; MENAND, Robert Taxi-I Hachette, Paris, 2003*

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	les questions de Grammaire tirées du texte prescrit. Answer any 6 out of 8 Questions	1-8	5	**30**
Section B	les questions de Vocabulaire tirées du texte prescrit. Answer any 6 out of 8 Questions	9-16	5	**30**
Section C	les questions de production et compréhension écrite Answer any 4 out of 5 Questions	17-21	10	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

GURU NANAK COLLEGE (AUTONOMOUS), VELACHERY, CHENNAI-42
DEPARTMENT OF FRENCH

Part –I Foundation Course Batch -2019-21

PAPER TITLE: Prescribed Text and Grammar —II

SUBJECT CODE: 16UFRE02	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 3**	**TOTAL HOURS: 90**

Objectives:

- *Students will have the opportunity to perfect the skills acquired in semester I in terms of grammar and sentence structure while increasing their vocabulary through new scenarios of communication*
- *By the end of this course, students will be able to Speak on select themes in French (describe past incidents, different countries).*
- *Write descriptive texts about their country, culture etc and past events*

UNIT-I **18hrs**

- Acheter un billet
- Les nombres au-delà de 100
- Les différents types de places (fumeur, non fumeur, aller-retour)
- Les adjectifs démonstratifs
- L'interrogation avec inversion
- Les vêtements
- L'entraînement DELF
- Compréhension/Production écrite
- Épreuves

UNIT – II **18hrs**

- Discuter les plats au restaurant.
- Les recettes, des plats et boissons différents, les formules de cuisine, des recettes simples des différents pays.
- Le passé recent.
- Les pronoms toniques .
- Ilfaut + infinitif, Le pronom 'en.'
- Faire des projets pour les vacances, décrire le temps les lieux touristiques et le climat des différents pays.

- Le futur proche et les adverbes, le il impersonnel, le pronom y
- Épreuves et entraînement DELF.

UNIT – III **18hrs**

- Le passé compose.
- Les pronoms relatifs (qui, que).
- Québec et son histoire .
- Parler du passé et de soi.
- Compréhension/ production écrite.
- Entraînement DELF.
- Epreuves.

UNIT –IV **18hrs**

- Les verbes réfléchis
- Les pronoms relatifs (dont, où)
- L' impératif négatif
- Québec et son histoire
- Parler du passé et de soi
- Compréhension/ production écrite
- Entraînement DELF
- Épreuves

UNIT – V **18hrs**

- L' imparfait
- La place des pronoms doubles
- Décrire les mœurs et les pays
- La Réunion
- Compréhension/ production écrite
- Entraînement DELF
- Épruves

Prescribe books: -

- *Krishnan, C & Albert Adeline, Le Tramwap Volant -I, Saraswathi House Pvt Ltd, India, 2011.*
- *Krishnan, C & Albert Adeline, Le Tramwap Volant - Il, Saraswathi House Pvt Ltd, India,2012.* ***Reference books: -***
- *BAGLIETO, David, GIRARDEAU, Bruno, MISTICHELLI, Marion -Agenda 1, Hachette, Paris, 2011*
- *POISSON QUINTON, Sylvie, SIREJOLS, Evelyne, Amical -1, CLE International, Paris, 20011*

- *GIRARDET, Jacky, PECHEUR, Jacques - Éch0A1 CLE International, Paris, 2010*
- *MIQUEL, Claire,Vite et Bien-I CLE International, Paris, 2009*
- *MERIEUX, Régine•, LOISEAU, Yves, Connexions-l Didier, Paris, 2004*

  CAPELLE Guy; MENAND, Robert Taxi-I Hachette, Paris, 2003

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	Les questions de Grammaire tirées du texte prescrit.	1-12	3	**30**
	Answer any 10 Questions			
Section B	Les questions de Vocabulaire tirées du texte prescrit. Answer any 5 out of 8 Questions	13-20	5	**25**
Section C	Les questions de production et compréhension écrite Answer any 3 out of 5 Questions	21-25	15	**45**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

GURU NANAK COLLEGE (AUTONOMOUS), VELACHERY, CHENNAI-42

DEPARTMENT OF FRENCH Part –I Foundation Course Batch -2019-21

PAPER TITLE: Paper III : Language and Culture
LITERATURE

SUBJECT CODE: 16UFRE03	**THEORY**	**MARKS: 100**
SEMESTER: III	**CREDITS: 3**	**TOTAL HOURS: 90**

Objectives

- *By the end of this course, students will be able 10 Read and understand long texts with cultural references.*
- *And able to write long texts like essays and letters.*

UNIT – I **18hrs**

Djeha et I 'homme changé en äne

- Presentation and study of the text
- Oral and Written comprehension
- Grammar and Activities from workbook
- Aller plus loin

UNIT – II **18hrs**

Le Violoniste

- Presentation and study of the text
- Oral and Written comprehension
- Grammar and Activities from workbook
- Aller plus loin

UNIT – III **18hrs**

La Loire et ses rives

- Presentation and study of the text
- Oral and Written comprehension
- Grammar and Activities from workbook
- Aller plus loin

UNIT – IV **18hrs**

Hans et la digue

- Presentation and study of the text
- Oral and Written comprehension
- Grammar and Activities from workbook
- Aller plus loin

UNIT – V **18hrs**

Grand Poussin

- Presentation and study of the text
- Oral and Written comprehension
- Grammar and Activities from workbook
- Aller plus loin

Prescribe books: -

«De Douche å Oreille: Contes favoris » and the corresponding pages from the « De Bouche å Oreille: Contes favoris —Fiches d 'activités»

1. *Achmy Halley- - Djeha el I 'homme changé en cine*
2. *Edith Furtado- Le Violoniste*
3. *Philippe Barbeau- La Loire et ses rives*
4. *Eric Auzoux- Hans et la digue*
5. *C Radhika- Grand poussin*

Reference books: -

- *BAGLIETO, David, GIRARDEAU, Bruno, MISTICHELLI, Marion -Agenda 2, Hachette,*
- *Paris, 2011*
- *POISSON QUINTON, Sylvie, SIREJOLS, Evelyne, Amical -2 CLE International, Paris, 2011*
- *GIRARDET, Jacky, PECHEUR, Jacques - Écho CLE International, Paris, 2010*
- *MERIEUX, Régine; LOISEAU, Yves, Connexions-2 Didier, Paris, 2004* ✪ *MENAND, Robert Taxi-2 Hachette, Paris, 2003*

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	Les questions de Grammaire tirées du texte prescrit. Answer any 10 Questions	1-12	3	**30**
Section B	Les questions de Vocabulaire tirées du texte prescrit. Answer any 5 out of 8 Questions	13-20	5	**25**
Section C	Les questions de production et compréhension écrite Answer any 3 out of 5 Questions	21-25	15	**45**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

GURU NANAK COLLEGE (AUTONOMOUS), VELACHERY, CHENNAI-42

DEPARTMENT OF FRENCH

Part –I Foundation Course Batch -2019-21

PAPER TITLE: Language and Culture II

SUBJECT CODE: 16UFRE04	**THEORY**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 3**	**TOTAL HOURS: 90**

Objectives:

By the end of this course, students will be able to

- *Compose simple texts drawn from their imagination*
- *Compare and draw parallels Course*

UNIT-I **18hrs**

Le pave sonant

- Presentation and study of the text
- Oral and Written comprehension
- Grammar and Activities from workbook
- Aller plus loin

UNIT-II **18hrs**

La Dent au chat

- Presentation and study of the text
- Oral and Written comprehension
- Grammar and Activities from workbook
- Aller plus loin

UNIT-III **18hrs**

Ganesa, le scribe

- Presentation and study of the text
- Oral and Written comprehension
- Grammar and Activities from workbook
- Aller plus loin

UNIT-IV **18hrs**

La Légende de Chirapa

- Presentation and study of the text
- Oral and Written comprehension
- Grammar and Activities from workbook
- Aller plus loin

UNIT-V **18hrs**

Les questions d 'enfance

- Presentation and study of the text
- Oral and Written comprehension
- Grammar and Activities from workbook
- Aller plus loin

Prescribe books: -

«De Douche å Oreille: Contes favoris » and the corresponding pages from the « De Bouche å Oreille: Contes favoris —Fiches d 'activités»

1. *Philip Whyte - Le chasseur de phoque et I 'homme siréne*
2. *Christine Raguet - Le pave sonnant*
3. *Renaud Fabri - La Dent au chat*
4. *Chitra Krishnan - Ganesa, le scribe*
5. *Raymond Richelot- La Légende de Chirapa*
6. *Kausalya Jagan Mohan- Les questions d 'enfance*

Reference books: -

- *BAGLIETO, David, GIRARDEAU, Bruno, MISTICHELLI, Marion -Agenda 2, Hachette,*
- *Paris, 2011*
- *POISSON QUINTON, Sylvie, SIREJOLS, Evelyne, Amical -2 CLE International, Paris, 2011*
- *GIRARDET, Jacky, PECHEUR, Jacques - Écho CLE International, Paris, 2010*
- *MERIEUX, Régine; LOISEAU, Yves, Connexions-2 Didier, Paris, 2004* ✪ *MENAND, Robert Taxi-2 Hachette, Paris, 2003*

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	Les questions de Grammaire tirées du texte prescrit. Answer any 10 Questions	1-12	3	**30**
Section B	Les questions de Vocabulaire tirées du texte prescrit. Answer any 5 out of 8 Questions	13-20	5	**25**
Section C	Les questions de production et compréhension écrite Answer any 3 out of 5 Questions	21-25	15	**45**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A - Grade' by NAAC
(Affiliated to the University of Madras)

DEPARTMENT OF HINDI

Regulations and Syllabus
(For the Candidates admitted in 2015 - 2016 and thereafter)

VISION & MISSION

- To enhance communication skills in students and improve their employability.
- To use ICT in teaching learning Methodology and use Audio Video Aid for effective Hindi learning.
- To introduce advance Hindi course book for the students
- To start certificate courses in spoken Hindi, Creative Hindi, Journalism that lead to diploma courses.
- To start a M. A. Hindi course.
- To start & develop a Research Centre in Linguistics for exchange of ideas, thoughts & literature between Tamil, Hindi and other Indian Languages.
- To offer public speaking and creative writing courses in Hindi

GURU NANAK COLLEGE (AUTONOMOUS), VELACHERY, CHENNAI-42
DEPARTMENT OF HINDI
Part –I Foundation Course–LANGUAGE HINDI

Batch: 2019-2022

PAPER TITLE: PROSE, FUNCTIONAL HINDI & TRANSLATION

SUBJECT CODE: 19UHIN141	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 3**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

- *To develop basic knowledge of letter writing (Personal and Official)*
- *To learn official words, phrases and technical terms*
- *To develop skills of reading, writing and analyzing the various aspects of literature*
- *To introduce Art & Science of Translation*

UNIT- I **18 hr**

- Report- *Toofan ke vijeta* by Rangey Raghav
- Personal letter-2 (To parent about college, To a friend about new city) Official Letter-1, OfficialTerminology-10 (Names of Offices)

UNIT- II **18hr**

- Satire-*Durghatna* by Narendra Kohli
- Complain Letter-2 (To Local body for road repair, to dealer for not sending book on time) Memorandum-1, OfficialTerminology-10 (Names of Posts)

UNIT – III **18hr**

- Essay-*Aadhunikta: Kya,kaise, kya nahi* by Dr. Kanhiya Lal Mishr Prabhakar
- Banking letters-3(account opening, Closing,Missing checkbook,) Circular-1, Official Phrases-10

UNIT –IV **18hr**

- Memoir – *Smaran* by Mahadevi Verma
- Application Letter-1 (Job), Leave letter-1, Reminder,

UNIT – V **18hr**

- One Act Play- *Kale kauve: gore hans* by Vinod Rastogi
- Notice, Passage Translation-English to Hindi-5

Prescribe books: -

1.Prayojanmoolak Hindi by Prof. Syed Rahamathullah & Dr. Chitti Annapurna
2. Gadya Manjusha by Dr. Swati Paliwal, Publisher- Department of Hindi Guru Nanak College (Autonomous), Chennai

Reference books: -

1. *Toofano ke beech by RangeyRaghav, ShabdakarPrakashan,*
2. *MereMuhalle ke phool by Narendra Kohli,*
3. *Satah se tah mein by Kanhaiyalal Mishr Prabhakar*
Publish by Bhartiya Sahitya Prakashan, Yr.2000.
4. *Mere priya sansmaran by Mahadevi Verma*
5. *Bhartiya Jnanpith. Shreshtha Ekanki- Edited by Krishna Vikal, Shiksha Bharti.*

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition & short answers** Answer any 10 out of 12 Questions	01-12	3	**30**
Section B	**Annotations, Short Notes** Answer any 5 out of 7 questions	13-19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20-25	10	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	3	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	

GURU NANAK COLLEGE (AUTONOMOUS), VELACHERY, CHENNAI-42
DEPARTMENT OF HINDI
Part –I Foundation Course–LANGUAGE HINDI

Batch: 2019-2022

PAPER TITLE: SHORT STORIES, NOVELETTE & CREATIVE HINDI

SUBJECT CODE: 19UHIN142	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 3**	**TOTAL HOURS: 90**

Objectives

- *To inculcate interest in modern Hindi literature (Fiction)*
- *To develop Reading, Writing and Analytical Skills*
- *To train students in print & electronic media advertising & reporting*

UNIT-I **18hr**

- Two short stories from pre independence & pre sixties Era- Critical Evaluation:
  Namak ka daroga by Premchand,
  Insaniyat by Vishnu Prabhakar
- Basic concepts of Report writing with two examples: Natural Calamity report, College function report.

UNIT – II **18hr**

- Two short stories from post sixty Era-Critical Evaluation:
  Iss baar phir barf giri tou by Himanshu Joshi,
  Beti by Usha Mahajan.
- Advertisement- Print Media: consumer items, Event, Political Party

UNIT – III **18hr**

- One contemporary story: *Pramoshan* by Omprakash Valmiki
- Advertisement - Jingle writing -4: consumer durables, food, cosmetics, Coaching classes.

UNIT –IV

- Introduction to Novelette-*Daud* by Mamta Kalia
- Novelette- Full Reading with Important Events

UNIT – V **18hr**

- Novelette-Critical Evaluation & Character Sketch

Prescribe books: -

1. Gadya Manjusha by Dr. Swati Paliwal, Publisher- Department of Hindi Guru Nanak College (Autonomous), Chennai
2. Daud (Novel) by Mamta Kalia, Vani Prakashan, New Delhi-2

Reference books: -

1.Mansarovar-II by Premchand, Manoj Publications, Delhi-6, Yr2005.
2.Mera Watan by Vishnu Prabhakar, Aalekh Prakashan, Delhi-32, Yr2005.
3. Iss bar phir barf giri toh by Himanshu Joshi, Indraprasth Prakashan, Delhi-51,
4.Sach tou yah hai by Usha Mahajan,Kalyani Shiksha Parishad, Delhi, 2007

5. *Beeswin shatabadi ki Hindi kahaniyan-11*
Sab kuch kareene se- Edited by Mahesh Darpan, SamayikPrakashan

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition & short answers** Answer any 10 out of 12 Questions	01-12	3	**30**
Section B	**Annotations, Short Notes** Answer any 5 out of 7 questions	13-19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20-25	10	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	**Problems**
Section A	Unit – 1	3	
	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit – 5	1	

GURU NANAK COLLEGE (AUTONOMOUS), VELACHERY, CHENNAI-42
DEPARTMENT OF HINDI

Part –I Foundation Course–LANGUAGE HINDI

Batch: 2019-2022

PAPER TITLE: ANCIENT & MEDIEVAL POETRY, HISTORY OF HINDI LITERATURE

SUBJECT CODE: 19UHIN143	**THEORY**	**MARKS: 100**
SEMESTER: III	**CREDITS: 3**	**TOTAL HOURS: 90**

Objectives

- *To expose students to Ancient & Medieval Hindi Poetry*
- *To introduce ancient & medieval Literature and important poets of the period*
- *To inculcate Moral values through poetry*
- *Nurture Universal brotherhood, secularism & Humanity through bhakti literature*

UNIT – I **18hr**

- Aadikal-Salient features, Introduction – Aamir Khusrao,Vidhyapati
- Introduction of Rason Literature: Chandbardai – Prithviraj Rason
- Kabir–5 Dohas

UNIT – II **18hr**

- Malik Mohammad Jayasi- 2 Padas
- Tulsidas- 2 Padas
- Bhakti Kavya-Salient features, Nirgunkavya-Gyanmarg, Premmarg.
- Introduction of poet - Raidas

UNIT – III **18hr**

- Surdas-2 Padas
- Meera Bai- 2 Padas
- Sagunkavya-Ram Bhakti Kavya: Pramukh pravatiyan.
- Introduction of poet-Agardas

UNIT – IV **18hr**

- Rahim-5 Dohas
- Guru Nanak-2 Padas
- Sagunkavya- Krishna Bhakti Kavya: Pramukh pravatiyan.
- Introduction of Astachhap

UNIT – V **18hr**

- Bihari-5 Dohas
- Ghananand- 2 Padas
- Salient features of Ritikaal, Main Poets- Dev and Bhushan

Prescribe books: -

1. *Padya Manjusha by Dr.Swati Paliwal & Dr. Anita Patil, Department of Hindi, Guru Nanak College(Autonomous), Publisher-Bodh Prakashan, Chennai-79.*

Reference books: -

1. *Hindi ke pramukh pratinidhi kavi by Dr. Ashwini Parashar, Bhartiya Granth Niketan.*
2. *Hindi Sahitya ka Itihas by Acharya Ram Chandra Shukl, Kamal Prakashan, NewDelhi.*
3. *Hindi Sahitya ka Sanchipt Itihas by Babu Gulab Rai, Laxmi Narayan Prakashan, Agra.*
4. *Kabir Grinthawali by Prof. Pushp Pal Singh.*
5. *Rahim Dohawali by Dr. Mahendra Mittal.*
6. *Bihari Ratnakar by Shri Jagannathdas Ratnakar,Prakashan Sansthan, NewDelhi.Yr.2008.*

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Short answers from Poetry (6) & History of Hindi Literature (6)** Answer any 10 out of 12 Questions	01-12	3	**30**
Section B	**Annotations from Poetry** Answer any 5 out of 7	13-19	6	**30**
Section C	**Essay type** Answer any 4 out of 6 questions	20-25	10	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	3	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

GURU NANAK COLLEGE (AUTONOMOUS), VELACHERY, CHENNAI-42

DEPARTMENT OF HINDI

Part –I Foundation Course–LANGUAGE HINDI

Batch: 2019-2022

PAPER TITLE: MODERN POETRY & HINDI LITERATURE

SUBJECT CODE: 19UHIN144	**THEORY**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 3**	**TOTAL HOURS: 90**

Objectives

- *To expose students to Modern & Contemporary Poetry*
- *To introduce poets and writers*
- *To make them aware of latest trends in Hindi Literature*
- *Develop the language skill*

UNIT-I **18hr**

- Introduction of Aadhunik Yug, Special features of BhartenduYug & Dwivedi Yug
- Poems of BhartenduYug poet(Any one) Bhartendhu Harishchandra- *AndherNagari*
- Poems of Dwivedi Yug poet (Any one)Maitheli Sharan Gupt- *Avanati ke karan*

UNIT – II **18hr**

- Chaayavaad –Pramukh Pravattiyan aur Kavi- Prasad;Pant ;Nirala;Mahadevi.
- Poem of Jaishanker Prasad- *Aansoo*
- Poem of Nirala- *Wah todti Patthar.*

UNIT – III **18hr**

- Pragativaad, -Pramukh Pravattiyan
- Poems: *Janatantra ka janam* by Ramdhari Singh Dinkar
- Poems::*Shashan kee bandook* by Nagarjun.
- Introduction of Prayogvad & Nayi Kavita

UNIT – IV **18hr**

- Poems:*Maine aahuti ban kar dekha hai* by Agneya
- Poems :*Toota Pahiya* by Dharmveer Bharti
- Hindi Novel-Origin, Development and Trends

UNIT – V **18hr**

- Modern poems: *Har taraf dhoona hai* by Dhoomil,
  : *Badh rahi hai peer* by Dushyant.
- Hindi story- Origin, Development and Trends

Prescribe books:-

1.Sahitya Manjusha by Dr.Swati Paliwal & Dr. Anita Patil, Department of Hindi, Guru Nanak College, (Autonomous), Publisher-Bodh Prakashan, Chennai-79.

Reference books:-

1. Hindi Sahitya ka Sanchipt Itihas by Babu Gulab Rai, Laxmi Narayan Prakashan, Agra

2.Andher –Nagri,Chaupatt Raja by Bhartendu Harishchandra,Kamal prakashan,New Delhi-2

3.Hindoo by Maithili Sharan Gupt, Saket Prakash, Chirgaon, Jhansi,1987.

4. Sanchayita by Ramdhari Singh Dinkar.

5.Hindi Sahitya ka Sanchipt Itihas by Rajnath Sharma, Vinod Prakashan.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Short answers from Poetry (6) & History of Hindi Literature (6)** Answer any 10 out of 12 Questions	01-12	3	**30**
Section B	**Annotations from Poetry** Answer any 5 out of 7	13-19	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	20-25	10	**40**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	3	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

GURU NANAK COLLEGE (AUTONOMOUS), VELACHERY, CHENNAI-42

DEPARTMENT OF HINDI

Non-Major Elective Course offered by Department of Hindi to First year Degree programmes

BATCH: 2019-2022

PAPER TITLE: BASIC HINDI- I

SUBJECT CODE: 19UBAH401	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES

To impart the knowledge of Hindi Language with the grammatical aspects.
To improve the communication skills of students for better employability.

UNIT: I (6hrs)

Greeting and Introductory words used in everyday life. (ORAL)
Hindi alphabets - Introduction of Vowels & Consonants

UNIT: II (6hrs)

Hindi alphabets – Consonants
Written and oral practice. Two letter words.
Word construction with matras along with meaning,

UNIT: III (6hrs)

Combined Letters, Half Letters, Complex Letters
Words used in everyday life: Colours, flowers

UNIT: IV (6hrs)

Basic verbs-10, Pronoun
Hindi Numbers

UNIT: V (6hrs)

Name of seasons, Animals, Birds, and Insects
Noun, Singular –Plural,
Words used in everyday life: fruits, vegetables,

Reference Books: *1.Saral Hindi Bodhini, D.B. Hindi Prachar Sabha, T Nagar, Chennai.*

2.Subodh Hindi Rachna, D.B. Hindi Prachar Sabha, T Nagar, Chennai

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Multiple Choice Questions/Series Questions**	01(1-10)-02(1-10)	2	**40**
Section B	**Fill in the Blanks/Meanings**	03(1-7),04(1-7),05(1-7)	6	**30**
Section C	**Short Question answers**	06-11	5	**30**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	5	
	Unit – 2	5	
	Unit – 3	5	
	Unit – 4	5	
Section B	Unit – 1	5	
	Unit – 2	5	
	Unit – 3	5	
	Unit – 4	6	
Section C	Unit – 3	1	
	Unit – 5	5	

GURU NANAK COLLEGE (AUTONOMOUS), VELACHERY, CHENNAI-42
DEPARTMENT OF HINDI

Non-Major Elective Course offered by Department of Hindi to First year Degree programmes.

Batch: 2019-2022

PAPER TITLE: BASIC HINDI-II

SUBJECT CODE: 19UBAH402	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES

To impart the knowledge of Hindi Language with the grammatical aspects.
To improve the communication skills of students for better employability.
To improve Hindi Vocabulary

UNIT: I (6hrs)

Formation of Simple Sentences: Present Tense; first person; direct speech
Relations, Parts of body.

UNIT: II (6hrs)

Formation of Simple Sentences: Past Tense; first person; direct speech.
Formation of Simple Sentences: Future Tense; first person; direct speech
Change Gender.

UNIT: III (6hrs)

Verb-action words. Dialogues, Interrogative Sentences,
Relations, Occupations, Designation

UNIT: IV (6hrs)

Adjectives, Conjunction, use of 'Ne'
Sentence formation- complex,

UNIT: V (6hrs)

Reading skills (Newspaper Headings) & Comprehension.
Short story, Question & Answer (oral & written)

Reference Books*: 1.Saral Hindi Bodhini, D.B. Hindi Prachar Sabha, T Nagar, Chennai.*

2. Subodh Hindi Patmala, D.B. Hindi Prachar Sabha, T Nagar, Chennai

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Multiple Choice Questions/Series Questions**	01(1-10)-02(1-10)	2	**40**
Section B	**Fill in the Blanks/Meanings**	03(1-7),04(1-7),05(1-7)	6	**30**
Section C	**Short Question answers**	06-11	5	**30**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	5	
	Unit – 2	5	
	Unit – 3	5	
	Unit – 4	5	
Section B	Unit – 1	5	
	Unit – 2	5	
	Unit – 3	5	
	Unit – 4	6	
Section C	Unit – 3	1	
	Unit – 5	5	

GURU NANAK COLLEGE (AUTONOMOUS), VELACHERY, CHENNAI-42
DEPARTMENT OF HINDI
Inter Disciplinary Course offered by Department of Hindi to Third year UG Degree programmes

BATCH: 2019-2022

PAPER TITLE: COMMUNICATION HINDI: ORAL & WRITTEN

SUBJECT CODE:	**THEORY: 50 MARKS** **PRACTICAL: 50 MARKS**	**TOTAL MARKS: 100**
SEMESTER: V	**CREDITS: 5**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

To equip students with basic Hindi knowledge (oral & written)
To impart the knowledge of Hindi Language with the grammatical aspects.
To improve the communication skills of students for better employability.
To prepare the students for wider social & cultural environment.

UNIT: I (18hrs)

Greeting and Introductory words used in everyday life.
Self Introduction : Concept of I, Me , My (Oral: Roman Hindi)
Hindi alphabets - Introduction of Vowels & Consonants
Matras along with two & three letter words

UNIT: II **(**18 hrs)

Concept & use of second & third person possessive pronoun in formal & informal Hindi with singular-plural, masculine - feminine combinations. (Oral: Roman Hindi)
Half letters, Bindu & Chandra bindu, Combined & complex letters (*R's ref,)*
Nouns: Masculine-Feminine, Singular - Plural,
Pronouns: Personal & Possessive, Inflection.
Hindi Numbers.

UNIT: III (18 hrs)

Common Hindi words phrases in everyday life (Oral: Roman Hindi)
Verbs: Basic & Infinite form, Tenses: present; past& future
Formation of Simple Sentences: Present Tense: 1st 2nd & 3rd person; gender variation
Formation of Simple Sentences: Past Tense: 1st 2nd & 3rd person; gender variation
Formation of Simple Sentences: Future Tense: 1st 2nd & 3rd person; gender variation
Words used in everyday life: Colours, flowers, seasons, drinks, food

UNIT: IV (18 hrs)

Hindi sentences of everyday use. (Oral: Roman Hindi)
Interrogative & Negative Sentences,
Adjectives: Inflecting & Non Inflecting
Postposition (case) & Conjunction, use of 'Ne'
Words used in everyday life: fruits, vegetables, Family relations, Occupations, Designation

UNIT: V (18hrs)

Phrases & Dialogues of everyday use at Home, Bus stop, Market, Work place, Social & official(formal) function (Oral: Roman Hindi)
Sentence formation- complex & indirect speech
Words used in everyday life: Body parts, Animals, Birds, and Insects

Reference Books: 1.Saral Hindi Bodhini, D.B. Hindi Prachar Sabha, T Nagar, Chennai.

2.Subodh Hindi Rachna, D.B. Hindi Prachar Sabha, T Nagar, Chennai

Reference websites: 1**.** www.mindurhindi.com

2. www.loecsen.com

3. www.duolingo.com

4. www.wikihow.com

GURU NANAK COLLEGE (Autonomous)

VELACHERY ROAD, CHENNAI – 600042

ACCREDITED BY NACC WITH "A" LEVEL

FOUNDATION ENGLISH

2019-22

1992

GURU NANAK COLLEGE (Autonomous), Chennai – 600 042

DEPARTMENT OF ENGLISH
PART II – ENGLISH (Choice Based Credit System)
(Effective from the Academic Year 2016-2017)
Common to all Undergraduate Courses
FIRST YEAR

FIRST SEMESTER - PRELIMINARY LEVEL

Test -05 Hours
Unit - I Prose 15 Hours (including all exercises to be done in class in the text itself)
Unit - II Poetry 15 Hours (including all exercises to be done in class in the text itself)
Unit - III Short Stories 15 Hours (including all exercises to be done in class in the text itself)
Unit – IV Novella 10 Hours (including all exercises to be done in class in the text itself)
Unit - V

1. Grammar : 5 Hours (including all exercises to be done in class)
2. Language Skills: 5 Hours (including all exercises to be done in class)
3. Functional Grammar: 5 Hours (including all exercises to be done in class)

Soft Skills – 15 Hours

FIRST YEAR

FIRST SEMESTER - PRELIMINARY LEVEL

Objectives:

- to enable a smooth transition to tertiary level of learning
- to understand and use English Language effectively

UNIT – I PROSE

1. Believe in Yourself - *APJ Abdul Kalam*
2. The Young Elephant- *DhanGopal Mukerji*
*3.*You Can't Win an Argument - *Dale Carnegie*

UNIT – II POETRY

*1.*The Road Not Taken - *Robert Frost*
*2.*Ecology - *A. K. Ramanujan*
*3.*Nine Gold Medals - *David Roth*

UNIT – III SHORT STORIES

1. The Watchman - *R K Narayan*
2. How Much Land Does a Man Need - *Leo Tolstoy*
3. Voices in the Box - *Paul Villiard*

UNIT – IV NOVELLA

Nombu- *Fakir Muhammed Katpadi* (translated by*K.Raghavendra Rao*)

Unit - V

1. Grammar :
   Nouns, Pronouns, Adjectives, Verbs, Adverbs, Prepositions, Conjunctions & Interjections, Articles, Sentences-Subject & Predicate-Types of sentences-sentence pattern
2. Language Skills:
   Synonyms, Antonyms, Affixes, Spellings, Singular-Plural
3. Functional Grammar:
   Expansion of Hints, Comprehension, Paragraph Writing, Essay Writing
   Note: Grammar questions to be more functional and application oriented

Recommended reading:

1. 1.Essential English Grammar- Raymond Murphy
2. A Communicative Grammar of English - Geoffery Leech
3. Current English for College (1st Edition) - N.Krishnaswamy.
4. Contemporary English Grammar Structures and Composition - David Green

FIRST YEAR
SECOND SEMESTER - TRANSITIONAL LEVEL

Test -05 Hours
Unit – I Prose 15 Hours (including all exercises to be done in class in the text itself)
Unit - II Poetry 15 Hours (including all exercises to be done in class in the text itself)
Unit – III Short Stories 15 Hours (including all exercises to be done in class in the text itself)
Unit – IV One Act Plays 10 Hours (including all exercises to be done in class in the text itself)
Unit - V
Grammar : 5 Hours (including all exercises to be done in class)

Language Skills: 5 Hours (including all exercises to be done in class)

Functional Grammar: 5 Hours (including all exercises to be done in class)

Soft Skills – 15 Hours

FIRST YEAR

SECOND SEMESTER - TRANSITIONAL LEVEL

Objectives:

- to reinforce the English competencies acquired in the previous semester
- to improve communication skills

UNIT – I PROSE

1. What I Cherish Most - *Right Hon'ble SrinivasaSastri*
2. The Great Indian Psychotherapy - *Chetan Bhagat*
3. Mahabalipuram – *A Travelogue*

UNIT – II POETRY

1. I Dream a World - *Langston Hughes*
2. A Psalm of Life - *Henry Wadsworth Longfellow*

3. Shaper Shaped - *HarindranathChatopadyaya*

UNIT – III SHORT STORIES

1. The Umbrella Man - *Roald Dahl*
2. The Night Train at Deoli - *Ruskin Bond*
3. What is my Name - *P. Sathyavathi*

UNIT –IV ONE ACT PLAYS

1. Never Never Nest - *Cedric Mount*
2. A Sunny Morning - *Serafin and Joaquin Alvarez Quinter*
3. Gray Matter - *Jeanette D. Farr*

UNIT - V

1. Grammar :
   Finite & Non-finite verbs, Tense &Aspect, Voice, Direct & Indirect Speech, Degrees of Comparison
2. Language Skills:
   Same words in different parts of speech, Homonyms, Homophones, One word substitute, Collective nouns
3. Functional Grammar:
   Informal Letters, e-mails, Dialogue Writing, Note-making
   Note: Grammar questions to be more functional and application oriented

Recommended reading:

1. Essential English Grammar- Raymond Murphy
2. A Communicative grammar of English - Geoffery Leech
3. Contemporary English Grammar Structures and Composition - David Green
4. Current English for College (1st Edition) - N.Krishnaswamy

SECOND YEAR

THIRD SEMESTER - INTERMEDIARY LEVEL

Test -05 Hours

Unit - I Prose 15 Hours (including all exercises to be done in class in the text itself)
Unit - II Poetry 15 Hours (including all exercises to be done in class in the text itself)
Unit - III Short Stories 15 Hours (including all exercises to be done in class in the text itself)
Unit – IV One Act Plays 10 Hours (including all exercises to be done in class in the text itself)
Unit - V

1. Grammar : 5 Hours (including all exercises to be done in class)
2. Language Skills: 5 Hours (including all exercises to be done in class)
3. Functional Grammar: 5 Hours (including all exercises to be done in class)

Soft Skills – 15 Hours

SECOND YEAR

THIRD SEMESTER - INTERMEDIARY LEVEL

Objectives:

- to take the students to the next level of learning English
- to enhance the students' creative, interpretative and critical thinking

UNIT – I PROSE

1. To Know When to Say "Its None of Your Business" – Mark McCormack
2. Malala Yousafzai's Speech to the United Nations Assembly 2013

UNIT – II POETRY

1. The Toys – Coventry Patmore
2. The Summer Garden-Anna Akhmatova

UNIT – III SHORT STORIES

1. Conjurer's revenge – Stephen Leacock
2. The Best Investment I Ever Made- A.J.Cronin

UNIT –IV Drama

1. A Meeting in a Forest –G.B.Shaw
2. The Count's Revenge- J.H.Walsh

UNIT - V

1. Grammar :

Kinds of questions, Simple-compound-complex sentences, Identifying different types of clauses, Beginning sentences with 'It'

2. Language Skills:

Punctuation, Rearranging jumbled sentences, Confusing words in English, Phrasal verbs

3. Functional Grammar:

Report Writing, Diary Writing, Formal Letters, CV/Resume Writing

Note: Questions in Grammar to be more functional and application oriented

Recommended reading:

1. Essential English Grammar- Raymond Murphy
2. A Communicative grammar of English - Geoffery Leech
3. Contemporary English Grammar Structures and Composition - David Green
4. Current English for College (1st Edition) - N.Krishnaswamy

SECOND YEAR

FOURTH SEMESTER - ADVANCED LEVEL

Test -05 Hours

Unit - I Prose 15 Hours (including all exercises to be done in class in the text itself)
Unit - II Poetry 15 Hours (including all exercises to be done in class in the text itself)
Unit - III Short Stories 15 Hours (including all exercises to be done in class in the text itself)
Unit – IV Creative Writing 10 Hours (including all exercises to be done in class in the text itself)
Unit - V

1. Grammar : 5 Hours (including all exercises to be done in class)

2. Language Skills: 5 Hours (including all exercises to be done in class)

3. Functional Grammar: 5 Hours (including all exercises to be done in class)

Soft Skills – 15 Hours

SECOND YEAR

FOURTH SEMESTER - ADVANCED LEVEL

Objectives:

- to enable the use of English with increased proficiency
- to acquire the communicative skills necessary for professional development

UNIT – I PROSE

1. Key to Courage- I.A.R.Wylie
2. Acceptance Speech at Economic Times Lifetime Achievement Award DhirubhaiAmbani
3. Acceptance Speech of Ramon Magsaysay award - Kiran Bedi

UNIT – II POETRY

1. If- Rudyard Kipling
2. The Spider and the Fly-Mary Howitt
3. My Precious Daughter - TsoltimN.Shakabpa

UNIT – III SHORT STORIES

1. A Day's Wait- Ernest Hemingway
2. The Squirrel- Ambai
3. The Mouse – Saki

UNIT –IV CREATIVE WRITING

1. Story Writing
2. Report Writing
3. Feature Writing

UNIT - V

1. Grammar :

Transformation of sentences, Synthesis of sentences, Completing sentences

2. Language Skills:

Correction of errors, Idioms and Phrases, Foreign expressions, British- American Words

3. Functional Grammar:

Expansion of Proverbs, Drafting Circulars and Invitations, preparing Welcome Address and Vote of Thanks.

Note: Questions in Grammar to be more functional and application oriented

Recommended reading:

1. Essential English Grammar- Raymond Murphy
2. A Communicative Grammar of English - Geoffery Leech
3. Contemporary English Grammar Structures and Composition - David Green
4. Current English for College (1st Edition) - N.Krishnaswamy

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042
Re-Accredited at 'A - Grade' by NAAC
(Affiliated to the University of Madras)

SOFT SKILLS -PG

Regulations and Syllabus

(For the PG Batch of 2019-21)

VISION

The Vision of the Department is to develop students holistically in Communicative
English and Soft Skills in order to make them all employable and for being good
citizens.

MISSION

The Mission is to cater to the Learners from varied socio-economic backgrounds
by imparting them quality training in English and Soft Skills, by familiarizing them
with correct English usage in addition to the Values related to Environment, Gender Equality, Human Rights, Ethics and so on.

PG SOFT SKILLS
Batch -2019-2021
PAPER TITLE: PERSONALITY ENRICHMENT

SUBJECT CODE: 19PGSL401	**THEORY**	**MARKS: 50**
SEMESTER: I	**CREDITS: 2**	**TOTAL HOURS: 15**

COURSE OBJECTIVES:

The Course aims at enabling the students:
- To examine the characteristics and benefits of self-disclosure.
- To demonstrate and recognize self-awareness.
- To identify the source of stress and cope with it effectively.
- To analyze the nature of anger and effectively manage it by using various techniques.
- To use study skills, learning strategies and mnemonic devices for effective learning.
- To set their goal in life and pursue it with determination.
- To study the causes of procrastination for effective time management.

PERSONALITY ENRICHMENT

UNIT I- SELF DISCLOSURE

- Characteristics of self-disclosure
- Self-disclosure benefits and appropriateness
- Self-disclosure and self-awareness
- Self-disclosure and feedback.

UNIT II – ANGER, STRESS AND MANAGING FEELINGS

- The nature of stress
- Managing stress through social support systems
- The Nature of anger
- Guidelines for managing anger constructively
- Dealing with an angry person

UNIT III – INTERPERSONAL EFFECTIVENESS

- Managing anxiety and fear
- Breathing –an antidote to stress
- Progressive muscle relaxation
- Understanding your shyness
- Building one' self esteem
- Avoiding Self blame
- Taking risks
- Tolerating failure
- Persisting and celebrating success
- Self-talk.

UNIT IV- STUDY SKILLS

- Importance of study environment
- Using VCR3 to increase memory power: visualizing, concentrating, relating, repeating, reviewing
- Memory hindrances
- Memory helpers
- Knowing vs memorizing
- Memory and studying
- The SQ3R method; survey, write questions, read, recite, review
- Mnemonic devices – rhymes – acronyms – pegging
- Cooperative learning.

UNIT V- GOAL SETTING AND MANAGING TIME

- The basis of effective goals
- Steps to be followed to obtain optimum results from goal setting
- Identifying the reasons for procrastination
- Guidelines to overcome procrastination
- Priority management at home and college

REFERENCE

1. Johnson, D.W. *Reaching out – Interpersonal Effectiveness and Self Actualization*. 6th ed. Boston: Allyn and Bacon. 1997.
2. Sherfield, R. M. Montgomery, R.J. and Moody, P, G. *Developing Soft Skills*. 4th ed. New Delhi:
Pearson. 2010.
3. Robbins, S. P. and Hunsaker, Phillip, L. *Training in Interpersonal skills. Tips for managing*
*people at work.*5th ed. New Delhi: PHI Learning. 2009.

PG SOFT SKILLS
Batch -2019-2021
PAPER TITLE: WORKPLACE COMMUNICATION SKILLS

SUBJECT CODE: 19PGSL402	**THEORY**	**MARKS: 50**
SEMESTER: II	**CREDITS: 2**	**TOTAL HOURS: 15**

COURSE OBJECTIVES:

The Course aims at enabling the students:

- To analyze the components of a team and work towards team building.
- To identify their individual strengths and weaknesses.
- To explore elements of creativity and apply it in their career.
- To take informed decisions in their life.

UNIT I - GOAL SETTING

- SMART Goals
- Blue print for success
- Short Term, Long Term, Life Time Goals

UNIT II TEAM BUILDING AND WORKING

- Team Work – necessity
- Personal, Social and Educational

UNIT III EMOTIONAL INTELLIGENCE

- Definition
- Emotional quotient
- Importance of Emotional Intelligence
- Emotion Scales
- Managing Emotions

UNIT IV - CREATIVITY

- Out of the box thinking
- Lateral Thinking
- Stimulating innovation and change

UNIT V - DECISION MAKING & EMPOWERMENT

- Importance and necessity of Decision Making
- Process and practical way of Decision Making
- Weighing Positives & Negatives
- Power tactics
- Coalition
- Managerial empowerment
- Entrepreneurship

REFERENCE

1. Covey Sean, Seven Habits of Highly Effective Teens, New York, Fireside Publishers, 1998.

2. Carnegie Dale, "How to Win Friends and Influence People", New York: Simon & Schuster,
1998.

3. Thomas A Harris, I am Ok, you are Ok, New York-Harper and Row, 1972

4. Daniel Goleman, Emotional Intelligence, Bantam Book, 2006

PG SOFT SKILLS
Batch -2019-2021
PAPER TITLE: SELF & TIME MANAGEMENT SKILLS

SUBJECT CODE: 19PGSL403	**THEORY**	**MARKS: 50**
SEMESTER: III	**CREDITS: 2**	**TOTAL HOURS: 15**

COURSE OBJECTIVES:

The Course aims at enabling the students:

- To identify what causes stress
- To list the various kinds of stress
- To formulate methods to combat stress
- To describe concept of time management
- To outline the limitations of time
- To scrutinize concepts like self-discipline and punctuality
- To emphasize the importance of adherence to time
- To synthesize work/ life balance

UNIT I- STRESS MANAGEMENT

- Definition of Stress
- Types of Stress
- Symptoms
- Stress coping ability
- Stress inoculation training
- Techniques to manage Stress

UNIT II - CRISIS &CONFLICT MANAGEMENT SKILLS

- Definition of Crisis
- Ways to overcome Crisis
- Critical Thinking & Innovation
- Problem Solving
- Types of conflict
- Conflict stimulation
- Conflict resolution – Approaches

UNIT III - INTERPERSONAL SKILLS

- Group decision making
- Types of leadership
- Emotional intelligence
- Effective leadership
- Negotiation skills

UNIT IV-TIME MANAGEMENT

- Concept
- Limitations
- Attendance, Self-Discipline & Punctuality
- Adherence to Time
- Maintaining Work/Life Balance

UNIT V-SELF-ACTUALIZATION

- SWOC Analysis
- Self-Regulation
- Self-Evaluation
- Self-Management
- Self-Monitoring
- Self-Criticism
- Self-Motivation
- Self Esteem
- Importance of Self Confidence

REFERENCE

1. Wentz, Fredrick H. Soft skills Training – A workbook to develop skills for employment by, Create
Space Independent Publishing Platform; Large edition. May 14, 2012.
2. Mitra, Barun K. Personality Development and Soft skills, Oxford University Press. 2011.
3. Mackenzie, Alec R. The Time Trap: The Classic book on Time Management New York: AMACOM Books.2009

PG SOFT SKILLS
Batch -2019-2021
PAPER TITLE: SPOKEN AND PRESENTATION SKILLS

SUBJECT CODE: 19PGSL404	**THEORY**	**MARKS: 50**
SEMESTER: IV	**CREDITS: 2**	**TOTAL HOURS: 15**

COURSE OBJECTIVES:

The Course aims at enabling the students:

- To define body language
- To determine the components of a team
- To analyze the role of a team leader
- To determine the role functions in a group discussion.
- To measure a group performance and suggest ways to improve it.
- To evaluate performance in interviews.

Unit – I

- Body Language
- Kinesics, Proxemics, Para linguistic, Chronemics,
- Nuances of Speech Delivery.• Personality Development: Building self-esteem.

Unit – II

- Team work and participating in group discussions
- Team building and Team work
- Team briefing
- Role of Team leader
- Conflict resolution
- Methodology of Group discussions
- Role Functions in Group Discussion
- Types of Non – functional Behavior
- Improving group performance.
- Participating in Mock group discussions.

Unit – III

- Interviews
- Types of Interviews
- Preparing for interviews
- Facing interviews
- Reviewing performance
- Participating in mock interviews.

Unit – IV

- Etiquettes for Public Speaking (extempore and lectures)
- Telephone Conversations and Business Meetings

Unit – V

- Business Presentations
- Preparing successful presentations
- Thinking about audience
- Making effective use of visual aid
- Delivering presentation-using prompts, dealing with questions and interruptions
- Mock presentations.

REFERENCE

1. Peter, Francis. Soft Skills and Professional Communication. New Delhi: Tata McGraw Hill.2012.

2. Singh, Prakash and Raman, Meenakshi. Business Communication. New Delhi: Oxford UP. 2006.

3. Bailey, Edward P. Writing and Speaking at Work: A Practical Guide for Business Communication. Pennsylvania: Prentice Hall. 2007.

4. Pease, Allan and Peas, Barbara. The Definitive Book of Body Language. New York: Random House. 2006.

5. De Bono, Edward.1993. Serious Creativity. Reprint.Harp

Soft Skills I

Batch – 2019- 22

PAPER TITLE: INTRODUCTION TO STUDY SKILLS

SUBJECT CODE: 19UGSL401	**THEORY**	**MARKS: 50**
SEMESTER: I	**CREDITS: 3**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

- *To help, develop and improve the vocabulary of the learners*
- *To help the learners develop the skill of inference*
- *To help the learners to acquire writing skills in English*
- *To improve the listening skills of the students*
- *To improve the students' verbal reasoning*

SYLLABUS

UNIT I: Use of Dictionary and Dictation (6 hrs)
UNIT II: Vocabulary building exercises (6 hrs)
UNIT III: Verbal Reasoning (6 hrs)
UNIT IV: Listening and Reading Comprehension (6hrs)
UNIT V: Paragraph and Essay Writing (6 hrs)

Books for Reference:

1. *Hewings, Martin. 1999. Advanced English Grammar: A Self- study Reference and Practice Book for South Asian Students. Reprint 2003. Cambridge University Press. New Delhi.*
2. *Lewis Norman.1991. Word Power Made Easy.*
3. *Mohan, Krishna &Meenakshi Raman. 2000. Effective English Communication. Tata Mc Graw Hill Publishing Company Ltd.*
4. *Mohan, Krishna &Meera Banerji. 2001. Developing Communication Skills. Macmillan.*
5. *Syamala. 2002. Effective English Communication for You. Emerald Publishers, Chennai.*
6. *Harishankar, Bharathi. Ed. Essentials of Language and Communication. University ofMadras.*
7. *Swan, Michael and Catherine Walter. 1990. The Cambridge English Course-2. Cambridge University Press.*

SOFT SKILLS II

Batch – 2019-2022

PAPER TITLE: LIFE SKILLS

SUBJECT CODE: 19UGSL402	**THEORY**	**MARKS: 50**
SEMESTER: II	**CREDITS: 3**	**TOTAL HOURS: 30**

COURSE OBJECTIVES

- *To build the confidence of learners to face the challenges of a globalizedsociety*
- *To sensitize learners' ethical, moral and social values in their work environment*
- *To help the students identify their Strengths and Weaknesses*
- *To equip the students with problem solving skills*
- *To help the students acquire stress management skills*

UNIT I: SWOC Analysis (6 hrs)UNIT II: Etiquette(6 hrs)
UNIT III:StressManagement(6hrs)
UNIT IV: Time Management(6hrs)
UNIT V: Discussion of Success Stories 6 hrs)

i. Auto-suggestions
ii. Problem solving
iii. Decision Making
iv. Presentation Skills-Oral/PPT

Books for Reference:

1. *Pease, Allen. 1998. Body Language: How to read other's thoughts by theirgestures. Sudha Publications. New Delhi.*
2. *Powell. In Company. MacMillan*
3. *http://www.essentiallifeskills.net//*

SOFT SKILLS III

Batch – 2019-2022

PAPER TITLE: JOB ORIENTED SKILLS

SUBJECT CODE: 19UGSL403	**THEORY**	**MARKS: 50**
SEMESTER: III	**CREDITS: 3**	**TOTAL HOURS: 30**

COURSE OBJECTIVES

- *To make the students job-ready*
- *To help learners use English language appropriate to the role or situation*
- *To develop their skills in technical writing*
- *To face interview with confidence*
- *To be able to write reviews*

UNIT I:Different kinds of interviews(6 hrs)
UNIT II:Letter of Application and CV(6 hrs)
UNIT III:Technical Writing-Circulars, Memos, Agenda and Minute(6hrs)
UNIT IV:Group Discussion(6 hrs)
UNIT V: Review (6 hrs)

i. Books
ii. Films

Books for Reference:

1. *Harishankar, Bharathi. Ed. Essentials of Spoken and Presentation Skills. University ofMadras.*
2. *John, Seely. 1998. The Oxford guide to writing and speaking. Oxford U P, 1998, Delhi.*
3. *The Princeton Language Institute and Lanny Laskowski.2001. 10 days to moreconfident Public Speaking. Warner Books.*
4. *http://jobsearch.about.com/cs/curriculumvitae.html.//*
5. *Http://www.cvtips.com//*

Guru Nanak College (Autonomous)

COURSE COMPONENT: Soft Skill – Computing Skills
(For the following UG Departments)

B.A. (Economics), B.A. (Defence and Strategic Studies), B.Sc. Mathematics, B.Sc. Physics, B.Sc. Chemistry, B.Sc. Zoology, B.Sc. Plant Biology and Plant Bio – Technology, B.Com(General), B.Com(Corporate Secretaryship) BBA, B.Sc. Visual Communication, B.Com(General), B.Com(Accounting & Finance), B.Com(Corporate Secretaryship), B.Com (Information System Management), B.Com(Banking Management) and B.Com(Marketing Management)

SUBJECT CODE:	PRACTICAL	MARKS :100

CREDIT: 2

COURSE OBJECTIVES

- The major objective in introducing the Computer Skills course is to impart training for students in Microsoft Office which has different components like Ms word, MS Excel, Ms Access, Power point etc., at two levels based on their knowledge and exposure.
- It provides essential skills for the user to get adapted to any work environment, as most of the systems in any workplace have Ms Office installed for their day to day activities. The course is highly practice oriented rather than regular class room teaching

Unit I : *Word Processing* – Open, Save and close word document; Editing text- tools, formatting, bullets; Spell Checker; Navigating in word – keyword, Mouse; document formatting- paragraph alignment, indentation, headers and footers, numbering; printing- preview, options

Unit II : *Spreadsheets* – MS Excel – opening, entering text and data, formatting, navigating; Formulas – entering, handling and copying; Charts –creating, formatting and printing, header and footer, centering data, printing.

UNIT III : *Presentations* – Power point – exploring, creating and editing slides, inserting tables and charts – Special effects – Clip Art, creating and drawing shapes, inserting multimedia content – Presentations – planning, animation, handouts, slideshow.

Unit VI : *Networks* – Internet Explorer- components; www – working, browsing, searching, saving – Bookmark – favorite, create, delete – Printing a web page; email- creating, receiving, reading and sending messages

Unit V : *HTML* – Defining HTML paragraph and spacing – HTML styles, that include Background color – Text color - Text Fonts – Text that includes Bold, Italic, Underline, Superscript and Subscript.

Note : *Unit II to Unit V needs exposure thru Practicals*

References:

1. Introduction to Computers – Peter Norton, Tata McGraw Hill
Microsoft 2003 – Jennifer Ackerman Kettell, Guy Hat-Davis, Curt Simmons, Tata McGraw Hill

COURSE COMPONENT: Soft Skill – Computing Skills - Advanced
(For the following PG Departments)
M. Sc. Mathematics, M. Sc. Chemistry, M. Sc. Zoology, M. Com (General) and M. A. (Economics)

SUBJECT CODE:	PRACTICAL	MARKS :100

CREDIT: 2

COURSE OBJECTIVES

Objective: The major objective in introducing the Computer Skills course is to impart training for students in Microsoft Office which has different components like Ms word, MS Excel, Ms Access, Power point etc., at two levels based on their knowledge and exposure. It provides essential skills for the user to get adapted to any work environment, as most of the systems in any workplace have Ms Office installed for their day to day activities. The course is highly practice oriented rather than regular class room teaching

Pre-requisite – Pass in level B are an equivalent course

Unit I : *Word Processing* - Formatting – paragraph and character styles, templates and wizards, table and contents and indexes, cross referencing ; Tables and columns – creating manipulating and formatting; Mail Merge, Labels and Envelopes

Unit II : *Spreadsheets* - Workbook- Building, modifying, navigating; Worksheet – Auto fill, copying and moving cells , inserting and deleting rows, printing; Formulas and functions- Troubleshooting formulas, Functions and its forms like database, financial, logical, reference, mathematical and statistical – Databases- creating, sorting, filtering and linking

Unit III : *Presentations* – Power point – exploring, creating and editing slides, inserting tables and charts – Special effects – Clip Art, creating and drawing shapes, inserting multimedia content – Presentations – planning, animation, handouts, slideshow

Unit IV : *Databases* – Access- Components, creating a database and project, import and exporting, customizing; Tables – creating and setting fields; Queries – types, creating, wizards – Reports – creating and layout

Unit V : *Information management* – Outlook – starting , closing, contacts, tool bars, file management; email - reading, composing, responding, attachments, signature, junk mail; tasks – screen, sorting , creating , deleting , assigning , updating; scheduling – calendar

Note: All Units needs an approach through practical exposure

References:

1. Working in Microsoft Office ; Ron Mansfield, Tata McGraw Hill
2. Microsoft Excel 2007; Guy Hart Davis, Tata McGraw Hill

EVS - ENVIRONMENTAL STUDIES

SUBJECT CODE:	THEORY	MARKS :100

CREDIT: 2

SEMESTER: IV **TOTAL HOURS: 30**

COURSE OBJECTIVES

- This course introduces the concepts of Environmental Studies

UNIT-I: (6hrs)
Multidisciplinary nature of environmental studies
Definition, scope and importance.

UNIT-II: **(6hrs)**
Natural Resources : Renewable and non-renewable resources :
Natural resources and associated problems. - Forest resources : Use and over-exploitation, deforestation, case studies. -Timber extraction, mining, dams and their effects on forest and tribal people. - Water resources : Use and over-utilization of surface and ground water - floods, drought, conflicts over water, dams-benefits and problems. - Mineral resources : Use and exploitation, environmental effects of extracting and using mineral resources, case studies. - Food resources : World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.
Energy resources : Growing energy needs, renewable and non renewable energy sources, use of alternate energy sources. Case studies. Land resources : Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resoureces for sustainable lifestyles.

UNIT-III: (6hrs)
Ecosystems - Concept of an ecosystem. -Structure and function of an ecosystem. - Producers, consumers and decomposers. - Energy flow in the ecosystem. - Ecological succession. - Food chains, food webs and ecological pyramids. - Introduction, types, characteristic features, structure and function of the following ecosystem :- . Forest ecosystem, Grassland ecosystem ,. Desert ecosystem,. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

UNIT-IV: (6hrs)
Biodiversity and its conservation
• Introduction – Definition : genetic, species and ecosystem diversity. - Biogeographical classification of India - Value of biodiversity : consumptive use, productive use, social, ethical, aesthetic- and option values - Biodiversity at global, National and local levels. - India as a mega-diversity nation - Hot-sports of biodiversity.
• Threats to biodiversity : habitat loss, poaching of wildlife, man-wildlife conflicts.
• Endangered and endemic species of India
• Conservation of biodiversity : In-situ and Ex-situ conservation of biodiversity.

UNIT-V : **(6hrs)**
Environmental Pollution

Definition,
Cause effects and control measures of :-
a. Air pollution
b. Water pollution
c. Soil pollution
d. Marine pollution
e. Noise pollution
f. Thermal pollution
g. Nuclear hazards
• Solid waste Management : Causes, effects and control measures of urban and industrial wastes.
• Role of an individual in prevention of pollution.
• Pollution case studies.
• Disaster management : floods, earthquake, cyclone and landslides.

RECOMMENDED TEXTS

1. Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.

REFERENCE BOOKS

1. Cunningham, W.P.Cooper, T.H. Gorhani, E & Hepworth, M.T.2001, Environmental Encyclopedia, Jaico Publ. House, Mumbai, 1196p.

VALUE EDUCATION

SUBJECT CODE:	THEORY	MARKS : 100

CREDIT: 2

SEMESTER: V **TOTAL HOURS: 15**

COURSE OBJECTIVE:

- Values are socially accepted norms to evaluate objects, persons, and situations that form part and parcel of sociality.
- A value system is a set of consistent values and measures. Knowledge of the values is inculcated through education. It contributes in forming true human being, who is able to face life and make it meaningful. There are different kinds of values like, ethical or moral values, doctrinal or ideological values, social values and aesthetic values. Values can be defined as broad preferences concerning appropriate courses of action or outcomes. As such, values reflect a person's sense of right and wrong or what "ought" to be. There are representative values like, "Equal rights for all", "Excellence deserves admiration". "People should be treated with respect and dignity". Values tend to influence attitudes and behavior and help to solve common human problems. Values are related to the norms of a culture..

UNIT I: (3hrs)

Value education-its purpose and significance in the present world – Value system – The role of culture and civilization-Holistic living – Balancing the outer and inner – Body, Mind and Intellectual level- Duties and responsibilities.

UNIT II : (3hrs)

Salient values for life- Truth, commitment, honesty and integrity, forgiveness and love, empathy and ability to sacrifice, care, unity , and inclusiveness, Self esteem and self confidence, punctuality – Time, task and resource management – Problem solving and decision making skills- Interpersonal and Intra personal relationship – Team work – Positive and creative thinking

UNIT III : (3hrs)

Human Rights – Universal Declaration of Human Rights – Human Rights violations – National Integration – Peace and non-Violence – Dr. A P J Kalam's ten points for enlightened citizenship – Social Values and Welfare of the citizen – The role of media in value building.

UNIT IV: (3hrs)

Environment and Ecological balance – interdependence of all beings – living and non-living. The binding of man and nature – Environment conservation and enrichment.

UNIT V : (3hrs)

Social Evils – Corruption, Cyber crime, Terrorism – Alcoholism, Drug addiction – Dowry – Domestic violence – untouchability – female infanticide – atrocities against women- How to tackle them

Reference Books:

M.G.Chitakra: Education and Human Values, A.P.H.Publishing Corporation, New Delhi, 2003

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**Essay** Answer any 5 out of 10 questions **(each in 1200 words)**	1-10	20	**100**

Distribution of Questions:

Section	Units	No. of Questions	
		Theory	**Problems**
A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	