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

|| 2018-19 ||

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

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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 2018 -2019and 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 (2018-2021 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	1. NME/ Basic Tamil	Technical Writing	2	2	50	100	100
		2. Skill based subjects	Listening and Speaking Skills	3	2	50	100	100
CREDIT TOTAL =24 / TOTAL HOURS PER WEEK: 30								
II	I	Language	Tamil II	3	6	50	50	100
	II	English	English II	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	2	2	50	100	100
		2. Skill based subjects	Reading and Writing Skills	3	2	50	100	100
CREDIT TOTAL =24 / TOTAL HOURS PER WEEK: 30								
III	I	Language	Tamil III	3	6	50	50	100
	II	English	English III	3	4	50	50	100
	III	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	1. Skill based subjects	Personality Enrichment	3	2	50	100	100
		2.EVS	Environmental science	2				
CREDIT TOTAL =24 / TOTAL HOURS PER WEEK: 30								
IV	I	Language	Tamil IV	3	6	50	50	100
	II	English	English IV	3	4	50	50	100
		Core VII	Modern Age	4	5	50	50	100
	III	Core VIII	English Phonetics and Phonology	4	5	50	50	100

		Allied IV	Media and communication	5	6	50	50	100
	IV	1. Skill based subjects	Computing Skills	3	2	50	50	100
		2.EVS	Environmental science	2	2		100	100
CREDIT TOTAL =24 / TOTAL HOURS PER WEEK: 30								
V		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
	V	Value Education	Value education	2			100	100
CREDIT TOTAL =23/ TOTAL HOURS PER WEEK: 30								
	VI	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 II	Interpretation of Literature	5	6	50	50	100
		Extension Activities		1	-	-	-	-
CREDIT TOTAL =23 / TOTAL HOURS PER WEEK: 30								
GRAND TOTAL CREDITS =142 / TOTAL HOURS PER WEEK: 180								

SEMESTER - I

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 respective writers
- To explicate specific literary texts.

UNIT I: Prose **(12 Hours)**

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

UNIT II: Prose

1. The Book of Job - Old Testament (Authorised Version) (non-detailed) **(12 Hours)**

UNIT III: Poetry

1. Geoffrey Chaucer – Sections from General Prologue **(12 Hours)**
2. 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
3. Edmund Spenser –Prothalamion (lines 1 – 54)
4. 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.
Seminar

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:

1. Daniel Defoe - Robinson Crusoe (Non-detailed) **(12 Hours)**

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 writers of the different centuries, their characteristics and the major literary movements.

UNIT I:

Prose **(18 Hours)**

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

UNIT II:

Poetry **(18 Hours)**

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

UNIT III:

Drama **(18 Hours)**

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

UNIT IV:

Novel **(18 Hours)**

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

Methodology
Class lectures
Self-reading 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)

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	

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. **(8 Hours)**
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. **(8 Hours)**
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. **(8 Hours)**

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 respective writers.
- To explicate specific literary texts.

UNIT I **(12 Hours)**

Prose:

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

UNIT II **(12 Hours)**

Poetry

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 **(12 Hours)**

Drama

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** nswer 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 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 andSpeeches*

UNIT II

Poetry

1. Toru Dutt – Our Cauarina Tree **(12 Hours)**
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

1. Girish Karnad – Nagamandala **(12 Hours)**

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 R Subramanian. 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 **(18 Hours)**

Prose

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 **(18 Hours)**

Novel

1. Victorian Age – Dickens, Thackeray, George Eliot, Bronte sisters, Stevenson, Hardy
2. 20th Century – Conan Doyle, Wells, Lawrence, Orwell, Virginia Woolf, Conrad, Maugham, 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: **(5 Hours)**
1. Various Kinds of Writing
2. The creative impulse, creative ability
3. Tools and Techniques
4. 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. Character sketch
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

The Merchant of Venice (Non-detailed) **(12 Hours)**

UNIT III

Julius Caesar **(12 Hours)**

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. Bradley A.C: Shakespearean Tragedy: Lectures on Hamlet, Othello, King Lear, and Macbeth (Penguin Classics) Published October 1st 1991 by Penguin Books (first published 1904)
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)**

John Ruskin -Sesame and Lilies
Thomas Carlyle -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 **(12 HOURS)**

Drama:

1. Oscar Wilde -The Importance of Being Earnest

UNIT V **(12 HOURS)**

Fiction:

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

Literary terms **(14 Hours)**

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 nove, 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:

1. T. S. Eliot -Journey of The Magi **(12 Hours)**
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

Drama: **(12 Hours)**

1. Bernard Shaw - Pygmalion
2. J. M. Synge - Riders to the Sea (non-detailed)

UNIT V **(12 Hours)**

Fiction: (Novel & Short Story)

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 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 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

An Introduction to Phonetics and Phonology **(12 Hours)**

The unphonetic character of English Orthography and the Need for a phonetic script Air Stream Mechanisms

Organs of Speech – Respiratory Region, Phonatory Region and Articulatory Region

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)**

Description of Vowels – Pure Vowels – Three Term Label – Cardinal Vowel, Vowel Chart, Description of Individual Vowels

Description of Semivowels

Diphthongs – Description of Diphthongs

UNIT IV

Transcription – Narrow and Broad **(12 Hours)**

Syllable, Syllable Division, Syllabic Structure, Consonant Clusters, Arresting and Releasing Consonants

Supra segmental Phonemes

Stress – Wors Stress, Sentence Stress, Rhythmic Stress

Intonation – Tone Group, Tone Syllable, Tone (Static and Kinetic)

Exercises – 30 Marks **(12 Hours)**

Practical Exercises

Marking Phonetic environment, Identifying Phonemes through Minimal Pair,
Allophonic Variation – Aspirated, Unexploded, Nasally Exploded, Phonetic Realization of Plural, Past, Third Person Singular morphemes
Syllable Division and structure
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. 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.

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 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

1. Introduction to Mass Communication What is Communication? **(14 Hours)**
2. Mass Communication and Globalization Forms of Mass Communication
3. Barriers to communication
4. Interpersonal, group and mass communication

UNIT II

Advertisement **(14 Hours)**

1. Types of advertisements
2. Advertising ethics

How to create advertisements

Concept of storyboards and their importance

UNIT III

Media Writing **(14 Hours)**

1. Scriptwriting for TV and Radio
2. Writing News Reports and Editorials Editing for Print and Online Media

Feature writing: Photo journalism and Cartoons Investigative, Sports and development journalism

UNIT IV **(15 Hours)**

1. Introduction to Cyber Media and Social Media Internet and its contribution to Journalism Types of Social Media
2. The Impact of Social Media Introduction to Cyber Media 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. Draw backs

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 enable the student to have knowledge of drama and prose written in English 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 **(15 Hours)**

Drama

1. Arthur Miller – The Death of A Salesman

UNIT V **(15 Hours)**

Fiction (Novel & Short Story)

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 & Indian Delhi.
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).

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 students to gain knowledge about the origin and features of the 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
1. Boundaries, Bilingual, Bidialectal, Idiolect, Register, Lingua Franca, Pidgin, Creole,
2. The Post Creole Continum
3. Language Change – Protos – Family relationship - Cognates – Comparative Reconstruction

UNIT III

Grammar **(14 HOURS)**

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

1. Language Learning Skills
2. Listening, Speaking, Reading and Writing (LSRW) & their sub-skills **(15 HOURS)**

UNIT V **(15 HOURS)**

1. Structural analysis – IC Analysis - Labelled Tree diagram - Using IC analysis to disambiguate simple sentences - Deep and Surface Structure
2. 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 (Chapter 1)
4. Pushpinder Syal & DV Jindal. An Introduction to Linguistics. Prentice Hall of India, Pvt. Ltd., New Delhi. 1999.

Reference Books:

1. S.K Verma, N.Krishnaswamy -Modern Linguistics – An Introduction
2. Dr. Varshney - An Introductory Text book of Linguistics and Phonetics
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., Women's Writing in India, vol. 1 (New Delhi: OUP, 1989) pp. 191–2 5.Virginia Woolf . A Room of One's Own. Chapter 1

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 **(15 HOURS)**

Drama

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 and 6.
2. Simone de Beauvoir, 'Introduction', in The Second Sex, tr. ConstanceBorde 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 Scholarship and 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

CLASSICAL CRITICISM **(18 HOURS)**

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

INDIAN AESTHETICS **(18 HOURS)**

Theory of Rasa, Vyanjana and Alankara.

1. 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 unit makes the students familiar with an insight to renowned critics and their approaches in bringing out critical studies in the numerous works of English writers

UNIT IV **(18 HOURS)**

In this unit, students are exposed to the art of critically analysing short poems and short stories in terms of theme, diction, tone, figures of speech, imagery etc.

CORE TEXTS

1. William Wordsworth: Preface to Lyrical Ballads- p. 163-167
2. S 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

1. English Critical Texts. Ed. DJ Enright & Ernst De Chickera. OUP Madras. 1962.
2. 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.
3. Eliot, T S. "Tradition and Individual Talent" in English Critical Texts Madras, 1962 pp 293 - 301.

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: Manchester University Press. 1995
7. Structuralism and Semiotics - Hawks, Terrence New Accents, 2003
8. The Poetry Hand Book - Lennard, John Oxford University Press, 2008
9. A History of Literary Criticism - Blamires, Harry Delhi:Macmillan,1991
10. Contemporary Literary Theory: A Student's Companion - Krishna Swamy, et al NDelhi: Macmillan, 2001
11. Literary Criticism: A Das,B.B. et al New Delhi, OxfordReading University press, 1985
12. The English Critical Tradition. Sethuraman V. S & Ramaswamy S. Delhi:Macmillan, 1977
13. An Introduction to the Study of literature - Hudson, W.H.
14. Literature Criticism and Style - Croft, Steven et al. Oxford University press, 1997
15. Literary Theory : The Basics - Bertens, Hans Routledge, 2001
16. Literary Theory for the Perplexed - Klages, Mary India: Viva Books, 2007

WEB RESOURCES

www.literarureclassics.com/ancientpaths/lit
crit.htmml www.textec.com/criticism.html
www.ipl.org/div/litcrit
www.assumption-
edu/users/ady/HHGateway/Gateway/Approaches.html

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

UNIT I **(14 Hours)**

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

UNIT II

Travel writing through the ages- An overview **(14 Hours)**

UNIT III

Articles in travel magazines **(14 Hours)**
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

Background Study **(14 Hours)**

UNIT

II Prose **(14 Hours)**

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 Review of Modern Bengali Literature (The Picador Book of Modern Indian Literature Ed. Amit Chaudhuri)
3. Namwar Singh, 'Decolonising the Indian Mind'

UNIT III **(14 Hours)**

Poetry

1. Rabindranath Tagore -The dialogue between Karna and Kunti (Bengali)
2. Amrita Pritam I will meet you yet again (Punjabi)
3. Harivansh Rai Bachchan There was a star (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

Fiction **(15 Hours)**

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: Bharatiya Vidya 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 of Ismat Chugtai, tr.M. Assaduddin (New Delhi: Penguin Books, 2009).
6. Gurdial Singh 'A Season of No Return', in Earthy Tones, tr. Rana Nayar (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 William Radice (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 as Discovery (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.

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 YEAR SEMESTER VI CORE
PAPER XIV EUROPEAN DRAMA

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.

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UNIT I **(14 Hours)**

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

UNIT II **(14 Hours)**

2. Bertolt Brecht : Mother Courage and her Children

UNIT III **(14 Hours)**

3. Samuel Beckett: Waiting for Godot

UNIT IV **(15 Hours)**

4. Eugene Ionesco: Rhinoceros (Non-Detailed)

UNIT V **(15 Hours)**

5. 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 ARKS				**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**

Objectives:

- To acquaint students with masterpieces in world literature across nations, in various languages.
- To familiarize students, the existence of great works of imagination in the Western literary landscape so it serves as an effective backdrop for the study.

UNIT I. **(14 Hours)**

Introduction to World Literature – Goethe on "World Literature"

UNIT II

Prose

Rousseau- Discourse (Section 1) Albert Camus – Betwixt and Between **(14 Hours)**

UNIT III.

Poetry **(14 Hours)**

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

UNIT IV

Drama **(15 Hours)**

1. Anton Chekov – Ivanov
2. Moliere – 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 of Texas 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: A Reader (London: Routledge, 2012)..

Reference:

1. Gabriel Okara, 'The Mystic Drum', in An Anthology of Commonwealth 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

Introduction **(14 Hours)**

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. Jose Marti 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

1. Class lectures and discussions
2. Seminars and Paper presentations
3. Watching movie adaptations
4. Enacting scenes

Reading List:

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

Formal elements of Literature **(14 Hours)**
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

i. Millar, Robert and Ian Currie The Language of Poetry. London: Heinemann Educational 1970.
ii. Millar, Robert and Ian Currie The Language of Prose. London: Heinemann Educational 1972
iii. 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 2018-19 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 favor 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 OUTCOME:

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 2018 -19 BATCH

Semester	Part	Course Component	Subject Code	Subject Name	Credits	Hours	Internal	External	Total
Semester - I	I	Language	16UTAMF01	Tamil I	3	6	50	50	100
	II	English	16UENGF41	English I	3	6	50	50	100
	III	Core Paper-I	16UDEFC01	Strategic Study of India	4	5	50	50	100
	III	Core Paper-II	16UDEFC02	Fundamentals of War and Peace	4	5	50	50	100
	III	Allied-I	16UDEFA01	Political Science An Introduction -I	5	6	50	50	100
	IV	Non-Major Elective-I	16UMNE01B	Independent India	2	2		100	100
	IV	Soft Skills-I	17UGSLS01	Essentials of Language and Communication	3			100	100
Total Credits -24, Total Hours/ week-30									
Semester - II	I	Language	16UTAMF02	Tamil II	3	6	50	50	100
	II	English	16UENGF42	English II	3	6	50	50	100
	III	Core Paper-III	16UDEFC03	Art of Warfare in India (up to 1947)	4	5	50	50	100
	III	Core Paper-IV	16UDEFC04	World Military History	4	5	50	50	100
	III	Allied-II	16UDEFA02	Political Science An Introduction -II	5	6	50	50	100
	IV	Non-Major Elective-II	16UNME02B	Human Rights	2	2	-	100	100
	IV	Soft Skills-II	17UGSLS02	Essentials of Spoken English and Presentation Skills	3		-	100	100
Total Credits -24, Total Hours/ week-30									
Semester - III	I	Language	16UTAMF03	Tamil III	3	6	50	50	100
	II	English	16UENGF43	English III	3	6	50	50	100
	III	Core Paper-V	16UDEFC05	Fundamentals of National Security	4	6	50	50	100
	III	Core Paper-VI	16UDEFC06	International Relations	4	6	50	50	100
	III	Allied-III	16UDEFA03	Principles of Economics-I	5	6	50	50	100
	IV	Soft Skills-III	16UGSLS03	Personality Enrichment	3		-	100	100
	IV	EVS	16UEVS401	Environmental Studies		0			
Total Credits -22, Total Hours/ week-30									
Se	1	Language	16UTAMF04	Tamil IV	3	6	50	50	100

	II	English	16UENGF44	English IV	3	6	50	50	100
	III	Core Paper-VII	16UDEFC07	Military Geography and Geo-Politics	4	5	50	50	100
	III	Core Paper-VIII	16UDEFC08	International Organizations	4	5	50	50	100
	IV	Allied-IV	16UDEFA04	Principles of Economics-II	5	6	50	50	100
	IV	Soft Skills-IV	16UGSLS04	English for Competitive Examinations	3		-	100	100
	IV	EVS	16UEVS401	Environmental Studies	2	2	-	100	100
Total Credits -24, Total Hours/ week-30									
Semester - V	III	Core Paper-IX	16UDEFC09	National Security of India	4	6	50	50	100
	III	Core Paper-X	16UDEFC10	Specialized Warfare	4	6	50	50	100
	III	Core Paper-XI	16UDEFC11	Basics of Defence Economics	4	6	50	50	100
	III	Core Paper-XII	16UDEFC12	Higher Defence Organization of India	4	5	50	50	100
	III	Elective-I (Inter-disciplinary Elective)	16UDEFE01	Fundamentals of Journalism	5	5	50	50	100
	IV	Value Education	16UVED401	Value Education	2	2	-	100	100
Total Credits -23, Total Hours/ week-30									
Semester - VI	III	Core Paper-XIII	16UDEFC13	International Law	4	6	50	50	100
	III	Core Paper-XIV	16UDEFC14	Post Independent Wars of India	4	6	50	50	100
	III	Core Paper-XV	16UDEFC15	Disarmament and Arms Control	4	6	50	50	100
	III	Elective-II	16UDEFE02	Limited Wars	5	6	50	50	100
	III	Elective-III	16UDEFE03	Defence Management	5	6	50	50	100
	V	Extension Activities	16EXTU501	Extension Activities	1				
Total Credits -23, Total Hours/ week-30									
Grand Total Credits -140, Total Hours/ week-180									

SEMESTER-I

CORE PAPER – 1 STRATEGIC STUDY OF INDIA

SUBJECT CODE:16UDEFC01	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 2015 vol.4
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:16UDEFC02	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: 16UDEFA01	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

Political Science as a discipline-Meaning and Definition-Nature and Scope-Is Politics a Science or Art-Methods of Political Science **(15 Hours)**

UNIT II –-STATE AND NATION

State Definition, Element and Functions of State-Distinction between State and Government-Distinction between State and Society and Association **(15 Hours)**

UNIT III—THEORIES OF ORIGIN OF STATE

Divine Origin Theory-force Theory-Social Contract Theory: (EXCLUDING HOBBES, LOCKE, and ROUSSEAU'S THEORIES) Patriarchal and Matriarchal theory Historical or Evolutionary Theory **(15 Hours)**

UNIT IV—SOVEREIGNTY AND PLURALISM

Sovereignty-Definition and Kinds of Sovereignty-Austin's Theory of Sovereignty-The concept of Pluralism **(15 Hours)**

UNIT V—THE STATE AND THE INDIVIDUAL

Law: Meaning and Features-Rights: Kinds and Fundamental Rights-Liberty: Its kinds and safeguards-Equality: Relation with Liberty and Rights **(15 Hours)**

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:16UMNE01B	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 2015 vol 4
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:16UDEFC03	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: 16UDEFC04	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: 16UDEFA02	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

Leacock's classification of Governments-Its Meaning-Unitary and Federal forms of governments-Merits and Demerits-Parliamentary and Presidential form of government **(15 Hours)**

UNIT II –-DEMOCRACY

Democracy-Definition, Meaning and Principles-Merits and Demerits of Democracy-Conditions for the success of Democracy **(15 Hours)**

UNIT III—ORGANS OF GOVERNMENT

Legislature: Its powers and functions and types-**Executive:** Its powers and functions-**Judiciary:** Its powers and functions and Methods for independence **(15 Hours)**

UNIT IV—PUBLIC OPINION, POLITICAL PARTIES AND PRESSURE GROUPS

Public Opinion: Meaning, Definition and Types-Agents of Public Opinion-Political Parties and types-Pressure Groups **(15 Hours)**

UNIT V—ELECTION

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 **(15 Hours)**

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: 16UNME02B	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: 16UDEFC05	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: 16UDEFC06	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: 16UDEFA03	THEORY	MAX MARKS: 100
SEMESTER-III	CREDITS 4	TOTAL HOURS: 75

UNIT – I INTRODUCTION

Definitions of Economics: Adam Smith, Alfred Marshall, Lionel Robbins and Samuelson – Nature of Economics: Micro and Macro Economics- Central problems of an Economy **(15 Hours)**

UNIT – II CONSUMPTION

Wants and their characteristics – Consumer's equilibrium- Marginal utility analysis and Indifference curve analysis - Consumer's surplus **(15 Hours)**

UNIT – III PRODUCTION

Factors of production, Law of variable proportions, Laws of returns to scale – Producer's equilibrium – Expansion Path **(15 Hours)**

UNIT – IV MARKETSTRUCTURE

Perfect competition- Monopoly and Monopolistic competition- Oligopoly and Kinked Demand Curve **(15 Hours)**

UNIT – V DISTRIBUTION

Functional vs. personal distribution – Factor Pricing- Marginal Productivity Theory of Distribution – Quasi Rent – Keynes' Liquidity Preference Theory of Interest – Schumpeter's Theory of Profit **(15 Hours)**

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: 16UDEFC07	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: 16UDEFC08	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: 16UDEFA04	THEORY	MAX MARKS: 100
SEMESTER-II	CREDITS 4	TOTAL HOURS: 75

UNIT - I NATIONAL INCOME

Meaning of National Income – Concepts of National Income – Difficulties in the Measurement of National Income **(15 Hours)**

UNIT – II PLANNING AND ECONOMIC DEVELOPMENT

Course Objectives: - of Economic planning – Mixed Economy and Economic planning – PURA-A new Gandhian approach to development **(15 Hours)**

UNIT – III PUBLIC FINANACE

Government Budgets – Direct and Indirect taxes – Government Expenditure – Meaning of Deficit Financing- Functions of Financial Commission **(15 Hours)**

UNIT – IV INTERNATIONAL TRADE

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 **(15 Hours)**

UNIT – V INTERNATIONAL MONETORY SYSTEM

Functions of IMF and IBRD, the EURO, Meaning of Foreign Exchange- Purchasing Power Parity Theory - FEMA **(15 Hours)**

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**
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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: 16UDEFC09	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: 16UDEFC10	(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: 16UDEFC11	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**

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 XII –HIGHER DEFENCE ORGANISATION OF INDIA

SUBJECT CODE: 16UDEFC12	THEORY	MAX MARKS: 100
SEMESTER-V	CREDITS 4	TOTAL HOURS: 75

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 **(15 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. **(15 Hours)**

Unit V Recruitment Organizations: System and Methods of recruitment in Indian Army, Navy and Air Force at all levels **(15 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

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: FUNDAMENTALS OF JOURNALISM

SUBJECT CODE:16UDEFE01	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. **(15 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 **(15 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. **(15 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 **(15 Hours)**

Unit V:

Social Evils – Corruption, Cybercrime, Terrorism – Alcoholism, Drug addiction – Dowry – Domestic violence – untouchability – female infanticide – atrocities against women- How to tackle them **(15 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: 16UDEFC13	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) Oppenheium, 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: 16UDEFC14	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: 16UDEFC15	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 Conventions of

(a) Chemical and Biological Weapons

(b) Prevention of Accidental Wars **(15 Hours)**

Unit V

(a) 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: 16UDEFE02	THEORY	MAX MARKS: 100
SEMESTER-VI	CREDITS 5	TOTAL HOURS :75

Course Objectives:

After going through this paper students will understand 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: 16UDEFE03	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_

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 2018-19 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 analyze all basic concepts in Economics

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

PO3: To understand the functions of international organizations 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: Analyze 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 2018-19 BATCH									
Semester	**Part**	**Course Component**	**Subject Code**	**Subject Name**	**Credits**	**Hours**	**Internal**	**External**	**Total**
Semester - I	I	Language	17UTAMF01	Tamil - I / Other Language	3	6	50	50	100
	II	English	16UENGF41	English - I	3	4	50	50	100
	III	Core-I	17UECOC01	Micro Economics -I	4	6	50	50	100
	III	Core-II	17UECOC02	Statistical Methods-I	4	5	50	50	100
	III	Allied-I	17UECOA01	Industrial Economics	5	5	50	50	100
	IV	Non Major Elective-I / Basic Tamil	16UNME01A	Basics of Capital Market	2	2			100
	IV	Soft Skills-I	17UGSLS01	Listening and Speaking Skills	3	2			100
Total Credits -24, Total Hours/ week-30									
Semester - II	I	Language	17UTAMF02	Tamil - II / Other Language	3	6	50	50	100
	II	English	16UENGF42	English - II	3	4	50	50	100
	III	Core-III	17UECOC03	Micro Economics-II	4	6	50	50	100
	III	Core-IV	17UECOC04	Statistical methods –II	4	5	50	50	100
	III	Allied-II	16UECOA02	Entrepreneurial development	5	5	50	50	100
	IV	Non Major Elective-II / Basic Tamil	16UNME02A	Indian Economy for Civil service Examinations	2	2	50	50	100
	IV	Soft Skills-II	17UGSLS02	Reading and Writing Skills	3	2			100
Total Credits -24, Total Hours/ week-30									
Semester - III	III	Language	16UTAMF03	Tamil - III / Other Language	3	6	50	50	100
	III	English	16UENGF43	English - III	3	4	50	50	100
	III	Core-V	17UECOC05	Macro Economics-I	4	6	50	50	100
	III	Core-VI	17UECOC06	Money & Banking-I	4	6	50	50	100
	III	Allied-III	16UECOA03	Basic Mathematics for Economists	5	6	50	50	100
	IV	Soft Skills-III	16UGSLS03	Personality Enrichment	3	2			100
Total Credits -22, Total Hours/ week-30									
Semester - IV	III	Language	16UTAMF04	Tamil - IV/ Other Language	3	6	50	50	100
	III	English	16UENGF44	English - IV	3	4	50	50	100
	III	Core-VII	17UECOC07	Macro Economics-II	5	5	50	50	100
	III	Core-VIII	17UECOC08	Money & Banking-II	4	5	50	50	100
	IV	Allied-IV	16UECOA04	Basic Econometrics	5	6	50	50	100
	IV	EVS	16UEVS401	Environmental studies	2	2	50	50	100
	IV	Soft Skills-IV	16UGSLS04	Computing Skills	3	2			100
Total Credits -25, Total Hours/ week-30									
Semester - V	III	Core-IX	17UECOC09	Indian Economic Development-I	4	6	50	50	100
	III	Core-X	17UECOC10	Fiscal Economics-I	4	6	50	50	100
	III	Core-XI	16UECOC11	International Economics-I	4	6	50	50	100
	III	Core-XII	17UECOC12	Development of Economic Doctrine.	4	6	50	50	100
	III	Elective-I	17UECOE01	Economics of Population Studies	5	4	50	50	100
	IV	Value Education	16UVED401	Value education	2	2	50	50	100
Total Credits -23, Total Hours/ week-30									
Semester - VI	III	Core-XIII	17UECOC13	Indian Economic Development-II	4	6	50	50	100
	III	Core-XIV	17UECOC14	Fiscal Economics-II	4	6	50	50	100
	III	Core-XV	16UECOC15	International Economics-II	4	6	50	50	100
	III	Elective-II	17UECOE02	Marketing	4	6	50	50	100
	III	Elective-III	17UECOE03	Urban Economics	5	6	50	50	100
	V	Extension Activities		Extension activities	1				
Total Credits -22, Total Hours/ week-30									
Grand Total Credits -140 Total Hours/ week-180									

SEMESTER-I

CORE- I

MICRO ECONOMICS-1

SUBJECT CODE : 17UECOC01	**THEORY**	**MARKS : 100**
SEMESTER: 1	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVE:

- To acquaint students with the fundamental concepts, methods and principles of consumption and production branches of economics.

* To enable students to understand the economic motives and behaviour patterns of individual consumer.

* To help the students to relate their day to day experience to the principles of economics.

Unit – I: Scope and Methodology of Micro Economics

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 Behaviour – Cardinal Utility Analysis

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 Behaviour – Ordinal Utility Analysis

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

Factors of Production – Features – Production Function – 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 and Diseconomies of scale of production.

Unit – V: Cost and Revenue Curves

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.

Text Books

Salvatore – Micro Economics, 4/e, Oxford University Press, New Delhi, 2002.

Dewett.K.K – Micro Economics.

Jhingan M.L. and C.Murthy Micro Economics, Vrindha Publication, New Delhi, 2016.

Reference Books

Ahuja H.L. (1996) – Principles of Micro Economics, A New look at Economic Theory, S.Chand & Company Ltd. New Delhi.

Jhingan M.L., - Micro Economic Theory, Konark Publishers Pvt Ltd, New Delhi.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
QUES TION 13-20 **Answer any 5 out of 8**	**PART-B (5 X 8=40)** **ANSWER ANY FIVE QUES TIONS EACH QUES TION CARRIES 8 MARKS**
QUES TION 21 TO 24 **Answer any 4 out of 6**	**PART-C (4X 10=40 MARKS) ANSWER ANY FOUR QUES TIONS** **EACH QUES TION CARRIES 10 MARKS**

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**	

CORE- I1

STATISTICAL METHODS-1

SUBJECT CODE : 17UECOC02	**THEORY**	**MARKS : 100**
SEMESTER: 1	**CREDITS: 4**	**TOTAL HOURS : 75**

COURSE OBJECTIVE:

To understand the importance of essential concepts of Statistics.

Unit – I: Importance of Statistics and Presentation of Data

Statistics, Definition – Relationship with other subjects – Functions, Objects, Importance and Limitations; Classification, Tabulation and Editing of Data – Diagrammatic and Graphic Presentation of Data.

Unit – II: Sources and Methods of Data Collection

Primary and Secondary Data – Methods of Collecting Primary data: Census Method– Planning a Statistical Investigation – Questionnaire – Interview Schedule – Sampling Error – Sources of Secondary Data: Published and Unpublished – Sourcing through Online searches.

Unit – III: Measures of Central Tendency

Measures of Central Tendency – Types of Averages – Mean, Median, Mode, Harmonic Mean, Geometric Mean.

Unit – IV: Measures of Dispersion

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

Unit – V: Skewness and Kurtosis

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.

PRACTICALS

Preparation of Interview schedule

Reference Books:

Gupta, S.P. – Statistical Methods, S.Chand & Company, New Delhi, 1982.

Pillai, R.S.N. and V.Bhagavathi – Statistics Theory and Practice, S.Chand & Company, New Delhi, 1993.

Croxton, F.E., D.J.Cowden and S.Klein – Applied General Statistics

Gupta, S.C. and V.K. Kapoor Speigal, M.R. – Theory and Problems of Statistics

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
QUES TION 13-20 **Answer any 5 out of 8**	**PART-B (5 X 8=40)** **ANSWER ANY FIVE QUES TIONS EACH QUES TION CARRIES 8 MARKS**
QUES TION 21 TO 24 **Answer any 4 out of 6**	**PART-C (4X 10=40 MARKS) ANSWER ANY FOUR QUES TIONS** **EACH QUES TION CARRIES 10 MARKS**

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

INDUSTRIAL ECONOMICS

SUBJECT CODE : 17UECOA01	**THEORY**	**MARKS : 100**
SEMESTER: 1	**CREDITS: 5**	**TOTAL HOURS : 75**

COURSE OBJECTIVE:

To expose the students to understand the relationship between industry and economic development, and its dynamics.

Unit – I: Introduction

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 Enterprises – Multinational Corporations.

Unit – II: Industrial Location

Industrial Location – Theories of Industrial Location – Alfred Weber – Bosch – Sergeant Florence – Methods of Induction and Deduction – Factors determining Industrial Location – Industrial Location and Performance – Industrial Size – Large – Small – Tiny and Cottage Industries – Micro Enterprises.

Unit – III: Industrial Productivity

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

Unit – IV: Industrial Finance

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.

Unit – V: India's Industrial Performance

Contribution of Industries to GNP – Major Indian Industries – Traditional: Cotton Textile – Sugar – Paper – Cement – Coal – Iron & Steel – Modern: Electronics – Engineering Goods – Food processing – Industrial Entrepreneurship: Need for EDPs – Development of Women Entrepreneurship.

Reference Books:

Ahuluwalia I.J. Industrial Growth in India – Oxford University Press, New Delhi (1995)

Barthawal R.R. Industrial Economics – An introductory text book, Wiley Eastern Ltd., New Delhi (1992)

Singh A. and A. N.Sadhu, Industrial Economics, Himalaya Publishing House, Bombay (1988)

Devine P.J. An introduction to Industrial Economics, George Allen and Unwin, London (1978)

Dhingra. I.C, - Indian Industrial Economy, Sultan Chand & Co, New Delhi (1972).

Dutt Ruddar and Sundaram K.P.M., Indian Economy, S.Chand and Co, New Delhi (2004)

Kuchal S.C. Industrial Economy of India – Chitanya Publishing House, Allahabad.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
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QUES TION 21 TO 24 **Answer any 4 out of 6**	**PART-C (4X 10=40 MARKS) ANSWER ANY FOUR QUES TIONS** **EACH QUES TION CARRIES 10 MARKS**

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**	

NON-MAJOR ELECTIVE-I

BASICS OF CAPITAL MARKET

SUBJECT CODE : 16UNME01A	**THEORY**	**MARKS : 100**
SEMESTER: 1	**CREDITS: 2**	**TOTAL HOURS : 30**

COURSE OBJECTIVE:

To help the students to understand the growth of capital markets ,their structure and the functioning.

Unit - I

Capital Market - Definition - Growth of Capital Markets - Functions - Structure of Capital Market.

Unit - II

Long Term finance - sources - Financial Institutions - LIC - UTI - IDBI - ICIO - Mutual Funds.

Unit. III

Corporate Securities - Equity Shares - Preference Shares - Debentures and Bonds - Global Depository Receipts.

Unit - IV

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. Kuchal S.C. - Corporate Finance.
2. Chandru - Financial Management.
3. Varma & Agarwal - Corporation Finance.
4. Aganrual, A.N. - Indian Economy.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
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Section A	**Unit – 1**	**3**	
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	Unit – 3	**3**	
	Unit – 4	**2**	
	Unit – 5	**2**	
Section B	**Unit – 1**	**2**	
	Unit – 2	**2**	
	Unit – 3	**2**	
	Unit – 4	**1**	
	141 **Unit – 5**	**1**	

Section C	**Unit – 1**	**1**	
	Unit – 2	**2**	
	Unit – 3	**1**	
	Unit – 4	**1**	
	Unit -5	**1**	

SEMESTER-II

CORE- I11

MICRO ECONOMICS-11

SUBJECT CODE : 17UECOC03	**THEORY**	**MARKS : 100**
SEMESTER: 11	**CREDITS: 4**	**TOTAL HOURS : 90**

COURSE OBJECTIVE:

* To impart an understanding about the behaviour of the producer in different types of market and pricing of factors of production.

* To study the pattern of resource allocation for the well being of the society.

Unit – I: Theory of Product Pricing

Market structure – Meaning – Types – Perfect competition – Price and Output determination – Equilibrium of the firm and industry in short and long run – Role of time element.

Unit – II: Monopoly

Simple Monopoly – Discriminating Monopoly – Price and Output determination under simple and discriminating Monopoly – Concept of Bilateral Monopoly – Monopsony – Duopoly.

Unit – III: Monopolistic Competition & Oligopoly

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

Unit – IV: Theory of Factor Pricing

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

Meaning of Social Welfare – Different concepts of Social Welfare – Pareto criteria – Amartya Sen's views on Welfare Economics.

Reference Books:

Stonier and Hague, A Text Book of Economic Theory, Long Mans Green & Co, London, 1958.

Seth M.L., Principles of Economics, Lakshmi Narain Agarwal, Agra, 1991.

Ahuja H.L. Principles of Micro Economics, S.Chand & Co, New Delhi, 2001.

Price, M.C, Welfare Economics, Macmillan, London, **1977.**

Samuelson Paul. A, Price Theory.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
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Section A	**Unit – 1**	**3**	
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	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**	

CORE- IV

STATISTICAL METHODS-11

SUBJECT CODE : 17UECOC03	**THEORY**	**MARKS : 100**
SEMESTER: 11	**CREDITS: 4**	**TOTAL HOURS : 75**

COURSE OBJECTIVE:

To understand the significance of advanced concepts of Statistics.

Unit – I: Correlation

Correlation – Meaning, Types, Importance – Correlation and Causation – Methods of Studying Correlation – Scatter Diagram – Karl Pearson's Coefficient of Correlation – Spearman's Coefficient of Correlation – Rank Correlation.

Unit – II: Regression

Regression Analysis: Definition, Uses – Methods of Studying Regression – Method of Least Squares – Correlation and Regression.

Unit – III: Index Number

Index Numbers: Meaning and Need – Construction of Index Numbers – Procedure of Construction – Methods of Measuring Price Index Numbers – Laspeyre's, Paasche's, Fisher's Index Numbers – Problems in the Construction of Index Number – Construction of Cost of Living Index Number and its use.

Unit – IV: Time Series

Analysis of Time Series – Components – Measurement of Secular Trend – Uses of Time Series Analysis – Moving averages - three years and five years – least square method of trend analysis.

Unit – V: Probability

Meaning and Importance of Probability – Types of Probability – Probability Theorems - addition and multiplication theorem.

Reference Books:

Gupta, S.P. – Statistical Methods, S. Chand & Company, New Delhi, 1982.

Pillai, R.S.N. and V.Bhagavathi, Statistics Theory and Practice, S Chand & Company, New Delhi, 1993.

Croxton, F.E., D.J.Cowden and S.Klein – Applied General Statistics

Gupta, S.C. and V.K.Kapoor Speigal, M.R. – Theory and Problems of Statistics

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
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Section A	**Unit – 1**	**3**	
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	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-1I

ENTREPRENEURIAL DEVELOPMENT

SUBJECT CODE : 16UECOA02	**THEORY**	**MARKS : 100**
SEMESTER: 11	**CREDITS: 5**	**TOTAL HOURS : 75**

COURSE OBJECTIVE:

To make the students understand the theories on entrepreneurs and the role of MSME in the development of the economy.

Unit – I

Meaning of entrepreneur – Theories – Classical – Neo Classical – Schumpeter's Innovations theory.

Unit – II

Role and importance of Entrepreneurship – Character of entrepreneur – Relationship between entrepreneur, Entrepreneurial and Entrepreneurship – Functions of Entrepreneur – Types of entrepreneur – classification of entrepreneur.

Unit – III

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, Medium Enterprises (MSME) and Indian Economic development – Small scale industries and entrepreneurial development – Concessions – Incentives and subsidies to Small scale Industries – SIDBI – Venture Capital.

Unit – V

Project appraisal – Classification of Projects – Project appraisal – Formation of business idea-contents of Project Report.

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.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
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		Theory	Problems
Section A	**Unit – 1**	**3**	
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	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**	

NON MAJOR ELECTIVE -II

INDIAN ECONOMY FOR CIVIL SERVICE

SUBJECT CODE : 16UNME02A	**THEORY**	**MARKS : 100**
SEMESTER: 11	**CREDITS: 2**	**TOTAL HOURS : 30**

COURSE OBJECTIVE:

To prepare students for competitive exams

Economic Development - Measurement of Development - Cause of under development - Development and the New Economic Policy - Development and the environment.

Unit - II

Population - population growth - Age composition of population - population policy.

Unit III

Poverty - Measurement of Poverty - Poverty line - Policies for poverty alleviation - Poverty and Regional Disparity.

Unit IV

Price policy and Inflation History to price rise in India. causes of Inflation- Inflation and Price control in the post - reform period - Monetary and fiscal policies.

Reference Books:

1. Ruddar Datt and Sundaram K.P.M. - Indian Economy.
2. Jhingan, M.L. The Economic of Development & Plan- ning.
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.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
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	Unit – 3	**3**	
	Unit – 4	**2**	
	Unit – 5	**2**	
Section B	**Unit – 1**	**2**	
	Unit – 2	**2**	
	Unit – 3	**2**	
	Unit – 4	**1**	
	154 **Unit – 5**	**1**	

Section C	**Unit – 1**	**1**	
	Unit – 2	**2**	
	Unit – 3	**1**	
	Unit – 4	**1**	
	Unit -5	**1**	

SEMESTER-III

CORE- V

MACRO ECONOMICS-1

SUBJECT CODE : 17UECOC05	**THEORY**	**MARKS : 100**
SEMESTER: 111	**CREDITS: 4**	**TOTAL HOURS : 90**

COURSE OBJECTIVE:

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

Unit – I: Introduction to Macro Economics

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

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

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

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

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

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
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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**	

CORE-V1

MONEY AND BANKING -1

SUBJECT CODE : 17UECOC06	**THEORY**	**MARKS : 100**
SEMESTER:	**CREDITS: 4**	**TOTAL HOURS : 90**

COURSE OBJECTIVE:

- To know the role of money in the economy.
- To create understanding on money and inflation.

Unit – I: Introduction to Monetary Economics

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

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

Farm 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

Components of money supply and demand – Neutrality of money – Classical dichotomy – Quantity theory of money – transaction approach cash balance approach of Cambridge approach – Real balance approach. Cash balance approach vs Transaction approach.

Unit – V: Inflation and Deflation

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

Deflation : Meaning, causes, effects 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

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
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	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-11I

BASIC MATHEMETICS FOR ECONOMIST

SUBJECT CODE : 16UECOA03	**THEORY**	**MARKS : 100**
SEMESTER: 111	**CREDITS: 5**	**TOTAL HOURS : 90**

COURSE OBJECTIVE:

To understand the basics in mathematics and to relate it with Economic concepts.

Unit I: Introduction to Mathematics for Economists

Nature of mathematical economics – Ingredients of a mathematical model in economics – Terminology, concepts, and tools – graphs and Co-ordinates – intercept and slope of a straight line equation in Economics.

Unit II: Mathematical Modeling

Elementary functions – Linear functions – non linear functions –Simple Applications of functions in Economics: derivation of linear demand and supply functions.

Unit III: Vector and Matrix Notations

Matrix – introduction to matrix – matrix addition, subtraction and multiplication – solving the equations through matrix analysis – inverse of matrix – rank of a matrix – Linear programming – Uses of linear programming in economics – Calculating linearity – using graphical method.

Unit IV: Differentiation

Basics of differential calculus – Derivations of differential calculus formula – Simple calculation on differential calculus – General equilibrium – Partial equilibrium analysis. Applications of differential calculus – maxima and minimum – cost and production analysis – elasticity – revenue function –profit analysis.

Unit V: Exponentials and Natural Logarithms

Integral calculus – simple analysis – definite and indefinite integrals – area under the curve – Consumers surplus – Producer's surplus – Production and costs.

Reference Books:

1. Anthony, Martin & Biggs, Norman (2009), Mathematics for Economics and Finance – Methods and Modelling, Cambridge University Press, New York.

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 Hills, New York.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
QUES TION 13-20 **Answer any 5 out of 8**	**PART-B (5 X 8=40)** **ANSWER ANY FIVE QUES TIONS EACH QUES TION CARRIES 8 MARKS**
QUES TION 21 TO 24 **Answer any 4 out of 6**	**PART-C (4X 10=40 MARKS) ANSWER ANY FOUR QUES TIONS** **EACH QUES TION CARRIES 10 MARKS**

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**	
	Unit – 1	**2**	
	Unit – 2	**2**	

Section B	**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**	

ENVIRONMENTAL STUDIES

SUBJECT CODE : 16UEVS401	**THEORY**	**MARKS :**
SEMESTER: 111	**CREDITS:**	**TOTAL HOURS :**

COURSE OBJECTIVE:

*To create awareness on environment protection .

*To understand the role of environment in economic development.

Unit - I

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

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

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

Pollution as an Economic problem - Pollution control - Optimum Level - Moral suasion - Direct control - Regulation - Fiscal technique - Effluent Charges and subsidies compared**.**

Unit - V

International Environmental Policy - Transfrontier Pollu- tion - 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-IV

CORE- V11

MACRO ECONOMICS -11

SUBJECT CODE : 17UECOC07	**THEORY**	**MARKS : 100**
SEMESTER: 1V	**CREDITS: 5**	**TOTAL HOURS : 75**

COURSE OBJECTIVE:

To understand Keynesian concepts and working of the functioning of multiplier and accelerator principles.

Unit – I: Theory of Multiplier

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

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

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

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

Unit – V: Keynes versus Classics

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

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
QUES TION 13-20 **Answer any 5 out of 8**	**PART-B (5 X 8=40)** **ANSWER ANY FIVE QUES TIONS EACH QUES TION CARRIES 8 MARKS**
QUES TION 21 TO 24 **Answer any 4 out of 6**	**PART-C (4X 10=40 MARKS) ANSWER ANY FOUR QUES TIONS** **EACH QUES TION CARRIES 10 MARKS**

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**	

CORE-V111

MONEY AND BANKING -11

SUBJECT CODE : 17UECOC08	**THEORY**	**MARKS : 100**
SEMESTER: 1V	**CREDITS: 4**	**TOTAL HOURS : 75**

COURSE OBJECTIVE:

To understand the banking system in India and in the world.

Unit – I: Introduction of Banking

Definition of Bank, classification of banks evolution of banking – Branch banking and unit banking – banking operations sources of banking funds – investment policy of banks – Bank's investments profitable and non-profitable investments. Securities regarding loans – personal security and collateral security.

Unit – II: Commercial Banking

Meaning, structure and functions of commercial bank – credit creation. Nationalisation of commercial bank. Balance sheet of the commercial bank.

Unit – III: Central Banking (RBI)

Definition, nature and functions of central banking principles of RBI, comparison between RBI and commercial banking. RBI and economic growth.

Unit – IV: Monetary Policy

Meaning and objectives of monetary policy – methods of credit control – objectives of credit control – limitations of monetary policy.

Unit – V: International Monetary Fund and world Bank (IBRD)

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 Trade

4. Vaish .M.C. : Monetary Theory

5. Cauvery and Others : Monetary Economics

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
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	Unit – 2	**2**	
	Unit – 3	**3**	
	Unit – 4	**2**	
	Unit – 5	**2**	
	Unit – 1	**2**	
	Unit – 2	**2**	

Section B	**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 - IV

BASIC ECONOMETRICS

SUBJECT CODE : 16UECOAO4	**THEORY**	**MARKS : 100**
SEMESTER: 1V	**CREDITS: 5**	**TOTAL HOURS : 90**

COURSE OBJECTIVE:

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: Econometrics

Meaning, Definition and Scope of Econometrics – Types and Methodology of Econometrics – Importance of Stochastic Assumptions – Random Variables- Functions of Random Variables.

UNIT -II: Correlation

Types of Correlation - Simple Linear Regression Model - Methods of Ordinary Least Squares – Assumptions and Properties of OLS Estimators –Standard Errors of Least Square Estimates - Test of Significance of the Parameter Estimates – Measure of Goodness of Fit.

UNIT-III: Regression Analysis

Analysis of Variance - Functional Forms of Regression Model - Assumptions of Randomness of 'u' – Probability Distribution of Disturbances 'u' – Properties of OLS Estimator Under the Normality Assumption.

UNIT – IV: Forecasting

Nature of Forecasting – Econometric Approach to Forecasting – Policy Evaluation Using an Econometric Model - Forecasting with a Single Equation Linear Regression Model - Testing the Difference Between a Single Prediction and Realization.

UNIT –V: Maximum Likelihood

Introduction to Maximum Likelihood Estimation – Maximum Likelihood Applied to a Linear Regression Model – Transformation of Variables and Maximum Likelihood – Using SPSS, E-Views and STATA Packages.

Reference Books:

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, 1999.4th ed

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
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QUES TION 21 TO 24 **Answer any 4 out of 6**	**PART-C (4X 10=40 MARKS) ANSWER ANY FOUR QUES TIONS** **EACH QUES TION CARRIES 10 MARKS**

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	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**	

ENVIRONMENTAL STUDIES

SUBJECT CODE : 16UEVS401	**THEORY**	**MARKS : 100**
SEMESTER: IV	**CREDITS: 2**	**TOTAL HOURS : 30**

COURSE OBJECTIVE:

- To create awareness on environment protection .
- To understand the role of environment in economic development.

Unit - I

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

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

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

Pollution as an Economic problem - Pollution control - Optimum Level - Moral suasion - Direct control - Regulation - Fiscal technique - Effluent Charges and subsidies compared.

Unit - V

International Environmental Policy - Transfrontier Pollu- tion - 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- 1X

INDIAN ECONOMIC DEVELOPMENT -1

SUBJECT CODE : 17UECOC09	**THEORY**	**MARKS : 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS : 90**

COURSE OBJECTIVE:

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

Unit – I Characteristic Features of Indian Economy

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

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

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

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

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

Reference Books:

Ruddar Dutt. and K.P.M. Sundaram, Indian Economy, Sultan Chand, New Delhi, 2000.

Dhingara I.C, The Indian Economy, Environment and Policy, Sultan Chand, New Delhi,1992.

Misra S.K. and V.R.Puri – Indian Economy: Its Development Experience, Himalaya Publications, Bombay, 1983.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
QUES TION 13-20 **Answer any 5 out of 8**	**PART-B (5 X 8=40)** **ANSWER ANY FIVE QUES TIONS EACH QUES TION CARRIES 8 MARKS**
QUES TION 21 TO 24 **Answer any 4 out of 6**	**PART-C (4X 10=40 MARKS) ANSWER ANY FOUR QUES TIONS** **EACH QUES TION CARRIES 10 MARKS**

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**	
	Unit – 1	**2**	

Section B	**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- X

FISCAL ECONOMICS -1

SUBJECT CODE : 17UECOC10	**THEORY**	**MARKS : 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS : 90**

COURSE 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

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

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

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

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

Characteristics of a good tax system - Taxable capacity - Factors determining taxable capacity - Limits - Measurements of taxable capacity.

Reference Books

Dalton Hugh – Principles of Public Finance, Routledge and Keygan Paul, London, 1954.

K. Vasudevan – Public Finance

Rajah J. Chelliah – Fiscal Policy in Underdeveloped Countries, George Allen and Unwin, London, 1980.

Tripathy R.N. – Fiscal Policy in Underdeveloped Countries

Tyagi, B.P. – Public Finance, Jai Prakash Nath & Co, Merrut, 2000.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
QUES TION 13-20 **Answer any 5 out of 8**	**PART-B (5 X 8=40)** **ANSWER ANY FIVE QUES TIONS EACH QUES TION CARRIES 8 MARKS**
QUES TION 21 TO 24 **Answer any 4 out of 6**	**PART-C (4X 10=40 MARKS) ANSWER ANY FOUR QUES TIONS** **EACH QUES TION CARRIES 10 MARKS**

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**	

CORE- XI

INTERNATIONAL ECONOMICS-1

SUBJECT CODE : 16UECOC11	**THEORY**	**MARKS : 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS : 90**

COURSE OBJECTIVE:

To enable the students to understand the various theories developed over a period of time. Learn the concepts of trade and trade policies.

Unit - I

Foreign Trade - Need, Inter Regional and International Trade, Theories of International Trade - Adam Smith - Ricardo, Haberler and Heckscher - Ohlin Theory.

Unit - II

Terms of Trade - different Concepts of Terms of Trade - Determinants of Terms of trade - static and dynamic gains from trade - capital saving and labour saving technologies and its impact on terms of trade.

Unit - III

Gains from trade - Trade Policy - Free Trade: Meaning - Case for and against Free Trade. Protection: Meaning - Arguments for and against protection.

Unit - IV

Tariff: Meaning and types - Effects of Tariff. Quotas: Mean- ing and Types - Effects of quotas on imports**.**

Unit - V

Balance of payment - Meaning - Structure - Balance of Payment and Balance of Trade - Disequilibrium in BOP & BOT - Causes for disequilibrium in BOP - Measures for correcting disequilibrium.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**

QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
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Distribution of Questions

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

CORE- X11

DEVELOPMENT OF ECONOMIC DOCTINE

SUBJECT CODE : 17UECOC11	**THEORY**	**MARKS : 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS : 90**

COURSE 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

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

Karl Marx – Marxian Philosophy – Surplus theory of value - Nationalist School – Fredrick List - Institutional School – Thorstein Veblen.

Unit – III The Marginal Revolution

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

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

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:

Blackhouse, R (1985), A history of Modern Economic Analysis, Basil Blackwell, Oxford

Ganguli, B.D.(1977), Indian Economic Thought; A 19th Century Perspective, Tata Mc Graw Hill, New Delhi.

Gide, A. and A.E. Thomson (1980), The Development of Economic doctrine, (2nd edition), Longman Group, London.

Gandhi, M.K. (1947), India of my dream, Navajivan publishing house, Ahmedabad

Schumpeter, J.A. (1957), Ten Great Economists, Oxford University Press, New York.

Roll, Erick, History of Economic Thought, Faber & Faber, London, 1973.

Balasubramanyam, V.N, Conversation with Indian Economists, Macmillan, Delhi, 2001.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
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	Unit – 4	**2**	
	Unit – 5	**2**	
Section B	**Unit – 1**	**2**	
	Unit – 2	**2**	
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	Unit – 4	**1**	
	Unit – 5	**1**	
Section C	**Unit – 1**	**1**	
	Unit – 2	**2**	
	Unit – 3	**1**	
	Unit – 4	**1**	
	Unit -5	**1**	

ELECTIVE- I

ECONOMICS OF POPULATION STUDIES

SUBJECT CODE : 17UECOE01	**THEORY**	**MARKS : 100**
SEMESTER: V	**CREDITS: 5**	**TOTAL HOURS : 60**

COURSE OBJECTIVES:

On successful completion of the course the students should have an understanding about (i) basic concepts in Economics I, (ii) population growth and economic development, (iii) basic concepts in manpower and labour force, and (iv) labour force in India.

Unit I: Basic Concepts in Economics

Economic goods, wealth, welfare, utility, consumer preference. Indifference curves, law of diminishing marginal utility, law of substitution, Demand, supply, price, income and price elasticity, production: function, factors of production, laws of substitution, Demand, supply, price, income and price elasticity, Production: function, factors of production, laws of return.

Unit II: Manpower and Labour Force: Basic Concepts

Economic Structure of labour force: Industrial and occupational classifications, Age-sex patterns of participation, social, economic, cultural, factors influencing participation. Unemployment and underemployment. Factors influencing manpower supply and patterns. Effects of factor pricing and factor proportions on the labour market. Labour force and migration.

Unit III: Labour Force in India

Measurement of labour force participation in India, Census and NSS data. Changes in concept, structure, levels and trends inlabour force participation.Changing occupational structure and its implications. Unemployment and underemployment, problems of skilled labour and employment generation and its problems in India.

Unit IV: Population Growth and National Income

National Income, GDP, GNP, NNP and income distribution, personal, disposable, money, purchasing power parity; Levels and trends in National income and per capita income; Elementary notions of opportunity cost, shadow price and consumer surplus.

Unit V: Population Growth and Economic Development

Concept of development, indicators of development, consequences of population growth for total and per capita income, income distribution,capital formation, size of investment, allocation of resources, size of the labour force and industrialization, Malthusian and Boserupian perspectives.

Reference Books:

1.Cassen, Robert, 1979. India: Population, Economy and Society. Delhi: McMillan Company of India Ltd.

2. Coale A. J., and E. M. Hoover, 1968. Population Growth and Economic Development in Law Income Countries.Princeton: Princeton University Press.

3.Jhingan, M. L., Bhatt B. K and Desai J. N., 2004. Demography. Delhi: Vrinda Publications (P) Ltd.

4. Mishra, R. S., 1973. Economics of Development. Bombay: Somaya Publications Pvt. Ltd.

5. Samuelson Paul A. and Nordhaus, W. D., 1976. Economics.12 Th edition. New York: McGra w-Hill Kooakusha Ltd.

6. Smith, Robert et al., 1972. Population Economics.North Carolina: Duke University Press.

7. Tabah, L., 1975. Population Growth and Economic Development in the third World, Vol. 2.Dolhain: Ordinal Editions.

8. Todaro, Michal P., 1981. Economics Development in the third World.New York: P. Longman.

9. United Nations, 1982. Population of India. ESCAP Country Monograph Series No.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
QUES TION 13-20	**PART-B (5 X 8=40)**

Answer any 5 out of 8	**ANSWER ANY FIVE QUES TIONS EACH QUES TION CARRIES 8 MARKS**
QUES TION 21 TO 24 **Answer any 4 out of 6**	**PART-C (4X 10=40 MARKS) ANSWER ANY FOUR QUES TIONS** **EACH QUES TION CARRIES 10 MARKS**

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**	

SEMESTER-VI

CORE-X111

INDIAN ECONOMIC DEVELOPMENT -11

SUBJECT CODE : 17UECOC13	**THEORY**	**MARKS : 100**
SEMESTER: V1	**CREDITS: 4**	**TOTAL HOURS : 90**

COURSE OBJECTIVE:

- To familiarize the students with the models in economic development.
- To provide the knowledge of various issues in economic development.
- To impart the knowledge regarding planning techniques and role of Government.

Unit – I: Economic Development and Growth – Concepts and factors

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

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

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

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: Intervention of State in poverty eradication and reduction of inequality.

Unit – V: Economic Planning

Meaning and Objectives of Economic Planning – Types of Planning – Planning techniques – Input-Output ratio – Investment Criteria and Choice of techniques – Review of Planning Exercise of 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.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
QUES TION 13-20 **Answer any 5 out of 8**	**PART-B (5 X 8=40)** **ANSWER ANY FIVE QUES TIONS EACH QUES TION CARRIES 8 MARKS**
QUES TION 21 TO 24 **Answer any 4 out of 6**	**PART-C (4X 10=40 MARKS) ANSWER ANY FOUR QUES TIONS** **EACH QUES TION CARRIES 10 MARKS**

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**	

CORE- X1V

FISCAL ECONOMICS -11

SUBJECT CODE : 17UECOC14	**THEORY**	**MARKS : 100**
SEMESTER: V1	**CREDITS: 4**	**TOTAL HOURS : 90**

COURSE OBJECTIVE:

To understand the federal system of Indian financial management and to enable students to learn the role of finance commission in maintaining fiscal stability.

Unit – I: Public Debt

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

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

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

Fiscal policy - Objectives and instruments of fiscal policy - Role of Fiscal Policy in a developing economy with reference to India.

Unit – V: Local Finance

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

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
QUES TION 13-20 **Answer any 5 out of 8**	**PART-B (5 X 8=40)** **ANSWER ANY FIVE QUES TIONS EACH QUES TION CARRIES 8 MARKS**
QUES TION 21 TO 24 **Answer any 4 out of 6**	**PART-C (4X 10=40 MARKS) ANSWER ANY FOUR QUES TIONS** **EACH QUES TION CARRIES 10 MARKS**

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**	

CORE- XV

INTERNATIONAL ECONOMICS-11

SUBJECT CODE : 16UECOC15	**THEORY**	**MARKS : 100**
SEMESTER: V1	**CREDITS: 4**	**TOTAL HOURS : 90**

COURSE OBJECTIVE:

To understand the functioning of foreign exchange market and the role of International Monetary Organization to regulate trade internationally.

Unit – I

Exchange Rate: Meaning - Determination of Equilibrium of exchange rate - Fixed and Flexible Exchange Rate.

Unit - II

Foreign Exchange Market: Functions - Transfer function - Credit Function - Hedging Function. Theories of Exchange Rate: Mint theory - Purchasing power parity theory - Balance of payment theory.

Unit - III

Role of foreign capital in economic development - issues in foreign capital in economic development - issues in foreign direct investment - FDI and FI - Multinational Corporations - Joint Ventures.

Unit - IV

Foreign aid - International Monetary System - IMF - SDR - International Liquidity.

Unit - V

Trade and Development - Economic Integration, Meaning, Types - World Bank, GATT, WTO: Structure, Objectives, Functions and Working.

Reference Books:

1. Mithani, D.M. : International Economics

2. Jhingan. M.L. : International Economics

3. Sankaran .S : International Economics

4. Sodersten. B.O. : International Economics

5. Vaish .M.C. : International Economics

6. Cherunilam Francis : International Economics

7. Mannur , H.G. : International Economics

8. Ellsworth, P.T. : International Economics

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
QUES TION 13-20 **Answer any 5 out of 8**	**PART-B (5 X 8=40)** **ANSWER ANY FIVE QUES TIONS EACH QUES TION CARRIES 8 MARKS**
QUES TION 21 TO 24 **Answer any 4 out of 6**	**PART-C (4X 10=40 MARKS) ANSWER ANY FOUR QUES TIONS** **EACH QUES TION CARRIES 10 MARKS**

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**	

ELECTIVE- II

MARKETING

SUBJECT CODE : 17UECOE02	**THEORY**	**MARKS : 100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS : 90**

COURSE OBJECTIVES:

To make the students understand the functioning of market. Various types of market and their functioning. To examine the methods of storage and transportation.

Unit - I

Nature, scope and significance of marketing - Evolution of marketing - Basic concepts of marketing - Different types of markets - Modern marketing - Marketing environment.

Unit - II

Functions of marketing - Function of exchange - Function of physical distribution - Storage and warehousing - Transportation - Different modes of transport - Roadways, rail- ways, waterways and airways - Choice of transport.

Unit - III

Facilitating function - Grading and Standardization - Branding, packaging and labeling - Marketing information sys- tem - Marketing research - Marketing risk - Marketing finance.

Unit - IV

Product - New Product - Product planning and development - Product Life Cycle - Marketing of manufactured goods - Manufactured consumer goods - Manufactured industrial goods - Their classification - Characteristics and channels of distribution.

Unit - V

Marketing of agricultural products - Regulated and organized market - Co-operative marketing bodies.

Reference Books:

1. Ramaswamy and Ramakumari : Marketing Management
2. Converse, Huegym, Mitchell : Elements of Marketing
3. Mamoria and Joshi : Principles of Practice of Mar- keting in India.
4. Moore Joshi and Khusro : Indian Food grain Marketing

5. Saxena and Nigam : A study of marketing in India.

6. J.C. Sinna : Principles of Marketing and Salesman- ship

7. Tousley, Clark and Clark : Principles of Marketing

8. Pillai Bagavathi : Modern Marketing

9. William J. Stantion : Fundamentals of Marketing

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
QUES TION 13-20 **Answer any 5 out of 8**	**PART-B (5 X 8=40)** **ANSWER ANY FIVE QUES TIONS EACH QUES TION CARRIES 8 MARKS**
QUES TION 21 TO 24 **Answer any 4 out of 6**	**PART-C (4X 10=40 MARKS) ANSWER ANY FOUR QUES TIONS** **EACH QUES TION CARRIES 10 MARKS**

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**	

ELECTIVE- III

URBAN ECONOMICS

SUBJECT CODE : 17UECOE03	**THEORY**	**MARKS : 100**
SEMESTER: VI	**CREDITS: 5**	**TOTAL HOURS : 90**

COURSE OBJECTIVE

To understand the causes and consequences of urban growth and economic issues in the provision of urban amenities.

Unit-1 :Introduction to Urban Economics

Meaning and importance of urban economics - Structure of Human settlement – Spatial economic organization – Urban system – Functional dependencies between human settlements of different sizes.

Unit – II: Economics of City Size

Economics of city size – Agglomeration economics – Economics of location – City size distribution.

Unit – III: Urban Infrastructure

Urban infrastructure and Urban planning – Land use pattern – Urban housing and problems of slum renewal, upgradation – Urban crimes.

Unit – IV: Urban Environmental Planning

Urban environmental planning – Transport, Industrial Complex – Energy use.

Unit – V: Financing Urban Infrastructure

Financing Urban Infrastructure – Different Methods – Federal Finance -Local Public Finance – Municipal Administration – Urban Planning and Policy – Private Sector Participation – PPP.

Reference Books:

1. Diamon, Tolley (1982) - The Economics of urban amenities, Academic Press, New York.

2. Richardson, (1971) Urban Economics, Penguin, Harmondsworth

3. Sivarmakrishnan & Green (1986) Metropolitan Management, The Economic Development Institute of the World Bank, Oxford University Press

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

QUES TION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUES TIONS** **EACH QUES TION CARRIES 2 MARK**
QUES TION 13-20 **Answer any FIVE out of 8**	**PART-B (5 X 8=40)** **ANSWER ANY FIVE QUES TIONS EACH QUES TION CARRIES 8 MARKS**
QUES TION 21 TO 24 **Answer any FOUR out of 6**	**PART-C (4X 10=40 MARKS) ANSWER ANY FOUR QUES TIONS** **EACH QUES TION CARRIES 10 MARKS**

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**	

GURU NANAK COLLEGE (Autonomous)

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

BACHELOROF COMPUTER APPLICATIONS

DEPARTMENT OF COMPUTER APPLICATIONS

(SEMESTER SYSTEM WITH CREDITS)

Regulations & Syllabus
(2018-2021)

BCA COURSE STRUCTURE: (2018 - 2021) BATCH

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	4	6	50	50	100
		Core II	Practical – C Programming Lab	4	4	50	50	100
		Allied I	Mathematics I	5	6	50	50	100
	IV	1. NME/ Basic 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	Digital Logic Fundamentals & Microprocessor	4	5	50	50	100
		Core IV	Practical - Microprocessor Lab	4	5	50	50	100
		Allied II	Mathematics II	5	6	50	50	100
	IV	1. NME/ Basic 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	Data Structures and Algorithms	4	5	50	50	100
		Core VI	Programming in C++	4	6	50	50	100
		Core VII	Practical – Data Structures using C++ Lab	4	5	50	50	100
		Core VIII	Operations Research	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	Java Programming	4	6	50	50	100
		Core X	Computer Architecture	4	8	50	50	100
		Core XI	Practical - Java Programming Lab	4	6	50	50	100
		Allied IV	Cost and Management Accounting	5	6	50	50	100
	IV	Soft Skill IV	Practical – R- Programming Lab	3	2		100	100
		EVS	Environmental Studies	2	2		100	100
								CREDIT TOTAL = 22
V	III	Core XII	Relational Database Management System	4	6	50	50	100
		Core XIII	Operating System	4	6	50	50	100
		Core XIV	Practical – RDBMS Lab	4	6	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 XV	PHP Scripting Language	2	3	50	50	100
		Core XVI	Software Engineering	4	6	50	50	100
		Core XVII	Data Communication and Networking	4	6	50	50	100
		Core XVIII	Mini Project	4	6	50	50	100
		Core XIX	Practical – PHP Lab	2	3	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. Visual Programming 2. Unix Programming 3. Data Mining
Elective - II	1. IDE- Practical - Introduction to Web Designing(HTML & CSS) 2. E-Commerce 3. Client/Server Computing
Elective - III	1. Cloud Computing 2. Software Testing 3. Distributed Computing

END SEMESTER EXAMINATION QUESTION PAPER PATTERNFOR THEORY PAPERS WITHOUT PRACTICAL

QUESTION ALLOTMENT	MAXIMUM 100 MARKS PASSING MINIMUM 40 MARKS THREE HOURS DURATION
QUESTION 1-12 Answer any 10 out of 12	PART-A (10X3=30 MARKS) ANSWER ANY 10 QUESTIONS EACH QUESTION CARRIES 3 MARK
QUESTION 13-20 Answer any 5 out of 8	PART-B (5 X 6=30) ANSWER ANY FIVE QUES TIONS EACH QUESTION CARRIES 6 MARKS
QUESTION 21 TO 26 Answer any 4 out of 6	PART-C (4X 10=40 MARKS) ANSWER ANY FOUR QUES TIONS EACH QUESTION CARRIES 10 MARKS

CORE - I PROGRAMMING IN C

SUBJECT CODE:	THEORY	MARKS :100

CREDIT: 4

SEMESTER: I **TOTAL HOURS: 90**

COURSE OBJECTIVES

- This course introduces the basic concepts of C programming
- This course is designed to expand the knowledge of C programmers by teaching some of the more advanced features of the C language
- 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 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.

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, go to statements - Comma operator.

UNIT III (18hrs)

Functions –Definition - proto-types - Passing arguments – Recursions- Storage Classes - Automatic, External, Static, Register Variables – Multi-file programs.

UNIT IV (18hrs)

Arrays - Defining and Processing - Passing arrays to functions – Multi-dimension arrays - Arrays and String. Structures - User defined data types - Passing structures to functions - Self-referential structures – Unions - Bit wise operations.

UNIT V (18hrs)

Pointers-Declarations- Passing pointers to Functions - Operation in Pointers - Pointer and Arrays - Arrays of Pointers - Structures and Pointers – Files- Creating , Processing ,Opening and Closing a data file.

1. RECOMMENDED TEXTS

i.E.Balaguruswamy, 1995,Programming in ANSI C, TMH Publishing Company Ltd.

1. REFERENCE BOOKS

i.H. Schildt, 2004, The Complete Reference, 4th Edition, TMH
ii Gottfried,B.S, 1996, Programming with C, Second Edition, TMH Pub. Co. Ltd., New Delhi .
iii.Kanetkar Y,1999, Let us C, BPB Publications., New Delhi.
iv. Kamthane,2002,Programming with ANSI & Turbo C , First Edition,Pearson Education , 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 8 questions (each in 300 words)	13-20	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	21-26	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	2	
C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE – II PRACTICAL – 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 programming
- To familiarize the student with basic concepts of computer programming and developer tools.
- To present the syntax and semantics of the "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

Summation of Series :

1. Sin(x), 2. Cos(x), 3. Exp(x) (Comparison with built in functions)

String Manipulation :

1.Counting the no. of vowels, consonants, words, white spaces in a line of text and array of lines
2.Reverse a string & check for palindrome.

Recursion :

1.$^{n}P_{r}$, $^{n}C_{r}$
2.GCD of two numbers
3.Fibonacci sequence
4.Maximum & Minimum

Matrix Manipulation :

1.Addition & Subtraction
2.Multiplication
3.Transpose of a matrix

ALLIED I - MATHEMATICS – I

SUBJECT CODE:	THEORY	MARKS :100

CREDITS: 5

SEMESTER: I **TOTAL HOURS: 90**

COURSE OBJECTIVES:

- To improve basics in Mathematics and analytical skills

UNITI: (18hrs)

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: (18hrs)

MATRICES: Eigen Values – Eigen Vectors - Cayley - Hamilton Theorem (without proof)

Chapter 4 Section 4.5, 4.5.2, 4.5.3

UNIT III: (18hrs)

THEORY OF EQUATIONS: 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 IV: (18hrs)

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: (18hrs)

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

1. RECOMMENDED TEXTS

1. Allied Mathematics,A.Singaravelu.
2. Ancillary Mathematics, A. ManickavasagamPillai and Narayanan.
3. Allied Mathematics,P.R.Vittal.

1. 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.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any **10**questions	1 – 12	2	**20**
Section B	**Short Answer** Answer any **5** questions	13–20	8	**40**
Section C	**Essay** Answer any **2** questions	21– 24	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	1
	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		21 (a),(b)
	Unit – 2		22(a),(b)
	Unit – 3		23(a),(b)
	Unit – 4		24(a)
	Unit - 5		24(b)

For Section A: Two questions can be taken from any of 5 units

For Section B: Three questions can be taken from any of the 5 units.

NME – PRACTICAL - COMPUTING SKILLS

SUBJECT CODE:	PRACTICAL	MARKS :100

CREDIT: 2

SEMESTER: I **TOTAL HOURS: 30**

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 : **(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 – keyword, Mouse; document formatting- paragraph alignment, indentation, headers and footers, numbering; printing- preview, options

Unit III : **(6hrs)**

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 : **(6hrs)**

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 : **(6hrs)**

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*

REFERENCES:

1. Introduction to Computers – Peter Norton, Tata McGraw Hill
2. Microsoft 2003 – Jennifer Ackerman Kettell, Guy Hat-Davis, Curt Simmons, Tata McGraw Hill

CORE - III DIGITAL LOGIC FUNDAMENTALS & MICROPROCESSOR

SUBJECT CODE:	THEORY & PRACTICAL	MARKS :100

CREDIT: 4

SEMESTER: II **TOTAL HOURS: 75**

COURSE OBJECTIVES

- This course probes fundamental ideas of Basic Digital Electronics and Microprocessor subject seeking to provide wide exposure to the basic concepts of Digital Electronics along with the dynamic implementations of these concepts into Computer hardware.
- This three unit course provides an introduction to microprocessors. It uses assembly language to develop a foundation on the hardware, which executes a program. Memory and I/O interface design and programming.

UNIT I (15hrs)

Fundamentals of Computer - Number systems - Conversion from one number system to another - Logic gates - Truth tables. Boolean algebra - Axioms - Truth table simplification of Boolean function - K - map method

UNIT II (20hrs)

Brief discussion about Combinational Circuits and Sequential Circuits : Adders (Half Adder, Full Adder), Subtractors (Half Subtractor, Full Subtractor) – Decoder – Encoder – Multiplexers – Demultiplexers – Flip Flops- RS, JK, D and T Flip flops

UNIT III (15hrs)

Introduction to microcomputers - microprocessor-Intel 8085 microprocessor - architecture – pin out of 8085 - MPU 8085 – 8085 instruction set and classifications – instruction formats -addressing modes.

UNIT IV (10hrs)

8085 assembly language programs: simple programs – 8 –bit addition and subtraction, BCD addition-BCD subtraction -multiplication and division -programming techniques such as looping - dynamic debugging.

UNIT V (15hrs)

Peripheral and Interfacing : Peripheral devices – Interfacing - memory mapped I/O and I/O mapped I/O-:Interrupts in 8085 –vectored interrupts - Programmable peripheral interface- DMA.

1. RECOMMENDED TEXTS

i. M.M. Mano, Digital Logic and Computer Design, Pearson Education .

ii. V.Rajaraman,2002, Fundamentals of Computers, Third Edition, PHI, New Delhi.

iii. B. Ram, Microprocessor and its Architecture. .

iv Ramesh S. Gaonkar, Microprocessor architecture programming and its applications with 8085, Third Edition.

2. REFERENCE BOOKS

i . T.C.Bartee,1991,Computer Architecture and logical Design, McGraw Hill.

ii . Srinath.N.K , 8085 Microprocessor programming and interfacing

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 600 words)	21-26	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	2	
C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE - IV PRACTICAL - MICROPROCESSOR LAB

SUBJECT CODE:	THEORY & PRACTICAL	MARKS :100

CREDIT: 4

SEMESTER: II **TOTAL HOURS: 75**

COURSE OBJECTIVES

- This course gives hands on training in Microprocessor Assembly Language Programming
- It uses assembly language to develop a foundation on the hardware, which executes a program. Laboratories directly related to microprocessor functions and its interfaces

(i) 8 –bit Addition and Subtraction

(ii) BCD addition and subtraction

(iii) Multi byte Addition and Subtraction

(iv) Find the largest – two 8 bit values

(v) Find the smallest – two 8 bit values

(vi) Find the largest number in an array

(vii) Find the smallest number in an array

(viii) Sum of series – 8 bit Hexa Decimal Numbers

(ix) Sum of series – BCD numbers

(x) Arrange the given numbers in Ascending and Descending order

(xi) Find the square of given number by using look-up table

ALLIED – II MATHEMATICS – II

SUBJECT CODE:	THEORY	MARKS :100

CREDITS: 5

SEMESTER: II **TOTAL HOURS: 90**

COURSE OBJECTIVES:

- To improve basics in mathematics and analytical skills

UNIT-I: (18hrs)

INTEGRAL CALCULUS:- Bernoulli's formula – Reduction formula for $\int \text{Sin}^n x\,dx$ – $\int \text{Cos}^n x\,dx$.

Chapter 2, Sections 2.7 and 2.9

UNIT- II: (18hrs)

FOURIER SERIES : Fourier series for function in $(\alpha,\alpha+2\pi)$, Half-range Sine and cosine series.

Chapter 4, Section 4.1 to 4.2

UNIT – III: (18hrs)

DIFFERENTIAL EQUATION: Second order Differential Equation with Constant Coefficient s.Differential equation of the form $(aD^2+bD+C)y = e^{ax}\,ø\,(x)$ where a, b, c are constants, ø (x) = Sin mx (or) 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: (18hrs)

Laplace Transformation - Basic Properties and Simple 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 : (18hrs)

Inverse LaplaceTransformation : - Solving Differential Equation using Laplace Transformation.

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

RECOMMENDED TEXTS

1. Allied Mathematics,A.Singaravelu.
2. Ancillary Mathematics, A. ManickavasagamPillai and Narayanan.
3. Allied Mathematics,P.R.Vittal.

2. 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.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
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Section B	**Short Answer** Answer any **5** questions	13–20	8	**40**
Section C	**Essay** Answer any **2** questions	21– 24	20	**40**
				100

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1		2
	Unit – 2	1	1
	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		21(a)
	Unit – 2		21(b)
	Unit – 3		22(a),22(b)
	Unit – 4		23(a),23(b)
	Unit - 5		24(a),(b)

For Section A : Two questions can be taken from any of 5 units

For Section B : Three questions can be taken from any of the 5 units.

NME – PRACTICAL – HTML LAB

SUBJECT CODE:	PRACTICAL	MARKS :100

CREDIT: 2

SEMESTER: II **TOTAL HOURS: 30**

COURSE OBJECTIVES:

- This course introduces to the programming in HTML

01. Write a script to create an array of 10 elements and display its contents.

02. 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.

03. 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)

04. Create a document which opens a new window without a toolbar, address bar or a status bar that unloads itself after one minute.

05. Design an HTML page that includes document structure tags, title, line break, multiple headings and link to e-mail address.

06. 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.

07. Create a HTML page to demonstrate the usage of Frames. Choose the content of the page on your own.

08. Design an application for pay slip through HTML forms.

09. 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 DATA STRUCTURES AND ALGORITHMS

SUBJECT CODE:	THEORY	MARKS :100

CREDIT: 4

SEMESTER: III **TOTAL HOURS: 75**

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: (10hrs)

Definition of a Data structure - primitive and composite Data Types, Asymptotic notations, Arrays, Operations on Arrays, Order lists.

UNIT - II: (15hrs)

Stacks - Applications of Stack - Infix to Postfix Conversion, Recursion, Maze Problems - Queues - Operations on Queues, Queue Applications, Circular Queue.

UNIT - III : (20hrs)

Singly Linked List - Operations, Application - Representation of a Polynomial, Polynomial Addition; Doubly Linked List - Operations, Applications - Ordering of Books in Library (Alphabetical Ordering).

UNIT - IV : (20hrs)

Trees and Graphs: Binary Trees - Conversion of Forest to Binary Tree, Operations - Tree Traversals; Graph - Definition, Types of Graphs, Hashing Tables and Hashing Functions, Traversal - Shortest Path; Dijkstra's Algorithm.

UNIT - V: (10hrs)

Algorithm - Definition - Examples - Complexity - Divide and Conquer - Binary Search - Maximum and Minimum - Merge Sort.

1. RECOMMENDED TEXTS

1. E.Horowitz and S. Shani Fundamentals of Data Structures in C++, Galgotia Pub. 1999.

2.REFERENCE BOOKS

1. Horowitz, S. Sahni, and S. Rajasekaran, Computer Algorithms, Galgotia Pub. Pvt. Ltd., 1998.
2. 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	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 - VI PROGRAMMING IN C++

SUBJECT CODE:	THEORY	MARKS :100

CREDIT: 4

SEMESTER: III **TOTAL HOURS: 90**

COURSE OBJECTIVES

- This course introduces the basic concepts of C++ programming
- Acquire an understanding of basic object oriented concepts and the issues involved in effective class design
- In order to write C++ programs that use object oriented concepts such as information hiding, constructors, destructors, inheritance etc.

UNIT I (18hrs)

Principles of Object Oriented Programming (OOP): Basic Concepts of OOP, Benefits of OPP, Application of OOP. Tokens, Keywords, Identifiers and Constants, C++ data types, Variables, Operators in C++ : Scope resolution operator, Member de-referencing Operators, Memory Management Operators, Manipulators, Type cast operators, Expressions and Control Structures.

UNIT II (18hrs)

Class and Objects: Introduction, Specifying a Class, Defining member Functions, C++ Program with Class, Nesting of Member functions, Private member functions, Memory Allocation for Objects, Static Data members, Static Member Functions, Arrays within a Class, Arrays of Objects, Objects as Function Arguments, Friendly Functions, Returning Objects.

Pointers: Declaration and initializing, Manipulation of pointers, pointers Expression and Pointer Arithmetic, Pointer with Arrays, Arrays of Pointers, Pointers to objects, this pointers, Arrays of Pointers to Objects

Constructors and Destructors: Constructors, Parameterized Constructors, Multiple Constructors in a class, Copy constructor, Destructors. Operator overloading Defining Operator Overloading, Overloading Unary Operators, Overloading Binary Operators, Type Conversions.

UNIT III (18hrs)

Inheritance and Polymorphism:

Introduction, Defining Derived Classes, Single inheritance, Multiple inheritance, Hierarchical inheritance, Multilevel inheritance, Hybrid inheritance, Virtual Base Classes, Polymorphism, static and dynamic binding, Constructor in Derived Classes, Pointers to Derived Classes, Virtual Functions, Pure Virtual Functions.

UNIT IV (18hrs)

I/O Operations and Files: C++ Stream Classes, Unformatted I/O Operations, Formatted I/O operations, Classes for File Streams, Opening and Closing a File : open() and close() functions, Manipulators of File Pointers : seekg(), seekp(), tellg(), tellp() functions, Sequential Input and output Operations : put (), get(), write(), read() functions, Error handling File Operations : eof(), fail(), bad(), good() .

UNIT V (18hrs)

Class templates: Using a class template, function templates, Class template specialization, Template with parameters. **Standard Template library**: Containers, iterators and application of container classes. **Exception handling**: Throwing an exception, catching an exception: The try block, Exception handlers.

1. RECOMMENDED TEXTS

1. E. Balagurusamy,1995,Object Oriented Programming with C++, Tata McGraw-Hill Publishing Company Ltd.

2.REFERENCE BOOKS

i. Robert Lafore, Object Oriented Programming in Microsoft C++, Galgotia publication.
ii. H.Schildt, C++,1998,The Complete Reference-1998-TMH Edition, 1998
iii. Barbara Johnston, C++ Programming today, Pearson education/Prentice-Hall of India,ISBN81-317-1079-3, 2007.
iv. Steve Oualline, Practical C++ programming, O'Reilly/Shroff publishers & distributors,ISBN81-7366-682-2.

Question Paper Pattern:

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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 - VII DATA STRUCTURES USING C++ LAB

SUBJECT CODE:	PRACTICAL	MARKS :100

CREDIT: 4

SEMESTER: III **TOTAL HOURS: 75**

COURSE OBJECTIVES

- This course deals with practical implementation of Data Structure using C++

1. Implement PUSH, POP operations of stack using Arrays.
2. Implement PUSH, POP operations of stack using Pointers.
3. Implement add, delete operations of a queue using Arrays.
4. Implement add, delete operations of a queue using Pointers.
5. Conversion of infix to postfix using stack operations
6. Postfix Expression Evaluation.
7. Addition of two polynomials using Arrays and Pointers.
8. Creation, insertion, and deletion in doubly linked list.
9. Binary tree traversals (in-order, pre-order, and post-order) using linked list.
10. Depth First Search and Breadth first Search for Graphs using Recursion.

CORE - VIII OPERATIONS RESEARCH

SUBJECT CODE:	THEORY	MARKS :100

CREDITS: 4

SEMESTER: III **TOTAL HOURS: 90**

COURSE OBJECTIVES: To give an overall idea about the various Optimization techniques and their usages

UNIT – I :(18hrs)

Introduction to Operations Research - Linear Programming - Formulation - Graphical Solution - Simplex method.
Chapter 1,Section 1.1 to 1.4
Chapter 2, Section 2.1 to 2.28
Chapter 3, Section 3.1 to 3.54
Chapter 4, Section 4.1 to 4.31

UNIT II :(18hrs)

Big-M Method – Two-Phase method – Duality Dual-Primal relation – Dual Simplex Method.
Chapter 5, Section 5.1 to 5.14
Chapter 6, Section 3.1 to 6.35
Chapter 7, Section 7.1 to 7.37
Chapter 8, Section 8.1 to 8.35

UNIT – III :(18hrs)

Transportation Problem -- Assignment Problem.
Chapter 10, Section 10.1 to 10.73
Chapter 11, Section 11.1 to 11.6

UNIT – IV :(18hrs)

Sequencing problem , n jobs through 2 machines ,n jobs through 3 machines , 2 jobs through m machines , n jobs through m machines
Chapter 12, Section
Game theory : Two person – Zero game with saddle point – without saddle point – Dominance – solving 2 x n game or m x 2 game by graphical method
Chapter 15,

UNIT – V :(18hrs)

PERT – CPM : Project Network Diagram – Critical Path (Crashing excluded) – PERT computation
Chapter 14, Section 14.1 to 14.70

Content and treatment as in
Operations Research by P.R.Vittal and V.Malini

RECOMMENDED TEXTS

1. V.Sundaresan, K.S.Ganapathy Subramanian, K.Ganesan – Resource Management Techniques (Operations Research).
2. Introduction to Operations Research, P.R.Vittal
3. Gupta P.K. and HiraD.S.Problems in Operations Research, S.Chand& Co.

2.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.

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	2	1
	Unit – 5	2	1
B	Unit – 1	1	1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit – 5		2
C	Unit – 1	1	
	Unit – 2	1	1
	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 (16 Hrs)

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 (18 Hrs)

Single Entry Systems: Meaning – features – defects- statement of Affairs method and Introduction to conversion method. (Problems on statement of affairs method only)

UNIT V (18 Hrs)

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

RECOMMENDED TEXTS & REFERENCE

1. Gupta R.L, Advanced Accountancy, S.Chand, Delhi.
2. Agarwala A.N, Higher Science of Accountancy, Kitab Mahal,Allahabad.
3. S.P. Jain and K.L. Narang, Financial Accounting
4. M.C.Shukla and T.S.Grawel, Adavnced Accounts(Vol. I)
5. Gillespie Accounting system, Procedure & methods, Prentice Hall India 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	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 I 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 JAVA PROGRAMMING

SUBJECT CODE:	THEORY	MARKS :100

CREDIT: 4

SEMESTER: IV **TOTAL HOURS: 90**

COURSE OBJECTIVES

- This course introduces the concepts of Programming in JAVA.
- To understand Object oriented concepts like data abstraction, encapsulation, etc.
- To solve the real world scenarios using top down approach.
- To understand various Java programming concepts.

UNIT I (14hrs)

Introduction to Java – Features of Java – Object Oriented Concepts - Lexical Issues - Data Types - Variables Arrays – Operators - Control Statements.

UNIT II (22hrs)

Classes – Objects – Constructors - Overloading method – Access control - Static and fixed methods - Inner class - string Class – Inheritance - Overriding Methods - Using super - Abstract class.

UNIT III (22hrs)

Packages Access Protection - Importing packages – Interfaces - Exception Handling - Throw and Throws – Thread – Synchronization – Messaging - Runnable Interface - Inter thread Communication – Deadlock - Suspending, Resuming and stopping threads Multithreading.

UNIT IV (14hrs)

I/O streams – File streams – Applets - String Objects - String Buffer - Char Array - Java utilities - Code Documentation.

UNIT V (18hrs)

Networks basics – Socket programming – Proxy Server - TCP/IP Sockets - Net Address – URL - Data grams - Working with windows using AWT Classes - AWT Controls - Layout Managers and Menus.

1. RECOMMENDED TEXTS

i. P. Naughton and H.schildt - Java2 (The complete Reference) - Third edition, TMH 1999.

ii. Cay S. Horstmann, Gary cornel l - Core Java 2 Volume I – Fundamentals, 5th Edn, PHI, 2000.

2. REFERENCE BOOKS

i .K. Arnold and J. Gosling - The Java Programming Language - Second Edition, Addison Wesley, 1996.

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 - X COMPUTER ARCHITECTURE

SUBJECT CODE:	THEORY	MARKS :100

CREDIT: 4

SEMESTER: IV **TOTAL HOURS:120**

COURSE OBJECTIVES

- These courses 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 (24hrs)
Digital logic circuits: Digital computers – Logic Gates – Boolean Algebra – Combinational circuits and Flip Flops – Sequential Circuits.

UNIT II (24hrs)
Digital components: Integrated Circuits - Decoders – Multiplexers – Registers and Counters – Memory Unit.

UNIT III (24hrs)
Data representation: Data Types – Complements – Fixed point & Floating point representation – Binary Codes - Error Detection Codes.

UNIT IV (24hrs)
Register Transfer – Bus and Memory Transfer – Arithmetic, Logic & Shift Micro operations - Arithmetic Logic Shift Unit.

UNIT V (24hrs)
Central Processing Unit: General Register Organization – Stack organization – Instruction formats – Addressing modes –Program Control - 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

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 - XI PRACTICAL - JAVA PROGRAMMING LAB

SUBJECT CODE:	PRACTICAL	MARKS :100

CREDIT: 4

SEMESTER: IV **TOTAL HOURS: 90**

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 – 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	1	1
	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 – R - PROGRAMMING LAB

SUBJECT CODE:	PRACTICAL	MARKS :100

CREDIT: 3

SEMESTER: IV **TOTAL HOURS: 30**

COURSE OBJECTIVES

- This course gives practical exposure to the basics of 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

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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.

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 RELATIONAL DATABASE MANAGEMENT SYSTEM

SUBJECT CODE:	THEORY	MARKS :100

CREDIT: 4

SEMESTER: V **TOTAL HOURS: 90**

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 (20hrs)
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 (10hrs)
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 (20hrs)
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 (20hrs)
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 (20hrs)
Introduction to PL/SQL (blocks of PL/SQL, Variables, constants) – Control Structure – Introduction to Stored Procedures–Functions–Cursor and Triggers.

RECOMMENDED TEXTS:

i. Elmasri & Navathe, Fundamentals of Database systems, Addison & Weisely, New Delhi.

REFERENCE BOOKS:

i. H. F. Korth & A. Silverschatz, Database Concepts, Tata McGraw Hill, New Delhi
ii. C. J. Date, Database Systems, Prentice Hall of India, New Delhi.
iii. 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	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 – XIII OPERATING SYSTEM

SUBJECT CODE:	THEORY	MARKS :100

CREDIT: 4

SEMESTER: V **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 detailed. This course also provides an attempt to throw some light on the advanced topics in O/S like Multiprocessors systems and Distributed O/S. 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 - Inter-process 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.

RECOMMENDED TEXTS

Silberschatz A., Galvin P.B., Gange., 2002, Operating System Principles ,Sixth Edition, John Wiley & Sons.

REFERENCE BOOKS

i. H.M. Deitel ,1990, An Introduction to Operating System,- Second Edition, Addison Wesley.
ii. Andrew S.Tanenbaum, Modern Operating Systems, 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	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 – XIV PRACTICAL - RDBMS LAB

SUBJECT CODE:	PRACTICAL	MARKS : 100

CREDIT: 4

SEMESTER: V **TOTAL HOURS: 90**

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. Pay roll.
2. Mark sheet 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	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	

ELECTIVE – II
1. IDE – INTRODUCTION TO WEB DESIGNING(HTML & CSS) - PRACTICAL

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. Conceptof 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

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	

CORE – XV PHP SCRIPTING LANGUAGE

SUBJECT CODE:	THEORY	MARKS : 100

CREDIT: 2

SEMESTER: VI **TOTAL HOURS: 45**

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 manipulate dates and strings using built-in PHP functions and regular expressions.
- To create dynamic web forms using internet tools such as input, environment, and server variables, HTTP headers, and query strings.
- To read, write, manage, and download files through PHP-based web applications.
- To track user information using cookies and sessions.

UNIT I (10 hrs)

Introduction to PHP:- Installation of PHP, PHP configuration in IIS & Apache Web Server and features of PHP, Writing PHP: - How PHP code is parsed, Embedding PHP and HTML, Executing PHP and viewing in Browser, Data types, Operators, PHP variables: static and global variables, Comments in PHP

UNIT II (10 hrs)

Control Structures:- Condition statements, Loops, Exit, Die, Return, Arrays in PHP, Working With Data:- FORM element, INPUT elements, Validating the user input, Passing variables between pages-Passing variables through a GET, POST, REQUEST.

UNIT III (5 hrs)

Functions:-

Built-in functions, Sring Functions, Math Functions, Array Functions, File Handling Functions, Miscelleneous Functions, User Defined Functions.

UNIT IV (10 hrs)

Handling sessions and cookies:- Concept of Session, Starting session, Modifying session variables, Unregistering and deleting session variable, Concept of Cookies, Handling of Cookies, How to upload files.

UNIT V (10 hrs)

Ajax Overview:-Understanding java scripts for AJAX, AJAX web application model, AJAX –PHP framework, Performing AJAX validation, Handling XML data using PHP and AJAX, Connecting database using PHP and AJAX.

RECOMMENDED TEXTS

1. Core PHP Programming by Leon Atkinson : Pearson publishers
2. The complete Reference PHP by Stever Holzner : McGrow Hill
3. PHP – A beginners Guide By: Ashok Appu Publisher: Wiley
4. PHP web sevices - Wrox publication

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	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	
C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

CORE – XVI SOFTWARE ENGINEERING

SUBJECT CODE:	THEORY	MARKS : 100

CREDIT: 4

SEMESTER: VI **TOTAL HOURS: 90**

COURSE OBJECTIVES

- This course introduces the concepts of Software Engineering And Testing.
- To explain the background of the software crisis and the need for an engineering approach
- To appreciate the distinction between software programming and an engineering approach to the development of a software product
- To create models of software data and processes using object oriented modelling approaches such as the UML
- To describe and evaluate software tools and technology to enhance productivity and quality of software development
- To demonstrate skills of software documentation, quality assurance and evaluation, and testing as part of software development
- To describe development contexts and be able to apply estimation methods for planning these contexts

UNIT I (18hrs)

Introduction: Definition of software and software engineering – Software myths – Software Engineering paradigms: Linear Sequential Model & Prototyping Model Software Project Management – Software Metrics – Software Cost Estimation – Software Project Planning.

UNIT II (18hrs)

Software Requirement Analysis: Software Risks – Software Configuration Management System Analysis – Modeling the System Architecture – System Specification – Fundamentals of Requirement Analysis – Software Prototyping – Prototyping methods and tools specification – Software requirements Specifications

UNIT III (18hrs)

Software Development Life Cycle models: Phases of Software project – Quality, Quality Assurance, Quality control – Testing, Verification and Validation – Process Model to represent Different Phases - Life Cycle models. White-Box Testing: Static Testing – Structural Testing – Challenges in White-Box Testing.

UNIT IV (18hrs)

Black-Box Testing: What is Black-Box Testing? - Why Black-Box Testing? – When to do Black-Box Testing? – How to do Black-Box Testing? – Challenges in White Box Testing - Integration Testing: Integration Testing as Type of Testing – Integration Testing as a Phase Testing – Scenario Testing – Defect Bash.

UNIT V (18hrs)

System and Acceptance Testing: system Testing Overview – Why System testing is done? – Functional versus Non-functional Testing – Functional testing - Non-functional Testing – Acceptance Testing – Summary of Testing Phases.

1. RECOMMENDED TEXTS

i. Roger S. Pressman, Software Engineering – A Practioner's Approach, McGraw Hill, 4th Edition

ii. Software Testing Principles and Practices – Srinivasan Desikan & Gopalswamy Ramesh,2006, Pearson Education.

2. REFERENCE BOOKS

i . Richard Fairley , Software Engineering – Design Reliability and Management

ii. Renu Rajani , Pradeep Oak –" Software Testing - Effective Methods , Tools & Techniques " –Tata McGraw Hill

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 – XVII 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 and 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 Corrections.

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

i.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	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 - XVIII 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.

CORE – XIX PRACTICAL - PHP LAB

SUBJECT CODE:	PRACTICAL	MARKS :100

CREDIT: 2

SEMESTER: VI **TOTAL HOURS: 45**

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?

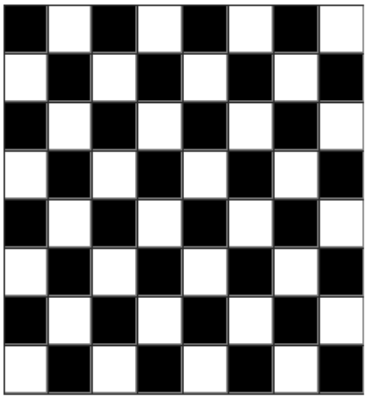
9. Write a PHP function to change the following array's all values to upper or lower case.

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.

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	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	

ANNEXURE - I
1. VISUAL PROGRAMMING

SUBJECT CODE:	THEORY	MARKS : 100

CREDIT: 5

SEMESTER: V **TOTAL HOURS: 90**

COURSE OBJECTIVES

- To introduce knowledge on Visual Basic concepts and Programming.

UNIT I (18hrs)

Customizing a Form - Writing Simple Programs - Toolbox - Creating Controls - Name Property - Command Button - Access Keys - Image Controls - Text Boxes - Labels - Message Boxes - Grid - Editing Tools - Variables - Data Types - String – Numbers.

UNIT II (18hrs)

Displaying Information – Determinate Loops – Indeterminate Loops – Conditionals – Built-in Functions – Functions and Procedures.

UNIT III (18hrs)

Lists – Arrays – Sorting and Searching – Records – Control Arrays – Combo Boxes – Grid Control – Projects with Multiple forms – DoEvents and Sub Main – Error Trapping.

UNIT IV (18hrs)

VB Objects – Dialog Boxes – Common Controls – Menus – MDI Forms – Testing, Debugging and Optimization – Working with Graphics.

UNIT V (18hrs)

Monitoring Mouse activity - File Handling - File System Controls - File System Objects - COM/OLE - automation - DLL Servers - OLE Drag and Drop.

1. RECOMMENDED TEXTS

1. Gary Cornell - Visual Basic 6 from the Ground up - Tata McGraw Hill - 1999.
2. Noel Jerke - Visual Basic 6 (The Complete Reference) - Tata McGraw Hill – 1999

ELECTIVE – I
2. UNIX PROGRAMMING

SUBJECT CODE:	THEORY	MARKS : 100

CREDIT: 5

SEMESTER: V **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 - Metacharacters - 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 cal 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

1. Brian W. Kernighan, Rob Pike - The UNIX Programming Environment - Prentice Hall of India(1984).

2.REFERENCE BOOKS

1. Steven Earhart - The UNIX System for MSDOS Users - Galgotia book source P. Ltd. (1990).
2. Stefen Prata - Advanced UNIX - A Programmer Guide.

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 and 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 - 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. Conceptof 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

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:

Daniel Minoli & Emma Minoli, “Web Commerce Technology Handbook”. Tata McGraw Hill – 1999.

REFERENCE BOOK:

1.K.Bajaj & D Nag , “E-Commerce”, Tata McGraw Hill – 1999.
2.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 – Obstacies – 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

1.Patrick Smith & Steave Guengerich, “Client/Server Computing”. PHI

2. Dawna Travis Devire, “Client/Server Computing”. TMH

ELECTIVE – III
1. CLOUD COMPUTING

SUBJECT CODE:	THEORY	MARKS : 100

CREDIT: 5

SEMESTER: VI **TOTAL HOURS: 90**

COURSE OBJECTIVES

- This course introduces the basic concepts of cloud computing.
- To understand the emerging area of "cloud computing" and how it relates to traditional models of computing.
- To gain competence in MapReduce as a programming model for distributed processing of large datasets. Specifically:
    - To understand and be able to articulate key concepts behind MapReduce, including its functional abstraction, the use of distributed storage, and the scheduling of data-local jobs.
    - To understand how well-known algorithms such as PageRank and inverted index construction can be expressed in the MapReduce framework.

UNIT I (18hrs)

Fundamentals – 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 (18hrs)

Web-Based Application – Pros and Cons of Cloud Service Development – Types of Cloud Service Development – Software as a Service – Platform as a Service – Web Services – On-Demand computing – Discovering Cloud Services Development Services and Tools – Amazon Ec2- Google App Engine – IBM Clouds.

UNIT III (16hrs)

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 (20hrs)

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 – Evaluating Web Mail Services – Evaluating Web Conference Tools – Collaborating via Social Networks and Groupware – Collaborating via Blogs and Wikis.

UNIT V (18hrs)

OGSA – Sample Use Cases – OGSA Platform Components – OGSI – OGSA Basic Services. Globus Toolkit – Architecture – Programming Model – High Level Services – OGSI.Net. Middleware Solutions.

1.RECOMMENDED TEXTS

i. Michael Miller, Cloud Computing : Web-Based Applications That Change the Way You Work and Collaborate Online, Que Publishing, August 2008.

2. REFERENCE BOOKS

i. Haley Bear, Cloud Computing Best Practices for Managing and Measuring Processes for On-demand Computing, Applications and Data Centers in the Cloud with SLAs.

Elective – III
2. SOFTWARE TESTING

SUBJECT CODE:	THEORY	MARKS : 100

CREDIT: 5

SEMESTER: VI **TOTAL HOURS: 90**

COURSE OBJECTIVES

- This course introduces the basic concepts of Software Testing

UNIT-I (18hrs)

Introduction: Purpose – Productivity and Quality in Software – Testing Vs Debugging – Model for Testing – Bugs – Types of Bugs – Testing and Design Style.

UNIT-II (18hrs)

Flow/Graphs and Path Testing – Achievable paths – Path instrumentation – Application – Transaction Flow Testing Techniques

UNIT-III (18hrs)

Data Flow Testing Strategies - Domain Testing: Domains and Paths – Domains and Interface Testing.

UNIT-IV (18hrs)

Linguistic –Metrics – Structural Metric – Path Products and Path Expressions. Syntax Testing – Formats – Test Cases .

UNIT-V (18hrs)

Logic Based Testing – Decision Tables – Transition Testing – States, State Graph, State Testing.

1. RECOMMENDED TEXTS

B. Beizer , 2003, Software Testing Techniques, II Edn., DreamTech India, New Delhi.
K.V.KK. Prasad , 2005, Software Testing Tools, DreamTech. India, New Delhi.

2. REFERENCE BOOKS

I. Burnstein, 2003, Practical Software Testing, Springer International Edn.
E. Kit, 1995, Software Testing in the Real World: Improving the Process, Pearson Education, Delhi.

ELECTIVE – III
3. DISTRIBUTED COMPUTING

SUBJECT CODE:	THEORY	MARKS : 100

CREDIT: 5

SEMESTER: VI **TOTAL HOURS: 90**

COURSE OBJECTIVES

- This course introduces the concepts of Distributed databases and Distributed File system and its Hardware concepts.

UNIT-I (18hrs)

Distributed data base – Security and Integrity – New Data base application – Design of data bases – Knowledge based case studies for relational network and hierarchical systems. Distributed processing – Models for distributed computing – Load balancing – Remote procedure calls – process migration – concurrency issues on data bases.

UNIT-II (18hrs)

Hardware concepts – Switched multiprocessor, Bus based multicomputers, Switched multicomputers – Software concepts – Network operating systems and NFS – Time distributed systems.- Design Issues : Transparency – Flexibility – Reliability – performance and scalability.

UNIT-III (18hrs)

Communications in distributed systems – The client – server model, Blocking vs Unbuffered primitives - Implementation of client-server model.

UNIT-IV (18hrs)

Synchronization in distributed systems – Clock synchronization – Mutual exclusion – Election algorithms – Atomic transactions – Deadlocks in distributed system – Threads – Thread usage and Implementation of thread packages – processor allocation.

UNIT-V (18hrs)

Distributed File system : File service interface – semantics of the file sharing – Distributed file system – Implementation of new trends in distributed file systems.

1.RECOMMENDED TEXTS

i. A.S Tanenbaum, " Modern Operating Systems " , Pearson Education

2.REFERENCE BOOKS

i.James Martin, " Computer Networks and Distributed Processing, Software Techniques and Architectures", 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	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	

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
(ACCOUNTING & FINANCE)

(Batch 2018 - 2021)

BACHELOR OF COMMERCE (ACCOUNTING & FINANCE) 2018-2021

ISEMESTER	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 and Corporate Laws (Common to BBA, B.Com (A&F), B.Com(BM), B.Com(MM))	4	5	50	50	100
Core Subject 4 – Advanced Financial Accounting	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 B.Com (A&F), B.Com(MM),B.Com(ISM))	2	2		100	100
	24	30			

BACHELOR OF COMMERCE (ACCOUNTING & FINANCE) 2018-2021

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 toB.Com (A&F), B.Com(BM), B.Com(MM))	4	6	50	50	100
Core Subject 7 – Business Communication (Common to BBA, B.Com (A&F), B.Com(BM), B.Com(MM) B.Com(ISM))	4	5	50	50	100
Core Subject 8 – Practical Auditing (Common toB.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) 2018-2021

VSEMESTER	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	4	6	50	50	100
Core 16 – Marketing Management (Common to BBA, B.Com (A&F), B.Com(BM),B.Com(MM),B.Com(ISM))	4	5	50	50	100
Elective 1 – Foreign Trade	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	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	5	6	50	50	100
Extension activities – Community Service	1	-			
	23	**30**			
TOTAL	**144**	**180**			

SEMESTER - I

GURU NANAK COLLEGE (AUTONOMOUS), CHENNAI – 600042

(Effective for the batch of candidates admitted in 2018-2021)

DEPARTMENT OF B.COM (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) **(15hours)**

UNIT III:

Classification of errors – Rectification of errors – Preparation of Suspense Account, Insurance claims – Average Clause (Loss of stock only) **(15hours)**

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. NewDelhi.
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 –NewDelhi.

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**	**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 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 –Functions of Management: POLC framework - Role and Functions of a Manager- Managerial skill – Levels of Management – Application of management in various functional areas – Production, Accounting and Finance, Marketing and Personnel Management. **(20 hours)**

UNIT II

Evolution of Management: Classical school of thought: Henry Fayol, Peter Drucker, Elton Mayo, Max Weber - Modern School of Thought: Systems Approach, Contingency approach, Kaizen's approach. **(15 hours)**

UNIT III

Planning: Meaning - Objectives of planning - Importance of planning – Types of planning - Decision making: Nature and significance- Process of Decision making – Types of Decision making- Styles of decision making – analytical decision making, behavioral decision making, conceptual decision making – Decision making techniques – Decision trees, payback analysis and simulations. **(15 hours)**

UNIT IV

Organizing – Meaning and definition of Organizing, Importance of Organizing, and Principles of Organizing: Work specialization, Authority, Chain of Command, Delegation and Span of Control. Types of Organizational Structure – Line Organizational Structure, Staff organizational structure, Divisional Organization structure, Product/Project organizational structure, Matrix Organizational Structure and Hybrid Organizational Structure. **(15 hours)**

UNIT V

Co-ordination: What is co-ordination – Need for co-ordination, Types of co-ordination and essential requisites for excellent coordination. Controlling: Meaning and Importance –Function of controlling, Process of controlling and types of Control. **(10hours)**

Prescribed Texts:

1. C.B.Gupta, Management Theory & Practice - Sultan Chand & Sons - New Delhi, 16THEdition.
2. L.M.Prasad, Principles & Practice of Management - Sultan Chand & Sons - New Delhi, 8thEdition.

Recommended Texts:

1. P.C. Tripathi& P.N Reddy, Principles of Managements - Tata McGraw Hill - New Delhi, 5thEdtion
2. Weihrich and Koontz, Management – A Global Perspective, 8thEdition.
3. N.Premavathy, Principles of Management - Sri Vishnu Publication – Chennai8thEdition
4. J.Jayashankar, Business Management – Margham Publications -Chennai

Web Reference

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

Algebra – Ratio – Proportion- Arithmetic Progression- Geometric Progression.

(15 hours)

UNIT II

Interest – Simple Interest- Compound Interest- Discount on bills- Annuities- Annuity certain- Annuity due - Immediate Annuity- Annuity Contingent- Perpetual Annuity- Deferred Annuity- Present Value.

(15 hours)

UNIT –III

Introduction to Statistics –Definition - Measures of Central tendency – Mean, median and mode – Dispersion, Quartile Deviation, Mean Deviation, Standard Deviation

(25 hours)

UNIT – IV

Correlation – Karl Pearson's Coefficient of Correlation – Spearman's Rank Correlation – Regression Lines and Coefficients. **(20 hours)**

(15 hours)

UNIT – IV

Time Series Analysis – Index Numbers

RECOMMENDED BOOKS

1. P.R. Vittal – Business Mathematics
2. Sanchetti D.C. & V.K. Kapoor – Business Mathematics
3. Statistical Methods – S.P. Gupta, Sultan 2000.

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. Loven Rubin, Kirk Patrik, Quantitative approaches to Management, Sultan Chand, 2004
5. Vohra N.D. - Quantitative Techniques in Management Tata
6. McGraw Hill – New Delhi
7. Soni R.S. - Business Mathematics – Pitamber Publishing house.
8. Navaneetham P. - Business Mathematics
9. Kapoor V.K. - Business Mathematics, Sultan Chand & Sons, Delhi
10. Statistics–Elhance

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	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	1	1
	Unit – 2	1	1
	Unit – 3	2	1
	Unit – 4	2	
	Unit – 5	2	1
B	Unit – 1	1	
	Unit – 2		1
	Unit – 3		2
	Unit – 4	2	
	Unit – 5		2
C	Unit – 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 IA + 50 ES)**
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-solvingprocess
- 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 solutionspace
- To Understand creativity and blocks tocreativity
- To Arrive at objective, well-reasoned decisions in a reasonabletime

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 Backedition
2. A Modern Approach to verbal and non-verbal reasoning – Revised edition byR.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 AND CORPORATE LAWS

SUBJECT CODE:	**THEORY**	**100MARKS**
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:

- Inherit the knowledge about the legal methodology involved in business by thestudents

UNIT I

Law of contract – Nature of contract - Classification - Offer and acceptance – capacity of parties to contract – Free consent – Consideration – Legality of object – Agreement Declared Void. – ContingentContracts. **(21Hours)**

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 **(15 Hours)**

UNIT III

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 anunpaidseller. **(12 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.

(15 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 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	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	2	
	Unit – 2	1	
	Unit – 3	1	
	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**

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 anddebtorssystem **(15 hours)**

UNIT II

Departmental Accounts: - Basis for allocation of expenses – Inter departmental transfer at cost or sellingprice. **(12hours)**

UNIT III

Hire Purchase and installment – Default and repossession – Hire Purchase trading account - InstallmentPurchaseSystem. **(13hours)**

UNIT IV

Admission of a partner – Retirement of a partner – Death ofapartner **(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.

(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 - NewDelhi.
2. Jain &Narang, Financial Accounting - Kalyani Publishers - NewDelhi.
3. ShuklaGrewal, Advanced Accounting – S Chand - NewDelhi.
4. P.C. Tulsian, FinancialAccounting
5. S.Parthasarathy and A.Jaffarulla, Financial Accounting - Kalyani Publishers - NewDelhi.

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 AND O.R.

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

Theory of sets – Set theory – Definition, Elements and types of sets, Operations on sets, Relations and functionsofsets. **(15 hours)**

UNIT II

Permutation and combination, Binomial Theorem, Exponential series.

(18hours)

UNIT -III

Introduction to OR – LPP – Formulations, Graphical method, Simplex method (≤) (Simple Problems only) – Network Analysis – PERT & CPM (No crashing).

(20hours)

UNIT – IV

Assignment andTransportationProblems. **(20 hours)**

UNIT –V

Sampling Techniques – Types of Sample and Sampling procedures – Tests of Significance – Normal , t, F, Chi –square –Simple problems. **(17hours)**

RECOMMENDED BOOKS

1. P.R. Vittal - BusinessMathematics
2. Statistical Methods – S.P. Gupta, Sultan2000.
3. Introduction to Operations Research – Dr. P.R. Vittal, MarghamPublications

REFERENCE BOOKS

1. Statistics-Elhance
2. Operations Research – Hira and Gupta, S.Chand.
3. Opertions Research – Handy and A. Taha, MacmillanPublishers.

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 (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	1
	Unit – 2	2	1
	Unit – 3	1	1
	Unit – 4	1	1
	Unit – 5	2	
Section B	Unit – 1		2
	Unit – 2		1
	Unit – 3	1	1
	Unit – 4	1	1
	Unit – 5		1
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		
	Unit - 5		1

NON MAJOR ELECTIVE – II

IMPORTANCE OF EMOTIONAL INTELLIGENCE

SUBJECT CODE :	**THEORY**	**MARKS : 100 (50 IA + 50 ES)**
SEMESTER : II	**CREDITS : 2**	**No. OF HOURS PER WEEK : 2**

(Common to B.Com (A&F), 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

UNITI- **(6 Hrs.)**

Introduction -Emotional Intelligence–Meaning, Benefits, Importance of emotions - Self-awareness and Competencies Psychological Needs.EQ vs IQ.

UNITII - **(6 Hrs.)**

Personality Analysis -Distinct Personality Type-Hand writing Analysis, Colour preference, listening, Profile, Self Esteem, Will power, Confidence

UNITIII- **(6 Hrs.)**

Negative Traits - Anger Management -Negative Syndrome and Attitude-Negative thinking-Guilt Quotient Stress and Emotion, Adapting to Loneliness

UNITIV- **(6 Hrs.)**

Positive Traits-Humor and Happiness- Empathetic ability-Sensitivity profile- Empowered personality, Self-Empowerment

UNITV- **(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,May2004.
2. Emotional Intelligence inaWeek,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 to B.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 andtheirfunctions. **(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- ElectronicClearing System. **(15 hours)**

UNIT-IV

– CRM – Meaning - Importance of customer relations – Customer grievances and redressal – Ombudsman – Functions, Powers& Duties. **(15hours)**

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 ofCollectingBanker. **(15 hours)**

Prescribed Texts:

1. **Varshney and Sundaram,** Banking and financial system of India, Sultan ChandPublishers,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, NewDelhi,2000
3. Banking and Financial Systems – B. Santhanam (MarghamPublishers)
4. Banking Law, Theory and Practice- S.N. Maheswari, KalyaniPublications.

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 toB.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 Priorto Incorporation. **(17 hours)**

UNIT III

Preparation of Company final accounts – Company balance sheet. (As per revised schedule) **(Simpleproblemsonly)** **(20hours)**

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 ReductionofCapital. **(20 hours)**

Prescribed Texts:

1. T.S. Reddy A. Murthy Corporate Accounting, Margham Publication,Chennai.
2. Shukla, Grewal and Gupta Advanced Accounts, S.Chand NewDelhi.

Reference Books:

1. R.L. Gupta and M. Radhaswamy Advanced Accounts New Delhi, SultanChand.
2. S.P. Jain and N.L. Narang Advanced Accounting KalyaniPublication.

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 COMMUNICATION

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) B.Com(ISM))

COURSE OBJECTIVES:

- To enable the students to acquire knowledge about the importance of communication in today's competitive businessenvironment

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– CircularNotes.

(25Hours)

UNIT III

Personal Correspondence-Job Application Letter and Resume Letter of Acceptance of Job Offer, Inter-Office- Memo, LetterofResignation **(10Hours)**

UNIT IV

Business Correspondence: Trade Letters –Inquiry, Order, Credit and Status Enquiry, Complaints, Claims, Sales Letters, promotional leafletsandfliers. **(10 Hours)**

UNITV

Modern Forms of Communication: Fax – E-mail – Video Conferencing – Benefits and Perils of communication through social media: WebsiteandApps. **(10Hours)**

Prescribed Texts:

1. N.S. Raghunthan, B. Santhanam – Margham Publications,Chennai,3rdEdition
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 - NewDelhi.
2. Shirley Taylor, Communication for Business - Pearson Publications - NewDelhi.
3. Bovee, Thill, Schatzman, Business Communication Today - Pearson Education Private Ltd. - NewDelhi.
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 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 inbusiness.
- To understand the steps involved in the audit ofaccount.
- To familiarize with provisions of the companies act relating to the appointment, conduct and liabilities of anaudit.
- To understand the new EDP audit in tune with the latest adoption of technology inbusinesses.

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 Auditorship - 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 underEDP system. **(15 hours)**

RECOMMENDED BOOKS

1. Practical Auditing – B.N. Tandon Sultan Chand andCo.,
2. Practical Auditing – Dr. Radha, PrasannaPublications.

REFERENCE BOOKS

1. Auditing – D.P. Jain KonarkPublishersPvt.Ltd.
2. Auditing, Principles and practice – Ravinder Kumar and virender Sharma, Eastern economyedition.

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 ofinvestment.

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 – efficientmarkethypothesis**.** **(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 – Measurementofrisk**.** **(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'sApproach**.** **(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 "InvestmentManagement"
2. Fisher and Jordon – Security analysis and Portfoliomanagement
3. Investment Management by L.Natarajan, Marghampublications,2007
4. Investment Management by Hiriappa, New age international publications,2008.
5. PunithavathyPandian - Security analysis and portfoliomanagement

REFERENCE BOOKS

1. V. A. Avadhani "Studies in Indian FinancialSystem"
2. M. Gorden "The Investment financing and valuation ofcorporation"
3. PreetiSingh "InvestmentManagement".

Web References

1. www.halifax.co.uk./investments/pdfs/sw51813.pdf
2. http://www.nseindia.com/education/content/nse_rapid_series.htm
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	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 itsimportance.
- To keep the students informed about various financial institutions thatpromoteED.
- 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. **(13Hrs)**

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 Hrs.)**

UNIT III

Project Management - Business idea generation techniques – Identification of Business opportunities – Feasibility study – Marketing, Finance, and Technology& Legal Formalities -Preparation of Project Report – Toolsof Appraisal. **(15Hrs)**

UNIT IV

– Entrepreneurial Development Programmes (EDP) – Role, relevance and achievements – Role of Government in organizing EDPs – Critical evaluation. **(12 Hrs.)**

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. **(15Hrs.)**

Prescribed Text:

1. Jayashree Suresh – Entrepreneurial development, MargamPublication.
2. Dr. C.B. Gupta & Dr. S.S. Khanka – Entrepreneurship and SmallBusiness.

Reference Books:

1. Srinivasan N.P. – EntrepreneurialDevelopment
2. Saravanavel – Entrepreneurial Development
3. Vasant Desai – Projectmanagement
4. Holt – Entrepreneurship – New VentureCreation
5. J.S. Saini& S.I. Dhameja – Entrepreneurship and smallbusiness.
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 to B.B.A, B.Com (A&F), B.Com (BM), B.Com (MM))

COURSE OBJECTIVES:

- To impart knowledge about the various financialservices.
- To have a knowledge of venture capital and mutualfunds.

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 andDebentures. 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 andfeatures – Distinguishing features between hire purchase and leasing.**Factoring -** Definition and meaning, Functions of Factor, typesoffactoring. **(10 Hours)**

UNIT-IV: Venture Capital: Meaning, Features, Functions, Modes or Forms of venture capital– **Credit Rating:** Meaning, Advantages and disadvantages, CRISIL, ICRA, and CARE Consumer Finance: Meaning and types ofconsumer finance. **(15Hours)**

UNIT – V: Mutual Funds: Meaning–Types: Based on Ownership, Operation, Objectives andLocation – Advantages and Disadvantages of mutual fund – Institutions Involved – UTI.

(15 Hours)

Prescribed Texts:

1. Financial Services – M.Y.Khan, 3rd Edition, 2004, Tata McGraw HillPublications.
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 ChandPublications.
2. Indian Financial System – H.r.Machiraju, 4th Edition, 2010, VikasPublications.
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 & CustomsAct
- To enable the students to understand the concept and procedure for computation ofGST

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 andits Provisions **(15Hours)**

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 RevocationGST Returns – Refunds under GST- Assessment and Tax Payment under GST - An overview of tax audit (GST Assessment) **(20Hours)**

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., NewDelhi.
2. GirishAhiya, Dr. Ravi Gupta, Systematic Approach to Income Tax and CST, Bharat Law HousePvt. Ltd. NewDelhi.
3. Dr.Sanjeev Kumar, Systematic Approach to Indirect Taxes with Practical problems and solutions,Bharat Law House Pvt. Ltd., NewDelhi.

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 & SubsidiaryCompanies.
- To familiarize the accounting treatment for price levelchanges.
- To understand the accounting procedures for amalgamation of companies in the nature of merger or purchase and at the time ofliquidation.

UNIT I

Amalgamation, Absorption andExternalreconstruction.**(20 hours)**

UNIT II

Consolidated final statement of Holding companies and subsidiary companies (Inter - company owing excluded)treatmentofdividend. **(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.
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, sultanChand.
2. S.P. Jain and K.L. Narang Advanced Accounts Lodi andKalyaniPublishers.

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: 4	NO. OF HOURS PER WEEK: 6

COURSE OBJECTIVES:

- To develop basic understanding about the economic concepts, tools and techniques for their applications in businessdecisions.
- To impart the knowledge about international trade and Fixed and floating exchangerates.

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'sequilibrium. **(20Hrs.)**

UNIT IV

International Trade – Importance of International Trade, Theories of Foreign Trade: - Theories of Adam Smith, Ricardo, Haberler's Hechsher-Ohlin. **(15Hrs)**

UNIT V

Balance of Trade, Balance of Payment – Concepts – Causes of Disequilibrium, Methods to Correct Disequilibrium – Fixed and FloatingExchangeRates. **(15Hrs)**

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, NewDelhi
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 andcontrol.
- 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 andservices.

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) - MachineHour Rate. **(20 hours)**

UNIT V

Process (Normal, Abnormal Loss / Abnormal Gain only) – Contract Costing (Simple problems only) – Operating Costing(Transportonly) **(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. – Practicalcosting.
2. N.K. Prasad and V.K. Prasad – CostAccounting.
3. Saxena and Vashist – Cost Accounting.
4. Hansen / Mowen – Cost Management Accounting andControl.

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 to B.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. **(10hours)**

UNIT II: Analysis and Interpretation of financial statements–Nature, objectives, essentials andtools, 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). **(20hours)**

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 – NewDelhi.
2. HorngrenSunderu Stratton, Introduction to Management Accounting – PearsonEducation
3. DalstonL. Cecil and Jenitra L. Merwin, Management Accounting, Learn Techpress, Trichy, 3rdEdition2015

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

COURSE OBJECTIVES

- To familiarize students with the basic concepts of IncomeTax.
- To enable the students to compute income under various heads ofincome.

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 exemptfromtax. **(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 undersection80C. **(25 hours)**

UNIT III

Income from House property – Definition of annual value – Deductions from annual value – Computation of income underdifferentcircumstances. **(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. **(15hours)**

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) anditsusage. **(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&GoyalSahityaBhavanPublications.
3. Income Tax Law & Practice V.P. Gaur & D.B. Narang, KalyaniPublishers.

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 : 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 OBJECTIVES:

- To understand the role and importance ofmarketing.
- Identify the factors influencing consumer behavior and purchasedecision
- To understand the facets of 4 P's inmarketing
- To understand the modalities of sales distribution andcontrol

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 marketingfunctions. **(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 TypesofPricing. **(20 Hrs.)**

UNIT IV

Promotion –Meaning, Objectives – Types - A brief overview of: Advertising - Publicity - Public Relations - personal Selling - Direct selling andSalespromotion. **(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 -distributionissues. **(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, NewDelhi.
3. Jayasankar, Marketing, Margham publications,Chennai.

Reference Books:

1. Philip Kotler, 2003, Marketing Management, 11th edition, Pearson Education (Singapore) Pvt. Ltd, NewDelhi.
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	

ELECTIVE – I -- FOREIGN TRADE

SUBJECT CODE :	THEORY	MARKS : 100
SEMESTER : V	CREDITS : 5	No. OF HOURS PER WEEK : 6

COURSE OBJECTIVES:

- Learn the meaning and importance of Foreign Trade
- Study international trade and payment system, Foreign trade contracts, documents
- Understand Foreign trade risk, exchange rate risk hedging
- Know the various export financing agencies, post shipment activities and WTO policies

Unit – I

Foreign trade – Meaning – Importance – Advantages of Foreign Trade – Exploring Foreign Market Sources. **(15 hrs)**

Unit – II

Evaluating Business for International Trade – Planning Production, Finance, People, Fixed Assets, Market research for exporting and importing –Sales Planning **(20 hrs)**

Unit – III

International trade and payment – Contractual terms for payment – Making and receiving payment- Foreign trade contracts & Documents – Letter of credit – Bills of Exchange –Transport documents – Bill of Lading – Airway Bill – Multimodal transport documents **(20 hrs)**

Unit – IV

Foreign trade risk – Currency exchange rate risk – Hedging risks – Forward contracts –Currency futures and options - Managing transaction and translation exposure – Internal, External Hedge Interest rate risk – Hedging through swaps, FRA sand Options. **(20 hrs)**

Unit – V

Financing Exports – Credit advances – Pre shipment credit in foreign currency – Post-shipment finance – Export credit Insurance – Financing Imports. Indian trade Policy – Policies of WTO related to India. **(15 hrs)**

Recommended Books:

1. Lilm and Raj Agarwal, International Trade, Excel Books.
2. SudhirDawra, World trade organization – Functions and activities, an Indian perspective - RadhaPublications.
3. Bhattacharya&Muzumdar , 'International Market &Management',

ReferenceBooks:

1. BimalJaiswal and SunitaSrivastava, International Trade, New age InternationalPublishers.
2. Indian Institute of Banking and Finance, International Trade Finance, Tax mann Publications.
3. John Wilson, International trade for the small Business, BlackwellPublishers
4. SurendraS.Yadav, P.K.Jain, Max Peyrard, -Foreign exchange markets , Understanding derivatives and other instruments – Mac millan IndiaLtd.,2002

Web Reference:

1. http://dgft.gov.in/-Directorate General of ForeignTrade
2. https://www.foreign-trade.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	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	3	
	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	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

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 anorganization.
- 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 thereturn.
- 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 inFinancialManagement. **(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 ofcapital (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) – Simpleproblemsonly. **(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 Edition2015.

REFERENCE BOOKS

1. Financial Management - I.M.Pandey
2. Financial Management – Y. Khan andJain

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

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 otherrelated 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 offof 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 deductions under Sec. 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&GoyalSahityaBhavanPublications.
3. Income Tax Law & Practice V.P. Gaur &D.B. Narang, KalyaniPublishers.

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 shareholderwealth.
- 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 shareholderwealth.

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 matchingapproach - Sources of finance - Committees on working capitalfinance.

(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. Hrishikesh Battacharya Working capital Management strategies and Techniques prentice hall of India 2001.
2. Joshi R.N. Cash Management, New Age International Publishers1999.

REFERENCEBOOKS

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 afactory.
(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 particularcategory.
(c) Proposal of a smallbusiness.

ELECTIVE III–MANAGEMENT OF HUMAN RESOURCES

SUBJECT CODE :	THEORY	MARKS : 100
SEMESTER : VI	CREDITS : 5	No. OF HOURS PER WEEK : 6

COURSE OBJECTIVES:

- To understand the nature of human resources and its significance to theorganization.
- 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. **(20Hours)**

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. **(20Hours)**

UNIT III

Remuneration – Components of remuneration – Incentives – Benefits – Motivation –Abraham Maslow's theory, McGregor's "X" , "Y", William Ouchi's "Z" Theory - Herzberg's two factor theory and Vroom's valence expectancy theory – Mcclelland's Need Achievement theory **(20Hours)**

.

UNIT IV

Labour Relation – Functions of Trade Unions – Forms of collective bargaining-Workers' participation in management – Typesandeffectiveness **(15Hours)**

UNIT V

Industrial Disputes and Settlements (Laws Excluded) – Settling Industrial Disputes in India – Arbitration – Adjudication–Settlement. **(15Hours)**

Prescribed Texts:

1. Essentials of Human Resource Management and Industrial Relations- P.SubbaRao – 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 – McGrawHill

Reference Books

1. Human Resource Management – Garry Deseler -11th Edition – PearsonInternational
2. Human Resource Management- ByDrCharmine E.J. Härtel,Dr Yuka Fujimoto– 2ndEdition

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)

DEPARTMENT OF B.COM (Bank Management)
BACHELOR OF COMMERCE

Regulations and Syllabus
(For the Candidates admitted in 2018 - 2019 and thereafter)

DEPARTMENT OF B.COM (BANK MANAGEMENT)

COURSE STRUCTURE 2018-2019 BATCH (Onwards)

Semester I

Part	Course Component	Subject Name	Cdt.	Hrs	CIA	ESE	Total
I	Language	Language-I	3	6	50	50	100
II	English	English I	3	6	50	50	100
III	Core I	Financial Accounting	4	5	50	50	100
III	Core II	Principles of Management	4	5	50	50	100
III	Allied I	Business Communication	5	6	50	50	100
IV	NME	Analytical and Logical reasoning	2	2	50	50	100
IV	Tamil/Adv. Tamil	Basic Tamil-I/ Adv. Tamil					
IV	Skill Based Subjects	Soft Skill I: Listening and speaking skills	3	-	50	50	100
Total Credits - 24, Total Hours/ week- 30							

Semester II

Part	Course Component	Subject Name	Cdt.	Hrs	CIA	ESE	Total
I	Language	Language-II	3	6	50	50	100
II	English	English II	3	6	50	50	100
III	Core III	Business and Corporate laws	4	5	50	50	100
III	Core IV	Theory of Money and Banking	4	5	50	50	100
III	Allied II	Business Economics	5	6	50	50	100
IV	NME	Basics of Business Insurance	2	2	50	50	100
IV	Tamil/Adv. Tamil	Basic Tamil-II/ Adv. Tamil					
IV	Skill Based Subjects	Soft Skill II: Reading and writing skills	3	-	50	50	100
Total Credits - 24, Total Hours/ week- 30							

Semester III

Part	Course Component	Subject Name	Cdt.	Hrs	CIA	ESE	Total
I	Core V	Marketing Management	4	5	50	50	100
II	Core VI	Corporate Accounting	4	6	50	50	100
III	Core VII	Banking theory law and practice	4	6	50	50	100
III	Core VIII	Entrepreneurial Development	4	5	50	50	100
III	Allied III	Business statistics and Operations Research - I	5	6	50	50	100
IV	Skill Based Subjects	Personality Enrichment	3	2	50	50	100
Total Credits - 23, Total Hours/ week- 30							

DEPARTMENT OF B.COM (GENERAL)

COURSE STRUCTURE 2018-2019 BATCH (Onwards)

Semester IV

Part	Course Component	Subject Name	Cdt.	Hrs	CIA	ESE	Total
I	Core IX	International Economics	4	5	50	50	100
II	Core X	Financial Services	4	5	50	50	100
III	Core XI	Advanced Corporate Accounting	4	5	50	50	100
III	Core XII	Human Resource Management	4	5	50	50	100
III	Allied IV	Business Statistics and Operations Research – II	5	6	50	50	100
IV	Skill Based Subjects	Computing skills	3	2	50	50	100
IV	EVS	Environmental studies	2	2			
Total Credits - 26, Total Hours/ week- 30							

Semester V

Part	Course Component	Subject Name	Cdt.	Hrs	CIA	ESE	Total
I	Core XIII	International Banking	4	5	50	50	100
II	Core XIV	Cost Accounting	4	5	50	50	100
III	Core XV	Financial Management	4	6	50	50	100
III	Core XVI	Practical Auditing	4	6	50	50	100
III	Elective I	Personal Investment Planning	5	6	50	50	100
IV	Value Education	Value Education	2	2	50	50	100
Total Credits - 23, Total Hours/ week- 30							

Semester VI

Part	Course Component	Subject Name	Cdt.	Hrs	CIA	ESE	Total
I	Core XVII	Business Taxation	4	6	50	50	100
II	Core XVIII	Management Accounting	4	6	50	50	100
III	Core XIX	Credit and Risk Management in Banking	4	6	50	50	100
III	Elective II	Customer Relationship Management	5	6	50	50	100
III	Elective III	Project	5	6	50	50	100
IV	Extension activities		1	-	50	50	100
Total Credits - 23, Total Hours/ week- 30							
Grand Total Credits - 143, Grand Total Hours/ week- 180							

SEMESTER I

CORE I

PAPER TITLE: FINANCIAL ACCOUNTING

SUBJECT CODE :17UCBMC01	**THEORY & PROBLEMS**	**MARKS:100**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 5**

COURSE OBJECTIVES:

- To familiarize the students with the basic concepts, standards and practices of financial accounting.
- To get the basic skills in financial accounting for the beginners.

UNIT I (20 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 (20 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 (18 Hours)

Classification of errors – Rectification of errors – Preparation of Suspense Account. Bank Reconciliation Statement.

UNIT IV (17 Hours)

Depreciation – Meaning, Causes, Types – Straight Line Method – Written Down Value Method, Insurance claims – Average Clause (Loss of stock & Loss of Profit)

UNIT V (15 Hours)

Single Entry – Meaning, Features, Defects, Differences between Single Entry and Double Entry System – Statement of Affairs Method – Conversion Method

PRESCRIBED BOOKS

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.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	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**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Problems
Section A	Unit – 1	2	1
	Unit – 2	1	1
	Unit – 3	2	
	Unit – 4	2	1
	Unit – 5	1	1
Section B	Unit – 1	1	1
	Unit – 2		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 II
PAPER TITLE: PRINCIPLES OF MANAGEMENT

SUBJECT CODE :17UCBMC02	**THEORY**	**MARKS:100**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 5**

COURSE OBJECTIVES:

- To inculcate the principles and practices of management with relevance to today's corporate scenario.
- To develop an awareness of multiple approaches that can be used to resolve managerial issues and problems.

UNIT I (20 Hours)

Management: Importance – Definition – Nature and Scope of Management Process – Role and Functions of a Manager – Levels of Management – Development of Scientific Management and other Schools of thought and approaches.

UNIT II (15 Hours)

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 (15 Hours)

Organisation: Types of Organisations – Organisation Structure – Span of Control and Committees – Departmentalisation – Informal Organisation- Authority – Delegation – Decentralisation – Difference between Authority and Power – Responsibility.

UNIT IV (15 Hours)

– Recruitment – Sources, Selection, Training – Direction – Nature and Purpose. Co-ordination-Need, Type and Tachniques and requisites for excellent co-ordination-Controlling-Meaning and importance – Control Process.

UNIT V (10 Hours)

Definition of Business ethics – Types of Ethical issues – Role and importance of Business Ethics and Values in Business – Ethics internal – Ethics External – Environment Protection – Responsibilities of Business.

PRESCRIBED BOOKS:

1. C.B.Gupta, Management Theory & Practice - Sultan Chand & Sons – New Delhi, 16^{th} 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.Jayasankar, Business Management - Margham Publications -Chennai

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	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**

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		
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

ALLIED I
PAPER TITLE: BUSINESS COMMUNICATION

SUBJECT CODE :17UCBMA01	**THEORY**	**MARKS:100**
SEMESTER: I	**CREDITS: 5**	**TOTAL HOURS: 6**

COURSE OBJECTIVES:

- To inculcate the need and importance of communication with relevance to today's business scenario.
- To improve the ability to write well-worded and persuasive resumes and other business communication.

UNIT I (15 Hours)

Definition – Methods – Types – Principles of effective Communication – Barriers to Communication – Business Letter – Layout.

UNIT II (15 Hours)

Kinds of Business Letters: Interview – Appointment – Acknowledgement – Promotion – Enquiries – Replies – Orders – Sales – Circular – Complaints.

UNIT III (15 Hours)

Bank Correspondence – Insurance Correspondence – Agency Correspondence – Correspondence with Shareholders, Directors.

UNIT IV (15 Hours)

Reports Writing – Agenda, Minutes of Meeting – Memorandum – Office Order – Circular – Notes.

UNIT V (15 Hours)

Modern Forms of Communication: Fax – E-mail – Video Conferencing – Internet – Websites and their use in Business.

PRESCRIBED BOOKS:

1. Rajendra Pal and Korlahalli, Essentials of Business Communication- Sultan Chand & Sons, New Delhi.
2. N.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.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	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**

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		
	Unit – 4	1	
	Unit - 5	1	

NON-MAJOR ELECTIVE 1
ANALYTICAL AND LOGICAL REASONING

SUBJECT CODE :17UNME01A	**THEORY**	**MARKS : 100**
SEMESTER : I	**CREDITS : 2**	**No. OF HOURS PER WEEK : 2**

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 III
PAPER TITLE: BUSINESS AND CORPORATE LAWS

SUBJECT CODE :17UCBMC03	**THEORY**	**MARKS:100**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 5**

COURSE OBJECTIVES:

- Inherit the knowledge about the legal methodology involved in business by the students.

UNIT I (18 hours)

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 contact- Remedies for breach of contract- Quasi contracts (general contract- Sections 1 to 75) contract of Indemnity- Guarantee- Bailment and pledge- Contract of agency

UNIT III (12 hours)

Sales of goods Act- definition- Sale-Agreement to sell- Distinction between sale and agreement of 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)

Foreign Exchange Management Act 1999 (FEMA) – Information Technology Act – Intellectual Property Rights Act (IPRA).

PRESCRIBED BOOKS:

1. Business Laws – N.D. Kapoor.
2. Legal Systems in Business – P. Saravanavel , S. Sumathi

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.
4. Students guide to Mercantile Law – Kapoor Taxman Publications Pvt. Ltd.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	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**

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	1	
	Unit – 5	2	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5		

CORE IV
PAPER TITLE: THEORY OF MONEY AND BANKING

SUBJECT CODE :17UCBMC04	**THEORY**	**MARKS:100**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 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 – Qualitative 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.

PRESCRIBED BOOKS

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. M.C.Vaish, Money, Banking trade and Public Finance, 3rd Updated Edition.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	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**

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	1	
	Unit – 5	2	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4		
	Unit - 5	1	

ALLIED II
PAPER TITLE: BUSINESS ECONOMICS

SUBJECT CODE :17UCBMA02	**THEORY**	**MARKS:100**
SEMESTER: II	**CREDITS: 5**	**TOTAL HOURS: 6**

COURSE OBJECTIVES:

- To introduce the student to the fundamentals of micro and macro economic theory and practice as they are applied to business in a managerial context.
- To explain the forces that shape the external environment of the firm such as aggregate demand, economic cycles, inflation, and the role that demand management Policies play in the economy and their impact on the firm's operations.

UNIT I (30 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 (22 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 (17 Hours)

Consumer Behaviour : Law of Diminishing Marginal utility – Equimargianl Utility – Indifference Curve – Definition, Properties and equilibrium.

UNIT IV (18 Hours)

Production: Law of Variable Proportion – Laws of Returns to Scale – Producer's equilibrium – Economies of Scale.Cost Classification – Break Even Analysis.

UNIT V (18 Hours)

Product Pricing: Price and Output Determination under Perfect Competition, Monopoly – Discriminating monopoly – Monopolistic Competition – Oligopoly – Pricing objectives and Methods.

PRESCRIBED BOOKS

1. S.Sankaran, Business Economics - Margham Publications - Ch -17
2. P.L. Mehta, Managerialo Economics – Analysis, Problems & Cases - Sultan Chand & Sons - New Delhi – 02.
3. Francis Cherunilam, Business Environment - Himalaya Publishing House -Mumbai – 04.

REFERENCE BOOKS

1. Peter Mitchelson and Andrew Mann, Economics for Business - Thomas Nelson Australia -Can -004603454.
2. C.M.Chaudhary, Business Economics - RBSA Publishers - Jaipur - 03.
3. H.L. Ahuja, Business Economics – Micro & Macro - Sultan Chand & Sons - New Delhi – 55.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	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**

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	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4		
	Unit - 5	1	

NON MAJOR ELECTIVE – II
BASICS OF BUSINESS INSURANCE

SUBJECT CODE : 16UNME02P	THEORY	MARKS:100
SEMESTER: II	CREDITS: 2	TOTAL HOURS: 2

COURSE OBJECTIVES:

- To expose the students to various types of insurance.
- To make the students understand the working players in insurance in India

UNIT I (6 hours)

Introduction to insurance- types of insurance- principles of insurance.

UNIT II (6 hours)

Salient features of IRDA Act- administration of IRDA act- regulatory measures of IRDA.

UNIT III (6 hours)

Life insurance products- term, whole life, endowment.

UNIT IV (6 hours)

Introduction to general insurance- fire, marine and mototr insurance.

UNIT V (6 hours)

Government and insurance companies- LIC India- Private players in insurance in India.

RECOMMENDED BOOKS:

1. .Dr. N.Premavathy- elements of insurance, Sri Vishnu publications, Chennai
2. Dr. A.Murthy- elememts of insurance,Margham publications

Question Paper Pattern:

Section	Question Component	Marks	Total
A	Answer ANY 5 out of 10 questions	20	**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

CORE V
PAPER TITLE: MARKETING MANAGEMENT

SUBJECT CODE :16UCBMC05	**THEORY**	**MARKS:100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 5**

COURSE OBJECTIVES

1. To inculcate the need and importance of marketing with relevance to today's business scenario.
2. To enhance the knowledge of the basic factors and elements in marketing.

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 and industrial goods- buying motives-Introduction to– Factors influencing buyer Behaviour, 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, Objective, 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 Agricultural goods – Levels of channels: Zero level, one level, two levels and three level channel- Distribution issues-online Marketing

PRESCRIBED 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*.

RECOMMENDED 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.

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	20-23	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	1	
	Unit – 4	1	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2		
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE VI
PAPER TITLE: CORPORATE ACCOUNTING

SUBJECT CODE :16UCBMC06	**THEORY & PROBLEMS**	**MARKS:100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 6**

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 (18 hours)

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

UNIT II (17 hours)

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

UNIT III (20 hours)

Preparation of company final accounts – Company balance sheet (as per revised schedule) (simple problems only)

UNIT IV (15hours)

Valuation of Shares : net assets method, yield method- valuation of goodwill: average profit method, super profit method and capitalization method. (simple problems only)

UNIT V (20 hours)

Alteration of Share Capital and Internal Reconstruction and Reduction of Capital.

PRESCRIBED BOOKS:

1. T.S. Reddy A. Murthy Corporate Acconting, 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	01-12	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**

Distribution of Questions:

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

CORE VII
PAPER TITLE: BANKING THEORY LAW AND PRACTICE

SUBJECT CODE :16UCBMC07	**THEORY**	**MARKS:100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 6**

COURSE OBJECTIVES:

- To introduce the students to the basic concept of banking as a financial intermediation service and bank as a financial institution.
- To enable the students to have knowledge in the latest advancements in the field of banking and its related services.

UNIT -I (20 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)

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 –III (18 Hours)

Opening of an Account – Types of Deposit Account – Types of Customers (individuals, firms, Trusts, and Companies) – Importance of customer relations – Customer grievances and redressal – Ombudsman.

UNIT-IV (12 Hours)

Principles of Lending – Types of Borrowings – Precautions to be taken by a banker.

UNIT-V (20 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.

PRESCRIBED 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.

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	**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 VIII
PAPER TITLE: ENTREPRENEURIAL DEVELOPMENT

SUBJECT CODE : 16UCBMC08	**THEORY**	**MARKS:100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 5**

COURSE OBJECTIVES:

- To create an awareness of the importance of entrepreneurship opportunities available in the society for the entrepreneur.
- To aquaint them with the challenges faced by the entrepreneur in the present scenario and the role of Government in fostering entrepreneurial development programmes.

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 Organisation – 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, 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. Srinivasan N.P. – Entrepreneurial Development
2. Saravanavel – Entrepreneurial Development
3. Vasant Desai – Project management

REFERENCE BOOKS :

1. Jayashree Suresh – Entrepeneurial development
2. Holt – Entrepreneurship – New Venture Creation
3. J.S. Saini& S.I. Dhameja – Entrepreneurship and small business.
4. P.C. Jain – Handbook for New Entrepreneurs
5. Dr. C.B. Gupta & Dr. S.S. Khanka – Entrepreneurship and Small Business.

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 6questions	21-25	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	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	

ALLIED III
PAPER TITLE: BUSINESS STATISTICS AND OPERATIONS RESEARCH I

SUBJECT CODE :16UMATA18	**THEORY & PROBLEMS**	**MARKS:100**
SEMESTER: III	**CREDITS: 5**	**TOTAL HOURS: 6**

COURSE OBJECTIVES:

- To introduce basic concepts of statistics and understand statistical techniques used for business data anaylsis.
- To give an insight into operations research, techniques used in business for crtitical 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, sub-divided bar diagram, Deviation bar diagram, Histogram, Pie diagram - Measures of Central tendency – Mean, median and mode.

UNIT – II: (20 Hours)

Measure 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–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. 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
   http://people.brunel.ac.uk/~mastjjb/jeb/or/contents.html
2. www.e-booksdirectory.com
3. www.bookboon.com/en/statistics-and mathematics-ebooks
4. 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 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	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		
	Unit - 5		1

SEMESTER IV

CORE IX
PAPER TITLE: INTERNATIONAL ECONOMICS

SUBJECT CODE :16UCBMC09	**THEORY**	**MARKS:100**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 5**

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'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 .

PRESCRIBED BOOKS:

1. Dr.S. Sankaran, International Economics, Margham Publications, Chennai.
2. Francis Cherunilam, International Trade and Export Management - Himalaya Publishing House - Mumbai – 04.

RECOMMENDED TEXTS:

1. Paul.R.Krugman and Maurice Obstfeld, International Economics (Theory and Policy) - Pearson Education Asia - Addison Wesley Longman (P) Ltd -Delhi – 92.
2. Robert J.Carbaugh, International Economics - Thomson Information Publishing Group - Wadsworth Publishing Company - California.
3. H.G. Mannur, International Economics – Vikas Publishing House (P) Ltd - New Delhi - 14.

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	3	
	Unit – 3	2	
	Unit – 4	3	
	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	

CORE X
PAPER TITLE: FINANCIAL SERVICES

SUBJECT CODE :16UCBMC10	**THEORY**	**MARKS:100**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 5**

COURSE OBJECTIVES:

- To impart knowledge about the various financial services.
- To have a knowledge of venture capital and mutual funds.

UNIT – I: (13 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: (15 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: (12 Hours)

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, 3rdEdition , 2004,Tata McGraw Hill Publications.
2. Financial Services – B.Santhanam, Margham Publications.
3. Financial services – K.S. Dinesh Kumar, ShriSai Publishers' Distributors, 2014.

RECOMMENDED BOOKS

1. Law of Insurance – Dr.M.N. Mishra,2014, Sultan Chand Publications.
2. Indian Financial System – H.r.Machiraju, 4thEdition ,2010, Vikas Publications

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	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
PAPER TITLE: ADVANCED CORPORATE ACCOUNTING

SUBJECT CODE :18UCBMC11	**THEORY & PROBLEMS**	**MARKS:100**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 5**

COURSE OBJECTIVES:

- To prepare financial statements of special types of businesses viz banks, insurance and holding and subsidiary companies.
- 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 (18 hours)

Final statements of Banking companies

UNIT IV (16 hours)

Liquidation - Statement of affairs(only theory) and Liquidator's Final statement of Account.

UNIT V (5 hours)

Final statements of Insurance companies (As per New provisions).

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PRESCRIBED BOOK:

1. T.S. Reddy and A. Murthy Corporate Accounting margham publication Chennai.

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 Ludhi No Space anaKalyani Publishers.
3. M.C. Shukla and J.S. Grewal, Advanced Accounts, New Delhi, S. Chand and Company.

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 7questions	13-19	6	**30**
Section C	**Essay** Answer any 2 out of 4 questions	21-23	20	**40**

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 XII
PAPER TITLE: BUSINESS TAXATION

SUBJECT CODE : 17UCBMC17	**THEORY**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 4**	**NO. OF HOURS PER WEEK : 5**

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 (20 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 (20 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 (20 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)

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	3	30
Section B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	6	30
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	

ALLIED: IV BUSINESS STATISTICS AND O.R.-II

SUBJECT CODE:16UMATA24	**THEORY & PROBLEMS**	**100 MARKS**
SEMESTER: IV	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES:

- 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)

Time Series Analysis – Secular trend: Graphic or free hand method, Method of semi average, Moving average and Method of least squares -Seasonal variation: Method of simple average only.

UNIT - II: (15 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.

UNIT - III: (20 Hours)

Probability- addition and multiplication theorem- sampling techniques- types of sample and sampling procedures- test of significance- t, chi-square test only (simple problems only).

UNIT - IV: (20 Hours)

Assignment Problems: Minimisation, Maximisation case in assignment problem. Travelling salesman problem, unbalanced assignment problem.

UNIT - V: (20 Hours)

Transportation Problems: North West Corner Method (NWCM) – Lowest Cost Entry Method (LCM), Vogel's Approximation Method (VAM) and MODI Method.

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	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	1	1
	Unit – 4	1	1
	Unit – 5	1	1
Section B	Unit – 1		1
	Unit – 2		2
	Unit – 3		1
	Unit – 4	1	1
	Unit – 5	1	1
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		
	Unit – 4		1
	Unit - 5		1

ENVIRONMENTAL STUDIES

SUBJECT CODE: 16UEVS401	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**

SEMESTER V

CORE XIII
PAPER TITLE: INTERNATIONAL BANKING

SUBJECT CODE :17UCBMC13	**THEORY**	**MARKS:100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 6**

COURSE OBJECTIVES:

- The aim is to introduce the subject of international banking to the students and make them aware of the banking system internationally.
- To equip the students with global knowledge about banking sector

UNIT I **(**16 hours)

International Banking vis – a – vis Domestic Banking – Foreign Trade Financing – International Financial Transactions: Lending and Borrowing across borders.

UNIT II (20 hours)

Foreign Exchange: Market; rate and Currency – Exchange rate determination under Fixed exchange rate and Floating exchange rate regimes – Determination of exchange rates :Spot and Forward – Basic exchange arithmetic – Forward Cover and Hedging. (20 hours)

UNIT III (18 hours)

International Financial Institutions and Functions: World Bank :IMF: Asian Development Bank – International Financial Corporation: International Development Association.

UNIT IV (20 hours)

Sources of Foreign Exchange – Export Earnings – Invisible Export Earnings – Role of NRI Remittances – Foreign Direct Investment – Foreign Institutional Investment – External Commercial Borrowings – Global Depositors Receipts – Offshore Borrowings.

UNIT V (16 hours)

Foreign Exchange Management – Composition of Foreign Exchange Reserves: Foreign Currencies – Gold and SDR – Current Account Convertibility – Capital Account Convertibility and Precautions.

REFERENCE BOOKS:

1. International Banking – IIB
2. International Corporate Finance – IIB
3. Frederic S. Mishkin, "Understanding Financial Crisis : A Developing Country
4. Perspective", In, Michael Bruno, ed. Annual World Bank Conference on Development Economics", 1996.
5. Introduction to Foreign Trade, Foreign Exchange Risk Management – IIB

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:

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	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2		
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE XIV
PAPER TITLE: COST ACCOUNTING

SUBJECT CODE:17UCBMC14	**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 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

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 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	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:

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		2
	Unit – 5		1
Section C	Unit – 1	1	
	Unit – 2		1
	Unit – 3		1
	Unit – 4		
	Unit - 5		1

CORE XV

PAPER TITLE: FINANCIAL MANAGEMENT

SUBJECT CODE:17UCBMC15	**THEORY&PROBLEM**	**MARKS : 100**
SEMESTER: V	**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.

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 – M.M. Hypothesis)

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 TEXTS

1. Financial Management – Dr. A. Murthy – MargahamPublications
2. Financial Management – S.N.Maheswari

REFERENCE BOOKS:

1. Financial Management - I.M.Pandey
2. Dalston L. Cecil, Financial Management, Learn Tech press, Trichy, 2nd Edition2015
3. Financial Management – PrasannaChandra
4. Financial Management – Y. Khan andJain

Web Reference

1. http://fpacert.afponline.org/Ref/
2. http://www1.worldbank.org/publicsector/pe/oecdpemhandbook.pdf

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 1200 words)	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	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 XVI
PAPER TITLE: PRACTICAL AUDITING

SUBJECT CODE :17UCBMC16	**THEORY**	**MARKS:100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 6**

COURSE OBJECTIVES:

- To impart knowledge pertaining to basic concepts of auditing.
- To acquaint oneself with auditing procedure and report writing.

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 (15 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- Distinguish reserves and provision – Depreciation of wasting Assets.

UNIT IV (15 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 – 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.

PRESCRIBED BOOK

1. Practical Auditing-Dinakar Pagare, Margham Publications.

REFERENCE BOOKS :

1. Auditing – D.P. Jain KonarkPublishersPvt. 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.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	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**

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		
	Unit – 4	1	
	Unit - 5	1	

ELECTIVE I
PAPER TITLE: PERSONAL INVESTMENT PLANNING

SUBJECT CODE:16UCBME01	**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 - PRACTICAL COMPONENT

Analysing the opportunities of investment applicable to the current scenario- Developing personal investment pattern for individuals.

REFERENCE BOOKS

- Study Material
- Investment Management by L.Natarajan, Morgan publications,2007
- Investment Management by Hiriappa, New age international publications,2008

WEBSITES

- www.personalfinance.byu.edu
- www.halifax.co.uk./investments/pdfs/sw51813.pdf
- 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	01-12	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**

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	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5		

SEMESTER VI

CORE XVII
PAPER TITLE: HUMAN RESOURCE MANAGEMENT

SUBJECT CODE : 17UCBMC12	**THEORY**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

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 (15 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	

CORE XVIII

PAPER TITLE- MANAGEMENT ACCOUNTING

SUBJECT CODE :17UCBMC18	**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 XIX
PAPER TITLE: CREDIT AND RISK MANAGEMENT IN BANKING

SUBJECT CODE :16UCBMC19	**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.

RECOMMENDED TEXTBOOKS

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

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	3	-	2	-	2	-
IV	2	-	1	-	1	-
V	2	-	1	-	1	-
Total	12	-		-	6	-
Section a 1 - 12			**Section b - 7**		**Section c - 6**	

ELECTIVE II
PAPER TITLE: CUSTOMER RELATIONSHIP MANAGEMENT

SUBJECT CODE:16UCBMC02	**THEORY**	**100MARKS**
SEMESTER: VI	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 6**

(Common to B.COM (BM), BBA)

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.

RECOMMENDED BOOKS:

1.H.Peeru Mohamed & A. Sangadevan , Customers Relationship Management - A Step –by – step approach , Vikas Publishing House Private Limited , Noida .

2. MukeshChaturvediAbhinav ,Chaturvedi , Customers Relationship Management – An Indian Perspective , Excel Books , 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	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	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	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

ELECTIVE 3 – Project

SUBJECT CODE: 16UCBME03	**THEORY AND PRACTICAL**	**MARKS : 100**
SEMESTER: VI	**CREDITS : 5**	**NO. OF HOURS PER WEEK : 6**

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 2018 -2019 and thereafter)

GURU NANAK COLLEGE (AUTONOMOUS)
B.COM (GENERAL) SEMESTER SYSTEM WITH CREDITS - COURSE STRUCTURE 2018-2019

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***

B.COM (GENERAL) SEMESTER SYSTEM WITH CREDITS - COURSE STRUCTURE 2018-2019

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 & 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.

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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.

https://books.google.co.in/books?isbn=0070220883
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

https://books.google.com/books?isbn=0538450150
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.

https://books.google.co.in/books?isbn=8131754510
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

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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

https://books.google.**co**.in/books?isbn=0199608024
https://books.google.**co**.in/books?isbn=0582894182
https://books.google.**co**.in/books?isbn=8171567312

Core Paper-11 GOODS & SERVICE TAX AND CUSTUMS LAWS

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.

https://books.google.com/books?isbn=8131731596
https://books.google.com/books?isbn=8180692183
https://books.google.com/books?isbn=0070153345

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 th
3. Donald R Cooper, Business Research Methods 7 Ed, McGraw Hill
4. Krishnaswami OR, Methodology of Research for Social Science, Himalaya, Mumbai

https://books.google.co.in/books?isbn=8122415229
https://books.google.co.in/books?isbn=8131301362
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. Saxena and Vashist – Cost Accounting.
6. 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 – 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.

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https://books.google.co.in/books?isbn=5877373412
https://books.google.co.in/books?isbn=8170231868

SEMESTER-V

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.

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=1285974859
https://books.google.co.in/books?isbn=813175426X

GURU NANAK COLLEGE (AUTONOMOUS), CHENNAI – 6000 042
(Effective for the batch of candidates admitted from 2018-2019)

DEPARTMENT OF BCOM CORPORATE SECRETARYSHIP

COURSE STRUCTURE – (2018-2021)

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 Law	5	4
	III	Entrepreneurial Development (**Application Oriented Subject**)	6	5
	IV	Value Education	2	2
VI	III	**Core – XIII** Cost Accounting	6	4
	III	**Core –XIV** Industrial Law	6	4
	III	**Core –XV** Income Tax Law & Practice-II	6	4
	III	**Core paper-XVI** Goods and Services Tax & Customs Law	6	4
	III	Institutional Training (**Application oriented**	6	6
	IV	Extension Activities		1
TOTAL				**140**

QUESTION PAPER PATTERN:(THEORY PAPERS)

SECTION	QUESTION COMPONENT	NUMBERS	MARKS	TOTAL
A	**Definition/Principle** Answer ANY 10 out of 12 questions (each in 50words)	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 600 words)	21-26	10	**40**
			TOTAL	**100**

QUESTION PAPER PATTERN:(PROBLEM 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	8	40
SECTION-C	**ESSAY** Answer any 2 out of 4 questions (each in 1200 words)	20-23	20	40
Total				100

Problems oriented subjects

Distribution of marks

Theory - 20 Marks

Problems - 80 Marks

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.

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)

UNIT- IV

Single Entry – Meaning, features, Defects, Differences between Single Entry and Double Entry System – Statement of Affairs Method – Conversion Method

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: 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 modern company 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 of Secretary – 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: 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/ PRACTICAL	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

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")

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.

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: 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

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: 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.

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

Classification and Tabulation of Data – Types and Importance – Presentation of Data including Diagrammatic and Graphical methods – Bar Diagram, Pie Diagram, Histogram and Ogive. Frequency Distribution – Frequency Table – Structure and Formation – Discrete and Continuous Series.

UNIT–III

Measures of Central Tendency / Averages – Arithmetic Mean, Median, Quartiles, Deciles, and Percentiles. Mode, Geometric Mean, Harmonic Mean, Combined Mean and Weighted Mean.

UNIT–IV

Measures of Dispersion – Range, Quartile Deviation, Mean Deviation and Standard Deviation – Co-efficient of Variation.

UNIT–V

Measures of Skewness – Meaning, Definition and Types – Karl Pearson's coefficient of Skewness and Bowley's Coefficient of Skewness.

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/ PRACTICAL	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)

UNIT – IV

Absorption and External Reconstruction of a company – Meaning - Calculation of Purchase Consideration -(Intercompany Investments Excluded)

UNIT –V

Liquidation – Meaning – Order of Payment – Liquidator's' Remuneration - Liquidator's Final Statement of Receipts and Payments (Statement of Affairs Excluded)

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: CORPORATE GOVERNANCE

SUBJECT CODE:	THEORY	100 MARKS

SEMESTER: IV **CREDITS:4** **NO. OF HOURS PER WEEK: 05**

COURSE OBJECTIVES:

To impart the basic knowledge of Compliance Procedures, Corporate Social Responsibility, Due Diligence, Audit Committees etc.,

UNIT – I CORPORATE GOVERNANCE:

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 AC 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: 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. Regression Analysis – Meaning and Importance – Regression Equations.

UNIT – II

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 – III

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.

UNIT–IV

Interpolation and Extrapolation – Definition and Uses - Newton's, Lagrange and Binomial Expansion methods.

UNIT – V

Statistical Quality Control – Meaning – Need –Causes for Variations– Quality Control Charts

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.

EVS: ENVIRONMENTAL STUDIES SYLLABUS

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.MahaintaK.Kalita – Asiau Books.

SEMESTER: V

CORE IX: MANAGEMENT ACCOUNTING

SUBJECT CODE:	THEORY/ PRACTICAL	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.Hari Prasad Reddy- Margham publilcaitons**
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 – Learn Tech 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/PRACTICAL	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.Vinod K.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 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:

Contract of Agency – Essentials – creation of agency – Kinds of Agents – Agent Authority – Duties and Rights of Principal – Agent when personally liable – Delegations of Authority – Sub-Agent – Substituted Agent – Termination of Agency – Irrevocable Agency.

UNIT- V:

Law of Sale of Goods – Definition – Sale and Agreement to Sell – Sale and Hire-Purchase – Conditions & Warranties – Duties & Rights of Buyer & Seller – Right of Unpaid Seller – Auction Sale.

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

APPLICATION ORIENTED: ENTREPRENEURIAL DEVELOPMENT

SUBJECT CODE:	THEORY	100 MARKS

SEMESTER: V **CREDITS: 5** **NO. OF HOURS PER WEEK: 06**

COURSE OBJECTIVE:
To Impart the Basic Knowledge on Entrepreneurial Growth and Funding agencies& Women Entrepreneurship

UNIT- I:
Concept of Entrepreneurship – Entrepreneurship – Meaning – Types - Qualities of an Entrepreneur -Classification of Entrepreneurs - Factors influencing Entrepreneurship - Functions of Entrepreneur.

UNIT -II:
Entrepreneurial Development – Agencies - Commercial Banks - (DIC) District Industries Centre – (NSIC) National Small Industries Corporation –(SIDO) Small Industries Development Organization– (SISI) Small Industries Service Institute - All India Financial Institutions (IDBI, IFCI, ICICI, IRDBI)

UNIT -III:
PROJECT MANAGEMENT Business Idea Generation Techniques - Identification of Business Opportunities - Feasibility Analysis - Marketing, Finance, Technology & Legal Formalities - Preparation of Project Report Tools of Appraisal.

UNIT-IV:
Entrepreneurial Development Programmes (EDP) - their role, relevance and achievements - Role of Government in organizing EDPs - critical evaluation.

UNIT-V:
ECONOMIC DEVELOPMENT & 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. Entrepreneurial Development – Dr.C.B.Gupta & S.S.Khauka – Sultan Chand.
2. Entrepreneurial Development - Jayashree Suresh - Marham Publications

REFERENCE BOOKS:
1. Dynamics of Entrepreneurial Development& management – Vasant Desai – Himalaya Publication.
2. Entrepreneurship & Employment – S.B.Verma _ Deep & Deap Publications.

SEMESTER: VI

CORE XIII: COST ACCOUNTING

SUBJECT CODE:	THEORY/PRACTICAL	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: INDUSTRIAL LAW

SUBJECT CODE:	THEORY	100 MARKS

SEMESTER: VI **CREDITS: 4** **NO. OF HOURS PER WEEK: 06**

COURSE OBJECTIVE:

To Impart the Basic Knowledge ofIndustrial Law – Provisions relating to the relationship between the Employer and the Employee.

UNIT- I: FACTORIES ACT 1948

Definitions – Health – Safety – Welfare – Working Hours of Adults – Employment of Women – Employment of Young Persons – Leave with Wages.

UNIT- II: PAYMENTOF WAGES ACT 1936

Definitions – Responsibilities for Payment – wages Periods – Time of Payment – Deductions – Claim for wrongful deductions.

MINIMUM WAGES ACT 1948 Interpretation – Fixing Minimum rates of wages – Procedures for fixing – Committee and Advisory Boards – Payment of Minimum wages – Register and Records – Inspectors – Claims – Penalties & Procedures – The Schedule.

UNIT- III: INDUSTRIAL DISPUTES ACT 1947

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

UNIT- IV:TRADE UNION ACT 1926

Growth & Functions of Trade Unions - Definitions – Agreements not affected by the Act – Registration – Rights & Privileges, Duties & Liabilities of a Registered Trade Union – General & Special Fund -Amalgamation & Dissolution of Trade Union

THE CONTRACT LABOUR (REGULATION & ABOLITION) ACT 1970 Scope & Application of the Act – Act not to apply to certain establishments – Definitions – Registration of Establishments employing Contract Labour – Licensing of Contractors – Welfare & Health of Contract Labour – Penalties & Procedure

UNIT V: THE WORKMEN COMPENSATION ACT 1923

Need for the Act – Scope & Coverage of the Act – Definitions – Employer's liability for Compensation (Section 3) including Theory of Notional Extension & Occupational Diseases – Defences available to Employer – Amount & Distribution of Compensation – Notice & Claim – Medical Examination - Obligations & Rights of Employers & Employees - Schedules to the Act

PRESCRIBED BOOKS:

1. Industrial Law- N.D.Kapoor –Sultann Chand.
2. Labour Industrial Law- Dr.G.Goswami – Central Law Agency.

REFERENCE BOOKS:

1. Labour & Industrial Law – Dr.H.K.Saharay –Universal Law Publications.
2. Labour & Industrial Law – K.M.Pillai – Allahabad Law Agency.

SEMESTER: VI

CORE XV: INCOME TAX LAW & PRACTICE-II

SUBJECT CODE:	THEORY/PRACTICAL	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 Provisons & 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.Vinod K.Sign Hania& Dr.Monica Sighania – Taxmann.
2. Income tax service tax & VAT – Dr.GirishAhuja & Dr.Ravi Gupta – Bharat law house.

SEMESTER: VI

CORE XI – Goods and Services Tax & Customs Law

SEMESTER: VI **CREDITS: 4** **NO. OF HOURS PER WEEK: 06**

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, 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.

Web References: http://www.idtc.icai.org/gst.html
http://idtc.icai.org/gst-topic-wise-study-material-list.html

SEMESTER: VI APPLICATION ORIENTED:
INSTITUTIONAL TRAINING

SUBJECT CODE:	THEORY/PRACTICAL	100 MARKS

SEMESTER: VI **CREDITS: 6** **NO. OF HOURS PER WEEK: 06**

COURSE OBJECTIVE:

To Provide the **PRACTICAL KNOWLRDGE** in **Corporate Management; Office Administration and Secretarial Practices** by deputing the Students to the Public Limited Companies and other Similar Organisations.

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 is 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, equipments, postal and mailing services and equipments.
4. Acquaintance with office machines and equipments 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 the 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.,

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 appear for Viva Voce Exam for evaluation)

GURU NANAK COLLEGE

(AUTONOMOUS)

Guru Nanak Salai, Velachery, Chennai – 600 042

Re-accredited at 'A - Grade' by NAAC

(Affiliated to the University of Madras)

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BACHELOR OF COMMERCE
B.COM (HONOURS)

SYLLABUS

(For the candidates admitted 2018-2021 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 mould 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: Analyse 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

DEPARTMENT OF COMMERCE (HONOURS)

COURSE STRUCTURE – (2018-2021)

Semester	Part	Course Component	Subject Name	Subject Code	Credits	Hours	Marks		Total
							Internal	External	
I	I	**Language**	Language (Tamil/Hindi/ Sanskrit/French)	17UHTAF01/ 16UHHIF01/ 16UHSAF0I/ 16UHFRF01	3	4	50	50	100
	II	**English**	English	16UHENF21	3	4	50	50	100
	III	**CORE I**	Financial Accounting -I	17UHONC01	4	6	50	50	100
		CORE II	Marketing Practice	16UHONC02	4	5	50	50	100
		CORE III	Principles of Management	16UHONC03	4	4	50	50	100
		CORE IV	Business Economics	16UHONC04	4	5	50	50	100
	IV	**NME I**	Basic Tamil/ Analytical and Logical Reasoning	16UBAT401/ 17UNME01A	2	2		100	100
			Internship - I (two weeks)	16UINT401	2				
TOTAL					**26**	**30**			
II	I	**Language**	Language –II (Tamil/Hindi/Sanskrit/French)	17UHTAF02/ 16UHHIF02/ 16UHSAF02/ 16UHFRF02	3	4	50	50	100
	II	**English**	English – II	16UHENF22	3	4	50	50	100
	III	**COREV**	Financial Accounting -II	16UHONC05	4	6	50	50	100
		CORE VI	Banking Theory & Practices	17UHONC06	4	5	50	50	100
		COREVII	Services Marketing	16UHONC07	4	4	50	50	100
		COREVIII	Business Policy &Environment	16UHONC08	4	5	50	50	100
	IV	**NME II**	Basic Tamil/ Fundamentals of Corporate Communication	16UBAT402/ 17UNME02F	2	2		100	100
			Internship - II (four weeks)	16UINT401	4				
TOTAL					**28**	**30**			
	III	**CORE IX**	Corporate Accounting	16UHON09	4	6	50	50	100
		CORE X	Business Law	17UHONC10	4	5	50	50	100
		CORE XI	Business Mathematics	17UHONC12	4	5	50	50	100

III		**CORE XII**	Financial Services	18UHONC11	4	5	50	50	100
		CORE XIII	Logistics and Supply chain Management	17UHONC14	4	5	50	50	100
		CORE XIV	International Trade	16UHONC13	4	4	50	50	100
			Internship - III (two weeks)	16UINT401	2				
TOTAL					**26**	**30**			

	IV	**CORE XV**	Business statistics and Operations Research	17UHONC15	4	5	50	50	100
		CORE XVI	Insurance and Risk Management	16UHONC16	4	4	50	50	100
		CORE XVII	Special Accounts	16UHONC17	4	5	50	50	100
		CORE XVIII	Company Law	16UHONC18	4	5	50	50	100
		CORE XIX	Financial Management	16UHONC19	4	5	50	50	100
		CORE XX	Customer Relationship Management	18UHONC20	4	4	50	50	100
	IV		Environmental Studies	16UEVS401	2	2		100	100
			Internship - IV (four weeks)	16UINT401	4				
	TOTAL				**30**	**30**			

V	**III**	**CORE XXI**	Cost and Management Accounting	17UHONC21	4	6	50	50	100
		CORE XXII	Corporate ethics and Governance	17UHONC22	4	4	50	50	100
		CORE XXIII	Income Tax Law and Practice - I	18UHONC23	4	6	50	50	100
		CORE XXIV	Accounting Standards	17UHONC24	4	5	50	50	100
		CORE XXV	Practical Auditing	16UHONC25	4	5	50	50	100
		CORE XXVI	Research Methodology	16UHONC26	4	4	50	50	100
	IV		Value Education	16UVED401	2			100	100
			Internship - V (two weeks)		2			100	100
	TOTAL				**28**	**30**			

	III	CORE XXVII	Income Tax Law and Practice - II	18UHONC27	4	6	50	50	100
		CORE XXVIII	Human Resource Management	16UHONC28	4	5	50	50	100

VI		CORE XXIX	Security Analysis and Portfolio Management	17UHONC29	4	5	50	50	100
		CORE XXX	Entrepreneurial Development	16UHONC30	4	4	50	50	100
		CORE XXXI	Business Taxation	17UHONC31	4	5	50	50	100
			Project & Viva Voce	16UHON330	8	5			100
			Extension Activities		1				
	TOTAL				29	30			
			GRAND TOTAL CREDITS		167				

SEMESTER-I

CORE I: FINANCIAL ACCOUNTING -I

SUBJECT CODE:17UHONC01	THEORY& PROBLEMS	100 MARKS
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.

UNIT – II **(20 Hours)**

Preparation of Receipt and Payments Account, Income and Expenditure Account and Balance Sheet of Non-Trading Organization

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

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).

UNIT – V **(16 Hours)**

Single Entry – Meaning, features, Defects, Differences between Single Entry and Double Entry System – Statement of Affairs Method – Conversion Method.

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. Shukla, M.C., T.S Grewal and S.C. Gupta, Advanced Accounting, Sultan Chands & Sons, New Delhi.
4. Jain S. P., and K.LNarang,Financial Accounting, Kalyani Publishers, New Delhi

5. P.C.Tulsian, AdvancedAccounting, Tata McGraw Hill, New Delhi
6. Maheswari, S. N. and S. K. Maheswari, Financial Accounting, Vikas Publishing House, New Delhi
7. R.L Gupta &Radhaswamy, Advanced Accounting, (Volume I), Sultan Chands Publication,New Delhi

8. Das K. R., K.M. Sinha, Financial Accounting, Lawyers Book Stall

9. Bhattacharya Ashish, Financial Accounting, Prentice Hall Inc. Ltd

10. Banerjee B.K,Financial Accounting –A dynamic Approach, Prentice Hall of India Private Limited, New Delhi.
11. Hanif M, A. Mukherjee, Financial Accounting, Tata McGraw Hill Publishing Company

QUESTION PAPER PATTERN:

Section	Question Component	Numbers	Marks	Total
Section A	Answer any 10 out of 12 questions	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				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	1	1
	3	1	1
	4	1	1
	5	1	1
SECTION B (Answer any 5 out of 8 questions)	1	1	-
	2	1	-
8 marks each	3	-	2
	4	-	2
	5	-	2
SECTION C (Answer any 2 out of 3 questions) 20 marks each	1	-	1
	2	-	1
	3	-	-
	4	-	1
	5	-	

CORE II: MARKETING PRACTICE

SUBJECT CODE: 16UHONC02	THEORY	100 MARKS
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 **(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 behavior – 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- Price- 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. SaxenaRajan, Marketing Management, Sultan Chands & Sons, New Delhi.
2. Michael, J. Etzel., Bruce J Walker and William J Stanton, Marketing ,13th edition, McGraw Hill, New York
3. Kotler, Philip and Gary Armstrong, Principles of Marketing, 13th edition, Pearson Education, New Delhi.
4. Still and Cundiff, Marketing Management, Prentice Hall Inc. Ltd.,
5. Gupta C. B. and Dr.N.Rajan Nair, Marketing Management, Sultan Chand Ltd., NewDelhi
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	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				100

DISTRIBUTION OF QUESTIONS: (THEORY 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)	1	1	
	2	1	
8 marks each	3	2	
	4	2	
	5	2	
SECTION C (Answer any 2 out of 3 questions) 20 marks each	1	1	
	2	1	
	3	1	
	4		

CORE III: PRINCIPLES OF MANAGEMENT

SUBJECT CODE: 16UHONC03	THEORY	100 MARKS
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 **(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)**

Direction – 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 ,McGraw 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. VasishthNeeru, Principles of Management, Vikas Publishing House

QUESTION PAPER PATTERN:

Section	Question Component	Numbers	Marks	Total
Section A	Answer any 10 out of 12 questions	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				100

DISTRIBUTION OF QUESTIONS: (THEORY 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	1	
	2	1	
	3	2	
	4	2	
	5	2	
SECTION C (Answer any 2 out of 3 questions) 20 marks each	1	1	
	2	1	
	3	1	
	4	-	
	5	-	

CORE IV: BUSINESS ECONOMICS

SUBJECT CODE: 16UHONC04	THEORY	100 MARKS
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 **(16 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 – 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 Capital 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 Michelson and Andrew Mann, Economics for Business, Thomas Nelson Australia -Can - 004603454.
5. Chaudhary, C.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	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				100

DISTRIBUTION OF QUESTIONS: (THEORY 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	1	
	2	1	
	3	2	
	4	2	
	5	2	
SECTION C (Answer any 2 out of 3 questions) 20 marks each	1	1	
	2	1	
	3	1	
	4	-	
	5	-	

NME 1 –ANALYTICAL AND LOGICAL REASONING

SUBJECT CODE: 17UNME01A	THEORY& PROBLEMS	MARKS: 100
SEMESTER: I	CREDITS: 2	TOTAL HOURS: 30

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

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

SEMESTER: II
CORE V: FINANCIAL ACCOUNTING -II

SUBJECT CODE: 16UHONC05	THEORY & PROBLEMS	100 MARKS
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- Installment Purchase System – Meaning, Accounting Treatment

UNIT – II **(18 Hours)**

Branch Accounting- Debtors system, Stock and debtors 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 centers 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. T.S. Reddy &A.Murthy, Financial Accounting Margham Publications, Chennai.
3. Shukla, M.C., T.S Grewal and S.C. Gupta, Advanced Accounting, Sultan Chands & Sons, New Delhi.
4. Jain S. P., and K.LNarang, Financial Accounting, Kalyani Publishers, New Delhi
5. P.C. Tulsian, AdvancedAccounting, Tata McGraw Hill, New Delhi
6. Maheswari, S. N. and S. K. Maheswari, Financial Accounting, Vikas Publishing House, New Delhi
7. R.L Gupta &Radhaswamy, Advanced Accounting, (Volume I), Sultan Chands Publication,New Delhi
8. Das K. R., K.M. Sinha, Financial Accounting, Lawyers Book Stall
9. Bhattacharya Ashish, Financial Accounting, Prentice Hall Inc. Ltd
10. Banerjee B.K, Financial Accounting –A dynamic Approach, Prentice Hall of India Private Limited, New Delhi.
11. Hanif M, A. Mukherjee, Financial Accounting, Tata McGraw Hill Publishing Company.

QUESTION PAPER PATTERN:

Section	Question Component	Numbers	Marks	Total
Section A	Answer any 10 out of 12 questions	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				100

DISTRIBUTION OF QUESTIONS: (PROBLEM PAPERS)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer all 10 questions) 2 marks each	1	1	1
	2	1	1
	3	1	1
	4	1	1
	5	1	1
SECTION B (Answer any 5 out of 8 questions) 8 marks each	1	1	-
	2	1	-
	3	-	2
	4	-	2
	5	-	2
SECTION C (Answer any 2 out of 3 questions) 20 marks each	1	-	1
	2	-	1
	3	-	1
	4	-	-
	5	-	-

CORE VI: BANKING THEORY AND PRACTICES

SUBJECT CODE: 17UHONC06	THEORY	100 MARKS
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 causa – bank customer – special type of customers – bank lending – sources and factors of lending – negotiable instruments

UNIT IV **(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 – grievances 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	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				100

DISTRIBUTION OF QUESTIONS: (THEORY 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	1	
	2	1	
	3	2	
	4	2	
	5	2	
SECTION C (Answer any 2 out of 3 questions) 20 marks each	1	1	
	2	1	
	3	-	
	4	1	
	5	-	

CORE VII: SERVICES MARKETING

SUBJECT CODE: 16UHONC07	THEORY	100 MARKS
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**

UNIT-I **(12 Hours)**

Introduction-characteristics of services, classification of services - distinction between goods and services- growth and future of service sector

UNIT-II **(10 Hours)**

Customer expectations of services- level of expectations, zone of tolerance

UNIT-III **(13 Hours)**

Marketing mix- Service product concepts-supplementary services-new services- Cost of services – Pricing-objectives of pricing-cost based pricing-monetary and non-monetary costs-value based pricing-pricing tactics-applications of pricing

UNIT-IV **(13Hours)**

Promotion –designing the promotional mix-personal selling, advertising, sales promotion, publicity and public relations - Service location-factors affecting choice of service location –Distribution- methods of distributing services, challenges in distribution of services

UNIT-V **(12 Hours)**

People-hiring, training, motivating and retaining employees - Physical evidence-importance of physical evidence in services – services capes – Process-designing and managing service processes

Reference Books:

1. Valarie .A. Zeithaml,etal, 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. Sankar Ravi, Service Marketing -The Indian experience, ManasPublicaitons, New
9. Delhi.
10. Parasuraman,Zeitham and Berry, Delivering Quality Services, The free press Macmillan.
11. Balachandran S., Excellence in services, Business Publishing House, Bombay.
12. Kotler, Philip, Marketing of Non-Profit Organization Prentice Hall of India (P) Ltd.
13. India New Delhi.
14. Balaji. B, Services Marketing & Management, S.Chand& Sons, New Delhi

QUESTION PAPER PATTERN:

Section	Question Component	Numbers	Marks	Total
Section A	Answer any 10 out of 12 questions	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				100

DISTRIBUTION OF QUESTIONS: (THEORY 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	1	
	2	1	
	3	2	
	4	2	
	5	2	
SECTION C (Answer any 2 out of 3 questions) 20 marks each	1	-	
	2	1	
	3	1	
	4	1	
	5	-	

CORE VIII: BUSINESS POLICY AND ENVIRONMENT

SUBJECT CODE: 16UHONC08	THEORY	100 MARKS
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 **(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 I

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	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				100

DISTRIBUTION OF QUESTIONS: (THEORY PAPAERS)

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	1	
	2	1	
	3	2	
	4	2	
	5	2	
SECTION C (Answer any 2 out of 3 questions) 20 marks each	1	1	
	2	-	
	3	1	
	4	1	
	5	-	

NON MAJOR ELECTIVE– II

NME: – FUNDAMENTALS OF CORPORATE COMMUNICATION

SUBJECT CODE: 17UNME02F	THEORY	100 MARKS
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,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, 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: 16UHONC09	**THEORY & PROBLEMS**	**100 MARKS**
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	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				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	-	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	-	2
	4	-	2
	5	-	1
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1	-	1
	2 (Q 20)	-	1
	3	-	1
	4	-	-
	5	-	-

CORE X: BUSINESS LAW

SUBJECT CODE: 17UHONC10	THEORY	100 MARKS
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, TataMcGraw 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	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				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: 17UHONC12	THEORY & PROBLEMS	100 MARKS
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 **(10 Hours)**

Binominal Theorem, Exponential and Logarithmic Series.

Unit – III **(15 Hours)**

Limits and Continuity. Basic concepts of Differential Calculus (excluding trigonometric functions)

Unit – IV **(20 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.

Note: No Theory Questions to be asked

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

QUESTION PAPER PATTERN:

Section	Question Component	Numbers	Marks	Total
Section A	Answer any 10 out of 12 questions	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				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		1
	2		1
	3		
	4		1
	5		

CORE XII: FINANCIAL SERVICES

SUBJECT CODE: 18UHONC11	THEORY	100 MARKS
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 in credit 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

Reference

2. GURUSAMY S, Financial Services, Tata McGraw Hill
3. GURUSAMY S, Merchant Banking and Financial Services, Tata McGraw Hill

4. Khan M Y, Financial Services, Tata McGraw Hill
5. Kothari, Vinod Lease financing & Hire Purchase including consumer credit, Wadhwaand

Company
6. Lee, S J, Venture Capital Manual, Warren Gorham and Lamont Inc., Boston
7. 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	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				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: 17UHONC14	THEORY	100 MARKS
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 (CASE STUDY) **(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. KrishnaveniMuthiah, 'Logistics Management and Seaborne Trade' Himalaya PublishingHouse.
2. D.K. Agarwal, 'Textbook of Logistics and Supply Chain Management', Mac Millan IndiaLtd.
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:

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Section A	Answer any 10 out of 12 questions	1-12	2	20
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Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				100

DISTRIBUTION OF QUESTIONS: (THEORY PAPERS)

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		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:16UHONC13	THEORY	100 MARKS
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, Hechsher–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:

2. Francis Cherunilam, International Trade and Export Management - Himalaya PublishingHouse - Mumbai – 04.
3. Paul.R.Krugman and Maurice Obstfeld, International Economics (Theory and Policy) –Pearson Education Asia - Addison Wesley Longman (P) Ltd. - Delhi – 92.
4. Robert J.Carbaugh, International Economics - Thomson Information Publishing Group Wadsworth Publishing Company - California.
5. 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	1-12	2	20
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Total Marks				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	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: 17UHONC15	PROBLEMS	100 MARKS
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 **(15 Hours)**

Karl's Pearson Correlation-Rank Correlation,Regression. Hypothesis Testing-Small sample test-t,F,chi square test (Without proof)-Simple problems only.

UNIT – III **(20 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 **(10 Hours)**

Introduction to OR-Meaning and Scope-Characteristics-model in OR-LPP-formulation-graphical method-simplex method(less than constraints)

UNIT -V **(15 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

Note: No theory questions should be asked.

WEBSITES:

4. www.freetechbooks.com/mathematics-f38.html
5. www.e-booksdirectory.com
6. www.freebookcenre.net/SpecialCat/Free-Mathematics-Books-Download.html

QUESTION PAPER PATTERN:

Section	Question Component	Numbers	Marks	Total
Section A	Answer any 10 out of 12 questions	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				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		1
	2		1
	3		1
	4		
	5		

CORE XVI: INSURANCE AND RISK MANAGEMENT

SUBJECT CODE: 16UHONC16	THEORY	100 MARKS
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 **(12 Hours)**

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 of Risk Management and Insurance”, 6th Edn, Addison WesleyLong199
8.
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, Akaksha publishing house, New Delhi, 2002.

QUESTION PAPER PATTERN:

Section	Question Component	Numbers	Marks	Total
Section A	Answer any 10 out of 12 questions	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				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	
	4(Q20)	1	
	5	-	

CORE XVII: SPECIAL ACCOUNTS

SUBJECT CODE: 16UHONC17	THEORY & PROBLEMS	100 MARKS
SEMESTER: IV	CREDITS: 4	TOTAL HOURS:75

COURSE OBJECTIVES:

- **To familiarize students with the accounting treatment for issue 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 **(16Hours)**

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

No Theory Questions will be asked

QUESTION PAPER PATTERN:

Section	Question Component	Numbers	Marks	Total
Section A	Answer any 10 out of 12 questions	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				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: 16UHONC18	THEORY	100 MARKS
SEMESTER: IV	CREDITS: 4	TOTAL HOURS:75

COURSE OBJECTIVES:

- **To make the students understand the significant provisions of the Companies Act**
- **Tointroduce 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 - Mis-statement 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 rematerialization 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 (10 Hours)

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	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				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: 16UHONC19	THEORY & PROBLEMS	100 MARKS
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- Evaluation Techniques, traditional and discounted 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	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
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Total Marks				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	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 (Question 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: CUSTOMER RELATIONSHIP MANAGEMENT

SUBJECT CODE: 18UHONC20	THEORY	100 MARKS
SEMESTER: IV	CREDITS: 4	TOTAL HOURS:60

COURSE OBJECTIVES:

- **To highlight the importance of customer expectations and customer satisfaction.**
- **To learn how to deal with customer complaints**
- **To high light the methods to retain customers in business and to develop a long term Relationship with customer through appropriate strategies.**

UNIT- I **(CASE STUDY)** **(13 Hours)**

Customer Relationship Management –definition – objectives - marketing and service benefits of CRM -advantages & disadvantages of CRM and concepts.

UNIT- II **(11 Hours)**

CRM success factors and levels of services- Customer loyalty- pitfalls of customer servicecustomer relationship management implementation- Customer Relationship Survey Design

UNIT- III **(12 Hours)**

Relationships in Marketing - Relationship Concepts - Relationship Drivers - Lasting Relationships

UNIT –IV **(12 Hours)**

Customer Partnerships – Internal Partnerships – Supplier Partnerships – External Partnership

UNIT –V **(12 Hours)**

The Technological Revolution – Relationship Management – Changing Corporate Cultures

Reference Books:

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 AtulParvatiyar, “Handbook of Relationship Marketing”, Response Books, 2002.
4. Anderson, “Customer Relationship management”, Tata McGraw Hill, 2002
5. David Strutton; Lou E. Pelton; James R. Lumpkin, “Marketing Channels: A Relationship Management Approach”, McGraw-Hill Higher Education.
6. John Gosney&Thomas Boehm, CRM essentials, Prentice Hall, 2000.
7. 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	1-12	2	20
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Total Marks				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	-	

EVS: ENVIRONMENTAL STUDIES SYLLABUS

SUBJECT CODE: 16UEVS401	THEORY	100 MARKS
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 followingecosystem:-

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 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 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 AND MANAGEMENT ACCOUNTING

SUBJECT CODE: 17UHONC21	THEORY& PROBLEMS	100 MARKS
SEMESTER: VI	CREDITS: 4	TOTAL HOURS:90

COURSE OBJECTIVES:

- **To understand and analyze financial statement to help in managerial decision making**
- **To prepare statements like Cash 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 **(18 Hours)**

Management accounting & Cost Accounting – Meaning, nature, scope, need, importance and limitations– Management Accounting vs. Cost Accounting vs. Financial Accounting. Cost classification and cost concepts – Elements of cost – Preparation of cost sheets – Contract Costing.

UNIT- II **(18 Hours)**

Material – Bin card– Stores ledger – FIFO, LIFO, simple average, weighted average. Labor – Time Rate, Piece rate – Differential piece rate – Taylor, Merits – Bonus plan (Halsey, Halsey-Weir, Rowan)

UNIT- III **(18 Hours)**

Overheads – Primary and secondary distribution (Repeated Distribution only), Machine Hour Rates (Simple Problems Only)

UNIT- IV **(18 Hours)**

Management Accounting: Comparative Statements, Common Size statement and Trend analysis - Budgets– Meaning, objectives, merits and demerits. Production budget, Flexible budget, Cash budget, Sales budget, master budget. (Simple problems only).

UNIT- V **(18 Hours)**

Ratio Analysis – Interpretation, benefits and limitations. Classification of ratios-Liquidity, Profitability, turnover (Simple problems only). Marginal cost techniques-CVP analysis (Simple problems only)

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. Horngren Sunderu Stratton, Introduction to Management Accounting – Pearson Education.
5. T. S. Reddy and Hari Prasad Reddy, Management Accounting, Margham Publication.

QUESTION PAPER PATTERN:

Section	Question Component	Numbers	Marks	Total
Section A	Answer any 10 out of 12 questions	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				100

DISTRIBUTION OF QUESTIONS: (PROBLEM PAPAERS)

SECTIONS	UNITS	NO. OF QUESTIONS	
		THEORY	PROBLEMS
SECTION A (Answer any 10 out of 12 questions) 2 marks each	1	2	-
	2	-	3
	3	-	2
	4	-	2
	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 XXII: CORPORATE ETHICS AND GOVERNANCE

SUBJECT CODE:17UHONC22	**THEORY**	**100 MARKS**
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) (15 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 (15 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 (10 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 (10 Hours)

Corporate Governance – meaning scope- models and benefits – transparency -green governance – E-Governance - Independent Directors- whistle blowing

UNIT – V (10 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 – publicationof Institute of Company Secretaries
6. Neville Bain & David Band, "Winning Ways through corporate governance" – MacmillanPublishers
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

QUESTION PAPER PATTERN:

Section	Question Component	Numbers	Marks	Total
Section A	Answer any 10 out of 12 questions	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				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	-	
	3	1	
	4	1	
	5	-	

CORE XXIII: INCOME TAX LAW AND PRACTICE - I

SUBJECT CODE: 18UHONC23	THEORY& PROBLEMS	100 MARKS
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 – AssessePerson – 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 **(20 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 **(15 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. VinodK.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, Sahitya BhawanPublications, Agra.

QUESTION PAPER PATTERN:

Section	Question Component	Numbers	Marks	Total
Section A	Answer any 10 out of 12 questions	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				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	1
	2	1	2
	3	1	2
	4	1	1
	5	1	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	-	-
	2 (Q 20)	-	1
	3	-	1
	4	-	1
	5	-	-

CORE XXIV: ACCOUNTING STANDARDS

SUBJECT CODE: 17UHONC24	THEORY	MARKS: 100
SEMESTER: V	CREDITS: 4	TOTAL HOURS: 75

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 **(15 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 **(20 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 **(15 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 (AS 26) - meaning.Provisions, Contingent Liabilities and Contingent Assets (AS 29)-meaning.

Prescribed Books:

1. Financial Accounting study material from Institute of Chartered Accountants of India
2. Bhattacharya Indian Accounting Standards: Practices ,Comparisons, and Interpretations Tata, McGraw Hill

Reference Books:

1.D.S Rawat, Taxmann Students guide to Accounting standards

2.DalalGaggarKshirsagar, Accounting Standards & Corporate Accounting Practices, Wadhwa and Company Nagpur.

QUESTION PAPER PATTERN:

Section	Question Component	Numbers	Marks	Total
Section A	Answer any 10 out of 12 questions	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				100

DISTRIBUTION OF QUESTIONS: (THEORY& PROBLEM PAPER)

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	2	-
	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 (Q 20)	1	-
	4	-	-
	5	1	-

CORE XXV: PRACTICAL AUDITING

SUBJECT CODE: 16UHONC25	THEORY	100 MARKS
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.

QUESTION PAPER PATTERN:

Section	Question Component	Numbers	Marks	Total
Section A	Answer any 10 out of 12 questions	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				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 XXVI: RESEARCH METHODOLOGY

SUBJECT CODE: 16UHONC26	THEORY	100 MARKS
SEMESTER: V	CREDITS: 4	TOTAL HOURS: 60

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 analyzing, interpretation, and drafting research reports.**
- **To expose them to SPSS applications**

UNIT- I **(12 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) **(12 Hours)**

Hypothesis – Types – concept and procedures of testing of Hypothesis – sampling techniques – sampling error and sample size

UNIT- III **(12 Hours)**

Measurement & scaling techniques – Data collection – methods – testing validity and reliability

UNIT- IV **(12 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 **(12 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

QUESTION PAPER PATTERN:

Section	Question Component	Numbers	Marks	Total
Section A	Answer any 10 out of 12 questions	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				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	1	
	5	2	
SECTION C (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1	1	
	2(Q20)	1	
	3	1	
	4	-	
	5	-	

PART- IV: VALUE EDUCATION

SUBJECT CODE:16UVED401	THEORY	100 MARKS
SEMESTER: V	CREDITS: 2	

COURSEOBJECTIVES:

- 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 Kaul, G.N.: Values and Education in Independent Indian, Associated Publishers, Mumbai, 1975
7. NCERT, Education in Values, New Delhi, 1992
8. Swami Budhananda (1983) How to Build Character Primer : Ramakrishna Mission, New Delhi
9. A Cultural Heritage of India (4 Vols.), Bharatiya VidyaBhawan, Bombay. (Selected Chapters only)
10. For Life, For the future : Reserves and Remains –UNESCO Publication
11. Values, A Vedanta Kesari Presentation, Sri Ramakrishna Math, Chennai, 1996
12. Swami Vivekananda, Youth and Modern India, Ramakrishna Mission, Chennai

SEMESTER - VI

CORE XXVII: INCOME TAX LAW AND PRACTICE-II

SUBJECT CODE: 18UHONC27	**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 **(15 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 **(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 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. VinodK.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, Sahitya BhawanPublications, Agra.

QUESTION PAPER PATTERN:

Section	Question Component	Numbers	Marks	Total
Section A	Answer any 10 out of 12 questions	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				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	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 XXVIII: HUMAN RESOURCE MANAGEMENT

SUBJECT CODE: 16UHONC28	THEORY	100 MARKS
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 – Workers 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 –H uman Resource Management

QUESTION PAPER PATTERN:

Section	Question Component	Numbers	Marks	Total
Section A	Answer any 10 out of 12 questions	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				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: 17UHONC29	THEORY	100 MARKS
SEMESTER: VI	CREDITS: 4	TOTAL HOURS: 75

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 fund**

UNIT- I (case study) **(15 Hours)**

Nature and scope of investment management – investment objectives, constraints – factors – Investment process – investment management and portfolio management

UNIT- II **(15 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 **(15 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 **(15 Hours)**

Portfolio – portfolio management – portfolio theory – meaning and objectives, traditional and Modern portfolio theory - Diversification – Markowitz's approach – portfolio management process – portfolioplanning-portfolio analysis-portfolio selection –portfolio evaluation –portfolio revision – variousstepsinvolved in the development of portfolio.

UNIT- V **(15 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 ofIndia, 1999.

QUESTION PAPER PATTERN:

Section	Question Component	Numbers	Marks	Total
Section A	Answer any 10 out of 12 questions	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				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: ENTREPRENEURIAL DEVELOPMENT

SUBJECT CODE: 16UHONC30	THEORY	100 MARKS
SEMESTER: VI	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:

Section	Question Component	Numbers	Marks	Total
Section A	Answer any 10 out of 12 questions	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				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 (Question 20 is Compulsory. Answer any 1 out of Q21 & Q22) 20 marks each	1	1	
	2	1	
	3(Q20)	1	
	4	-	
	5	-	

CORE XXXI: BUSINESS TAXATION

SUBJECT CODE: 17UHONC31	THEORY	100 MARKS
SEMESTER: VI	CREDITS: 4	TOTAL HOURS: 75

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) **(15 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 **(15 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 **(15 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 **(15 Hours)**

Payment of Taxes; Refund; Tax Invoice, Credit and Debit Notes, Returns, Audit in GST, Assessment: Self-Assessment, Summary and Scrutiny.

UNIT -V **(15 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, TaxmannPublicationsPvt. Ltd., New Delhi.
2. Girish Ahiya, Dr. Ravi Gupta, Systematic Approach to Income Tax and CST, Bharat LawHousePvt. Ltd. New Delhi.
3. Dr.Sanjeev Kumar, Systematic Approach to Indirect Taxes with Practical problems andsolutions,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	1-12	2	20
Section B	Answer any 5 out of 7 questions	13-20	8	40
Section C	Answer any 2 out of 3 questions	21-23	20	40
Total Marks				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 University of Madras

B.COM (INFORMATION SYSTEM MANAGEMENT)

SYLLABUS

(For the candidates admitted for the Academic year 2018-19 and onwards)

VISION

To evolve into a research department in the field of Information System Management

MISSION

1. To enable the students to have an edge over the usage of technology and informatics in the field of management and commerce.
2. Deepen and extend knowledge about the formation and utilization of human capabilities.
3. To provide high quality technological education, strongly integrated with human values of Equality, Compassion, Sharing a social responsibility.

PROGRAMME OUTCOME

PO1. After completing graduation, students can get skills regarding various aspects like Marketing Manager, Selling Manager, Finance Manager, HR Manager, Project Manager and over all Administration abilities of a Company.

PO2. Capability of the students to make decisions at personal & professional level will increase after completion of this course.

PO3. Students can independently start up their own business.

PO4. Students c0an get thorough knowledge of finance, commerce and computer programming languages.

PO5. 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, Systems Manager, 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.

COURSE STRUCTURE

B.Com (INFORMATION SYSTEM MANAGEMENT)

2018 -19 Batch

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	16UENGF21	English - I	3	6	50	50	100
	III	Core Paper-I	17UISMC01	Financial Accounting (Common to B.Com (BM), B.Com (MM) & B.B.A.)	4	6	50	50	100
	III	Core Paper-II	17UISMC02	Principles of Management (Common to B.Com (A&F), B.Com (BM), B.Com (MM), B.B.A.)	4	5	50	50	100
	III	Allied-I	17UISMA01P	Basic Computer Skills for Managers	5	5	50	50	100
	IV	Non Major Elective-I	17UNME01A	Analytical and Logical Reasoning - I	2	2	-	100	100
	IV	Soft Skills-I	17UGSLS01	Listening & Speaking 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	16UENGF22	English - II	3	6	50	50	100
	III	Core Paper-III	17UISMC03	Business Communication	4	5	50	50	100
	III	Core Paper-IV	17UISMC04	Elements of Cost Accounting	4	5	50	50	100
	III	Allied-II	17UISMA02P	HTML Programming- Practical	5	6	50	50	100
	IV	Non Major Elective-II	17UNME02G	Emotional Intelligence	2	2	-	100	100
	IV	Soft Skills-II	17UGSLS02	Reading & Writing Skills	3	-	-	100	100
Total Credits: 24 / Total Hours per week: 30									

Semester - III	III	Core Paper-V	16UISMC05	Marketing Management (Common to B.Com(ISM), B.Com (A&F), B.Com (MM), & BBA)	4	5	50	50	100
	III	Core Paper-VI	18UISMC08	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-VII	18UISMC06	Programming in C (Theory)	4	6	50	50	100
	III	Core Paper-VIII	18UISMC07P	Programming in C (Practical)	4	5	50	50	100
	III	Allied-III	16UMATA18	Business Statistics and OR-I (Common to B.Com (BM), B.Com (MM), B.Com (ISM), & B.B.A)	5	6	50	50	100
	IV	Soft Skills-III	16UGSLS03	Personality Enrichment	3	2	-	100	100
Total Credits: 24 / Total Hours per week: 30									
Semester - IV	III	Core Paper-IX	18UISMC12	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	18UISMC09	OOPS with C++ (Theory)	4	5	50	50	100
	III	Core Paper-XI	18UISMC10P	OOPS with C++ (Practical)	4	5	50	50	100
	III	Core Paper-XII	16UISMC12	Research Methods in Business (Common to B.Com(MM) & B.Com(ISM))	4	5	50	50	100
	III	Allied-IV	18UMATA20	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		16UEVS401	Environmental Studies	2	2	-	100	100
	IV	Soft Skills-IV	16UGSLS05	Quantitative Aptitude	3	2	-	100	100
Total Credits: 26 / Total Hours per week: 30									

Semester - V	III	Core Paper-XIII	16UISMC13	Management Information System (Common to B.B.A. & B.Com (ISM))	4	5	50	50	100
	III	Core Paper-XIV	17UISMC14	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	18UISMC15	Web Technology (Theory)	4	6	50	50	100
	III	Core Paper-XVI	18UISMC16P	Web Technology (Practical)	4	6	50	50	100
	III	Elective-I (Interdisciplinary Elective)		Essentials of Office Automation Tools and E- Mail Etiquette Practical)	5	6	50	50	100
	IV		16UVED401	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	50	50	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: 17UISMC01	THEORY & PROBLEM	MARKS: 100
SEMESTER: I	CREDITS: 4	TOTAL HOURS: 90

(Common to B. Com (BM), B. Com (MM), 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- Objective`s 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 –
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	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	2 0	**40**
TOTAL MARKS				**100**

Distribution of Questions:

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

SUBJECT CODE: 17UISMC02	THEORY	MARKS: 100
SEMESTER: I	CREDITS: 4	TOTAL HOURS: 75

(Common to BBA, B. Com (A&F), B. Com (BM), B. Com (MM), B. Com (ISM))

COURSE OBJECTIVES:

- To enable the students, acquire knowledge on principles, concepts and functions of management and inherit the importance of decision making.

UNIT I **(20 hours)**

Management: Importance – Definition – Is Management art or science –Functions of Management: POLC framework - Role and Functions of a Manager- Managerial skill – Levels of Management – Application of management in various functional areas – Production, Accounting and Finance, Marketing and Personnel Management.

UNIT II **(15 hours)**

Evolution of Management: Classical school of thought: Henry Fayol, PeterDrucker, Elton Mayo, Max Weber - Modern School of Thought: Systems Approach, Contingency approach, Kaizen's approach.

UNIT III **(15 hours)**

Planning: Meaning - Objectives of planning - Importance of planning – Types of planning - Decision making: Nature and significance- Process of Decision making – Types of Decision making- Styles of decision making – analytical decision making, behavioral decision making, conceptual decision making – Decision making techniques – Decision trees, payback analysis and simulations.

UNIT IV **(15 hours)**

Organizing – Meaning and definition of Organizing, Importance of Organizing, and Principles of Organizing: Work specialization, Authority, Chain of Command, Delegation and Span of Control. Types of Organizational Structure – Line Organizational Structure, Staff organizational structure, Divisional Organization structure, Product/Project organizational structure, Matrix Organizational Structure and Hybrid Organizational Structure.

UNIT V **(10 hours)**

Co-ordination: What is co-ordination – Need for co-ordination, Types of co-ordination and essential requisites for excellent coordination. Controlling: Meaning and Importance –Function of controlling, Process of controlling 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 McGraw Hill - New Delhi, 5thEdtion
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_tutori al.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 - BASIC COMPUTER SKILLS FOR MANAGERS

SUBJECT CODE: 17UISMA01P	PRACTICAL	MARKS: 100
SEMESTER: I	CREDITS: 5	TOTAL HOURS: 75

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 view- modify 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 References:

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**

(Common to B. Com (BM) 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 – 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 **(6 Hours)**

Cubes and Dice – Direction Sense Test – Data sufficiency

UNIT-V **(6 Hours)**

Venn Diagrams – Ranking Tests – Image Serie

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 Problems
Section A	Unit – 1	10
	Unit – 2	10
	Unit – 3	10
	Unit – 4	10
	Unit – 5	10

CORE 3 - BUSINESS COMMUNICATION

SUBJECT CODE: 17UISMC03	THEORY	MARKS: 100
SEMESTER: II	CREDITS: 4	TOTAL HOURS: 75

(Common to B. Com (A&F), B. Com (BM), B. Com (MM), B. Com (ISM), 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 **(25 Hours)**

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.

UNIT III **(10Hours)**

Personal 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, 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	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: 17UISMC04	THEORY& PROBLEMS	MARKS: 100
SEMESTER: II	CREDITS: 4	TOTAL HOURS: 90

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. Hari prasad 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	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:

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		2
	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: 17UISMA02P	PRACTICAL	MARKS: 100
SEMESTER: II	CREDITS: 5	TOTAL HOURS: 90

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.

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 Padding-Cell Spacing Attribute-Using the Background Color Property-Using the Rowspan and Colspan Attributes.

UNIT-III **(15 Hours)**

Linking Documents-Links-External Document References-Internal document references-Hyper 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 Box-Hidden Field-Image-Submit and Reset Button-Adding Elements to a Form

Prescribed Texts:

1. Mastering HTML, CSS & JavaScript Web Publishing; Laura Lemay (Author), Rafe Colburn (Author), Jennifer Kyrnin (Author) – BPB Publications- July 2016
2. 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

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

(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. Aparna Chattopadhyay, 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 – 5 MARKETING MANAGEMENT

SUBJECT CODE: 16UISMC05	THEORY	MARKS: 100
SEMESTER: III	CREDITS: 4	TOTAL HOURS: 75

(Common to (B. Com (MM), B. Com (BM), B. Com (A&F), B.COM (ISM), B.B.A)

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 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: 18UISMC08	THEORY & PROBLEM	MARKS: 100
SEMESTER: III	CREDITS: 4	TOTAL HOURS: 90

(Common to (B. Com (MM), B. Com (BM), B. Com (A&F), 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 **(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 andtools, 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, and Construction of Balance sheet (simple problems only).

UNIT IV **(20 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 **(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 Budget – 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 – 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 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	
		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 – 7 - PROGRAMMING IN 'C'

SUBJECT CODE: 18UISMC06	THEORY	MARKS: 100
SEMESTER: III	CREDITS: 4	TOTAL HOURS: 90

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 **(15 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 **(15 Hours)**

Arrays - Definition and Declaration - Passing arrays to function – Array Types - One- dimensional array- Two-dimensional arrays - Multidimensional arrays – Arrays - Storage classes: Private- Public- Automatic- Extern- Static storage classes.

UNIT V **(20 Hours)**

String functions - Structures - Pointers – Definition- Declaration, Operations on pointers, passing pointers to functions, Pointers and arrays.

Prescribed Texts:

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

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 any4 out of 6 questions (Each in 1200 words)	20-26	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	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	

CORE 8 - PROGRAMMING IN 'C' PRACTICAL

SUBJECT CODE: 18UISMC07P	PRACTICAL	MARKS: 100
SEMESTER: III	CREDITS: 4	TOTAL HOURS: 75

COURSE OBJECTIVES:

- To enable students to learn practical programming in C.

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: 3 BUSINESS STATISTICS AND OPERATION RESEARCH -I

SUBJECT CODE: 16UMATA18	THEORY& PROBLEM	MARKS: 100
SEMESTER: III	CREDITS: 5	TOTAL HOURS: 90

(COMMON TO B.B.A, B.COM (BM), B.COM(ISM)AND B.COM (MM))

COURSE OBJECTIVES:

- 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 **(10 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 **(25 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 Text:

1. Statistical Methods – S.P. Gupta, Sultan 2000.
2. Introduction to Operations Research – Dr. P.R. Vittal, Margham Publications

Reference Books:

1. Statistics - Elhance
2. Operations Research – Hira and Gupta, S. Chand.

Web Reference

1. https://www.easycalculation.com/tutorial.php
2. http://people.brunel.ac.uk/~mastjjb/jeb/or/contents.html
3. Operations Research – Handy and A. Taha, Macmillan Publishers.

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

CORE 9: ENTREPRENEURIAL DEVELOPMENT

SUBJECT CODE: 18UISMC12	THEORY	MARKS: 100
SEMESTER: IV	CREDITS: 4	TOTAL HOURS: 75

(COMMON TO B.B.A, B.COM (MM), B.COM (BM), B.COM (ISM), B.COM (A & F))

COURSE OBJECTIVES:

- To create awareness among students about entrepreneurship and its importance.
- To keep the students informed about various financial institutions that promote ED.
- 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 Organisation – 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 Text:

1. Jayashree Suresh – Entrepeneurial development
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

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	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:

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	

CORE 10 - OOPS with C++

SUBJECT CODE: 18UISMC09	THEORY	MARKS :100
SEMESTER: IV	CREDITS: 4	TOTAL HOURS: 75

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**

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	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE 11 - OOPS with C++PRACTICAL

SUBJECT CODE: 18UISMC10P	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 75**

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.

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. Operator overloading
12. Practical on use of classes, objects in C++
13. Single Inheritance
14. Multiple Inheritance
15. Parameterized constructor.

CORE 12 - RESEARCH METHODS IN BUSINESS

SUBJECT CODE: 16UISMC12	THEORY	100 MARKS
SEMESTER: IV	CREDITS: 4	TOTAL HOURS: 75

(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 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:

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	1	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

ALLIED: 4 BUSINESS STATISTICS AND OPERATION RESEARCH - II

SUBJECT CODE: 18UMATA20	THEORY& PROBLEM	100 MARKS
SEMESTER: IV	CREDITS: 5	TOTAL HOURS: 90

(COMMON TO B.B.A, B.COM (BM) AND B.COM (MM), B.Com(ISM))

COURSE OBJECTIVES:

- 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.

UNIT –III **(18 Hours)**

Sampling Techniques – Types of Sample and Sampling procedures – Tests of Significance – t, Chi – square test only. (**Simple problems).**

UNIT – IV **(18 Hours)**

Assignment Problems: Minimization, Maximization case in assignment problem. Unbalanced assignment problem.

UNIT –V **(18 Hours)**

Transportation Problems: North West Corner Method (NWCM) – Lowest Cost Entry Method (LCM), Vogel's Approximation Method (VAM) and MODI Method.

Prescribed Texts:

1. Statistical Methods – S.P. Gupta, Sultan 2000.
2. Introduction to Operations Research – Dr. P.R. Vittal, Margham Publications

Reference Books

1. Statistics - Elhance
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
A	**Definition/Principle** Answer ANY 10 out of 12 questions	1-12	3	**30**
B	wer any 5 out of 7 questions	13-19	6	**30**
C	wer 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	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

SKILL: 4 QUANTITATIVE APTITUDES

SUBJECT CODE: 16UGSLS05	PROBLEM	100 MARKS
SEMESTER: IV	CREDITS: 2	TOTAL HOURS: 30

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

CORE: 13 MANAGEMENT INFORMATION SYSTEM

SUBJECT CODE: 16UISMC13	**THEORY**	**100 MARKS**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 75**

(COMMON TO B.B.A AND B.COM (ISM))

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 **(20 Hours)**

System Analysis and design - SDLC - Role of System Analyst - Functional Information system - Personnel, production, material, marketing.

UNIT V **(10 Hours)**

Decision Support Systems - Definition. Group Decision Support Systems - Business Process Outsourcing - Definition and function

Prescribed Text:

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

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:

Section	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	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	

CORE 14 – FINANCIAL MANAGEMENT

SUBJECT CODE: 17UISMC14	**THEORY&PROBLEM**	**100 MARKS**
SEMESTER: V	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

(Common to B. Com (BM), B.B. A, B. Com (ISM))

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

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 Texts:

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 50words)	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**
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		2
	Unit – 4		1
	Unit – 5		1
Section C	Unit – 1	1	
	Unit – 2		1
	Unit – 3		
	Unit – 4		1
	Unit - 5		1

CORE 15: WEB TECHNOLOGY

SUBJECT CODE: 18UISMC15	THEORY	100 MARKS
SEMESTER: V	CREDITS: 4	TOTAL HOURS: 90

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 **(15 Hours)**

Basic web server controls (Label, Textbox, Button, Link button, Checkbox, Radio Button, Hyper Link, and Image Controls). Server controls- Anchor Control- Table - Form and Form Input Controls- Input File Control-Data List Web Server Controls- Checkbox List Control- Radio Button List Control- Dropdown List Control- List Box Control.

UNIT III **(15 Hours)**

Repeater Control- Other Web Server Controls-Calendar Control- Ad Rotator Control.
Validation Controls (Required Field Validator, Compare Validator, Range Validator, 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- OLEDB Connection Class- OLEDB Command Class- OLEDB Transaction Class- OLEDB Data Adapter Class- Data Set Class. System. Data. SQL Client 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- Smtp Mail and Mail Message 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: 18UISMC16P	**PRACTICAL**	**100 MARKS**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 75**

- Write an Asp.Net program to implement link and hyperlink button control.
- List the headers sent by the Request Objects.
- Implement Request and Response object using Asp.Net.
- Create a Login form using Asp.Net.
- Load a webpage whenever a mouse moves over a link.
- Create a web page Image with mouse event.
- Create an employee database using Asp.net controls.
- Create on line library using calendar.
- Check in and Checkout program using Asp.net.
- Create a web page using student database.
- Create a web site student mark list preparation.
- Checking e-mail id with validation control.
- Checking voter eligibility with validation control.
- Create digital clock with timer control.
- Create banner with adrotator control.
- Select favorite food with checkbox control.
- Select favorite movie with drop down list box control.
- Select favorite book with radio button control.
- Create an online application form with calendar control.
- Display greater number with if condition.

Elective 1: BUSINESS ENVIRONMENT

SUBJECT CODE:	THEORY	MARKS: 100
SEMESTER: V	CREDITS: 5	TOTAL HOURS: 90

COURSE OBJECTIVES:

- Understand the concept and nature of the Business Environment.
- Understand the significance of the Business Environment on individual Decision – Making units.
- Scan and analysis the Business Environment in terms of the political, economic, social, legal and financial ramifications.

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

UNIT III

Social environment - Cultural heritage - Social attitudes - Castes and communities - Joint family systems -linguistic and religious groups - Types of social organization

UNIT IV

Economic Environment - Economic systems and their impact of business - Fiscal deficit- Plan investment -Five Year Planning.

UNIT V

Financial Environment - Financial system - Commercial bank Financial Institutions - RBI Stock Exchange - lDBI - Non-Banking Financial Companies NBFCs

Recommended Texts

1. Francis Cherunilam, 2000, Business environment, Himalaya Publishing House, 11th Revised Edition, India.
2. Dr.S.Sankaran , Business Environment, Margham Publications.
3. K Aswathappa, 1997, Essentials of Business Environment, Himalaya Publishing House, 6th Edition, India.
4. Joshi Rosy KapoorSangam, 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 1200 words)	20-26	10	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Sections	Units	No. of Questions	
		Theory	Practical
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	1	
	Unit – 4	1	
	Unit - 5	1	

CORE 17– E- BUSINESS

SUBJECT CODE: 16UISMC17	THEORY	MARKS: 100
SEMESTER: VI	CREDITS: 4	TOTAL HOURS: 90

Common to B.B. A, B. Com (MM) ,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,
3. Thomson Learning, 2000Diwan, 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 1200 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	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	

CORE 18–DATABASE MANAGEMENT SYSTEM

SUBJECT CODE: 18UISMC18	THEORY	100MARKS
SEMESTER: VI	CREDITS: 4	TOTAL HOURS: 90

COURSE OBJECTIVES:

- 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 **(15 Hours)**

Database Concepts - Database System Applications - Data Models -Database Languages - Database users and Administrator - Transaction Management - Database system structure - Application Architecture.

UNIT-II **(15 Hours)**

Database System Architecture, Centralized and Client Server architecture, Server system architecture, parallel system, distributed systems, Network types**.**

UNIT-III **(15 Hours)**

Transactions-concept-transaction state-Implementation of Atomicity and Durability- concurrent executions-serializability-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, 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
Section A	**Definition/Principle** Answer any 10 out of 12 questions (Each in 50 words)	1-12	3	**30**
Section B	**Short 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	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	

CORE 19 –HUMAN RESOURCE MANAGEMENT

SUBJECT CODE: 18UISMC19	THEORY	MARKS: 100
SEMESTER: VI	CREDITS: 4	TOTAL HOURS: 90

(Common to B.B. A, B. Com (MM), B. Com (ISM)

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 Obuchi's "Z" Theory - Herzberg's two factor theory and Vroom's valence expectancy theory – McClelland'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
3.

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** 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	1	
	Unit – 5	1	
Section C	Unit – 1	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit – 5	1	

ELECTIVE 2- ACCOUNTING PACKAGE

SUBJECT CODE: 18UISME02P	THEORY	MARKS: 100
SEMESTER: VI	CREDITS: 5	TOTAL HOURS: 90

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

(I) ACCOUNTING APPLICATION PACKAGE

(Lab Based Practical Paper)

Computerized Accounting - Tally Accounting Software

UNIT I

Tally-origin- General Features- Accounting Features-Inventory Feature-Starting TALLY Start up screen component-Processing icons –Multilingual feature of TALLY- Quit TALLY

UNIT II

Company creation –creating, selecting, deleting, shutting a company –altering company details-changing data directory –auto selection of company

UNIT III

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

Tally vouchers-Meaning-Payment Vouchers-Receipt vouchers-entering, deleting, Canceling, printing a voucher- Postdated vouchers

UNIT V

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

ACCOUNTING SOFTWARE PACKAGE-ELECTIVE 2

SUBJECT CODE: 18UISME02P	**PRACTICAL**	**MARKS: 100**
SEMESTER: VI	**CREDITS: 5**	**TOTAL HOURS: 90**

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

(i) ACCOUNTING APPLICATION PACKAGE
(Lab Based Practical Paper)

Computerized Accounting - SPSS Accounting Software
1. Construction of Frequency tables
(a) Univariate Frequency tables
(b) Cross- Tabulation

2. Graphical representation of Data
(a) Bar diagram – Simple Bar diagram, Multiple Bar Diagram,
Sub divided Bar Diagram,
(b) Histogram
(c) Pie Diagram

3. Calculation of Measures of Central Tendencies
(a) Mean, Median and Mode
(b) Geometric mean

4. Calculation of Methods of Dispersion
(a) Standard Deviation
(b) Quartiles
(c) Skewness
(d) Kurtosis

5. Calculation of Correlation Coefficient
(a) Karl Pearson's Correlation Coefficient
(b) Spearman's Rank Correlation Coefficient

6. Calculation of Regression Trend
(a) Trend Line

7. Test of Significance for Single and two Samples – Large Sample Test (Z-Test)
(a) Test for Mean
(b) Test for Proportion
(c) Test for Standard Deviation

8. Test of Significance for Single and two Samples – Small Sample Test (t-Test, F-test)

(a) Test of Mean

(b) Test of Variances

9. Non-Parametric Test

(a) One –Way Chi-square test (test for Homogeneity)

(b) Two–Way Chi-square test (test for Attributes)

10. Test of Homogeneity of Means for more than 2 samples

(a) One –Way ANOVA

(b) Two–Way ANOVA

Recommended Text Books:

1. SPSS for Beginners, 1999 Vijay Gupta, Published by **VJBooks**Inc.
2. Levine's Guide to SPSS for Analysis of Variance.2nd Edition, Melanie C. Page, Sanford L. Braver and David P. MacKinnon, **LAWRENCE ERLBAUM ASSOCIATES, PUBLISHERS2003** Mahwah, New Jersey, Londo

ELECTIVE 3–PROJECT WORK

SUBJECT CODE: 16UISME03	**PROJECT**	**MARKS: 100**
SEMESTER: VI	**CREDITS: 5**	**TOTAL HOURS: 90**

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 NANAKCOLLEGE (AUTONOMOUS)
SHIFT - II



DEPARTMENT
OF
B.COM – MARKETING MANAGEMENT

SYLLABUS FOR BATCH OF STUDENTS ADMITTED DURING THE ACADEMIC YEAR 2017-2018

B.Com., DEGREE PROGRAMME IN MARKETING MANAGEMENT

SEMESTER SYSTEM WITHCREDITS
(Effective from the Academic year 2017--18)

RULES ANDREGULATIONS

1. CHOICE BASED CREDIT SYSTEM (CBCS) WITHGRADING

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 with a choice of a variety of Job-oriented courses, Elective courses and courses involving Soft-skills. Students are permitted to choose any course of their interest during the study period and earn extra credits and certificates in addition to the regular hardcore (compulsory)subjects.

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 as well as empowers them with the flexibility of learning at their convenience.

2. ELEGIBILITY FOR ADMISSION

Candidates for admission to the first year of the UG programme shall be required to 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.

3. DURATION OF THECOURSE

The UG course is of three year duration with six semesters and the PG course is of two year duration with four semesters. The odd semester include 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.

4. COURSE OFSTUDY

The main subject of study for Bachelor's Degree shall consist of the following:

FOUNDATION COURSES:

PART – I Tamil or Classical Language (Hindi / Sanskrit/French)

PART – II English

CORECOURSES

PART – III consisting of (a) Main subjects, (b) Allied Subjects, (c) Elective subjects related to the main subject of study and project work.

PART–IV

1. **(a)** Those who have not studied Tamil up to XII standard, and taken a non-Tamil language under **Part – I** shall take Tamil comprising of Two courses (level will be at 6^{th}standard).

(b) Those who have studied Tamil up to XII standard, and taken a non—Tamil language under **Part –I** shall take **Advanced Tamil** comprising of two courses.

(c) Others who do not come under a or b can choose **non-major elective comprising of two courses.**

2. Soft Skills. (I , II, III &IV Semesters**)**

3. Environmental Studies (IV Semester)

4. Value Education (V Semester)

PART –V Compulsory Extension Service

A candidate shall be awarded one credit for compulsory extension service.

All the students shall enroll for **NSS / NCC / NSO (Sports & Games) Rotract / Youth red cross 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 before **31stMarch in a year.** If a student LACKS **40 HOURS ATTENDANCE** in the first year, he / she shall have to compensate the same during the subsequent years. Literacy and population, educational field work shall be compulsory components in the above extension service activities.

5. COURSESTRUCTURE:

SEMESTER	PART	SUBJECT NAME	HOURS	CREDITS	Marks		
					CIA	ESE	TOT
I	I	LANGUAGE – I	6	3	50	50	100
	II	ENGLISH-I	6	3	50	50	100
	III	CORE PAPER 1 - FINANCIAL ACCOUNTING (COMMON TO B.COM(BM), B.COM(ISM), BBA, B.Com (A&F)	6	4	50	50	100
		CORE PAPER 2 - PRINCIPLES OF MANAGEMENT (COMMON TO B.COM (A&F), B.COM(BM), B.COM(ISM), B.B.A.)	5	4	50	50	100
		ALLIED 1 –BUSINESS COMMUNICATION (COMMON TO B.COM (A&F), B.COM(BM), B.COM(ISM), B.B.A.)	5	5	50	50	100
	IV	NON MAJOR ELECTIVE 1– ANALYTICAL AND LOGICAL REASONING(COMMON TO B.COM(ISM), B.COM(BM), BBA, B.COM(HO), B.COM(A&F))	2	2		100	100
		SOFT SKILL	-	3		100	100
		TOTAL	**30**	**24**			

SEMESTER	PART	SUBJECT NAME	HRS	CREDITS	Marks		
					CIA	ESE	TOT
II	I	LANGUAGE- II	6	3	50	50	100
	II	ENGLISH-II	6	3	50	50	100
	III	CORE PAPER 3 - BUSINESS AND CORPORATE LAWS (COMMON TO B.B.A, B.COM (A&F) and B.COM (BM))	5	4	50	50	100
		CORE PAPER 4 – BANKING (COMMON TO B.COM (A&F))	5	4	50	50	100
		ALLIED 2 – BUSINESS STATISTICS AND OPERATION RESEARCH-I (COMMON TO B.B.A, B.COM (ISM) and B.COM (BM))	6	5	50	50	100
	IV	NON MAJOR ELECTIVE 2 – EMOTIONAL INTELLIGENCE(COMMON TO B.COM(ISM), B.COM(A&F))	2	2		100	100
		SOFT SKILL	-	3		100	100
		TOTAL	**30**	**24**			



SEMESTER	PART	SUBJECT NAME	HOURS	CREDITS	Marks		
					CIA	ESE	TOT
III	III	CORE PAPER 5 – MARKETING MANAGEMENT (COMMON TO B.B.A, B.COM (A&F), B.COM (BM) and B.COM (ISM).	5	4	50	50	100
		CORE PAPER 6 – CORPORATE ACCOUNTING (COMMON TO B.COM (BM), B.COM(A&F).	6	4	50	50	100
		CORE PAPER 7 – E-BUSINESS (COMMON TO B.COM(ISM), B.B.A.)	6	4	50	50	100
		CORE PAPER 8 - ENTREPRENEURIAL DEVELOPMENT (COMMON TO B.B.A, B.COM (A&F), B.COM (BM) and B.COM (ISM).	5	4	50	50	100
		ALLIED 3 - BUSINESS STATISTICS AND OPERATION RESEARCH-II (COMMON TO B.B.A, B.COM (BM) and B.COM ISM)	6	5	50	50	100
	IV	SOFT SKILL	2	3		100	100
		Total	**30**	**24**			
IV	III	CORE PAPER 9 – BUSINESS AND INTERNATIONAL ECONOMICS (COMMON TO B.COM (A&F))	5	4	50	50	100
		CORE PAPER10 – RESEARCH METHODS IN BUSINESS (COMMON TO B.COM ISM)	5	4	50	50	100
		CORE PAPER 11- FINANCIAL SERVICES (COMMON TO B.B.A. B.COM (BM) and B.COM (A&F))	5	4	50	50	100
		CORE PAPER 12 – FINANCIAL MANAGEMENT (COMMON TO B.B.A. B.COM (ISM)., B.COM (BM))	5	4	50	50	100
		ALLIED 4 – HUMAN RESOURCES MANAGEMENT (COMMON TO B.B.A, B.COM (A&F), B.COM (BM) and B.COM ISM)	6	5	50	50	100
		ENVIRONMENTAL STUDIES	2	2		100	100
	IV	SOFT SKILLS	2	3		100	100
		TOTAL	**30**	**26**			

SEMESTER	PART	SUBJECT NAME	HOURS	CREDITS	MARKS		
					CIA	ESE	TOT
V	III	CORE PAPER 13 – COST ACCOUNTING (COMMON TO B.COM (ISM)	6	4	50	50	100
		CORE PAPER 14 – RETAIL MARKETING	5	4	50	50	100
		CORE PAPER 15 – INTERNATIONAL MARKETING	6	4	50	50	100
		CORE PAPER 16 – ADVERTISING MANAGEMENT AND SALES PROMOTION (COMMON TO BBA)	6	4	50	50	100
		ELECTIVE 1 - IDE – TOURISM MANAGEMENT	6	5	50	50	100
	IV	VALUE EDUCATION	1	2		100	100
		TOTAL	**30**	**23**			
VI	III	CORE PAPER 17 – SALES AND DISTRIBUTION MANAGEMENT	6	4	50	50	100
		CORE PAPER 18 – MANAGEMENT ACCOUNTING (COMMON TO B.B.A B.COM (A&F) and B.COM ISM)	6	4	50	50	100
		CORE PAPER 19 – SERVICES MARKETING (COMMON TO B.B.A.)	6	4	50	50	100
		ELECTIVE 2 – SUPPLY CHAIN MANAGEMENT	6	5	50	50	100
		ELECTIVE 3 - PROJECT WORK	6	5		100	100
	V	COMMUNITY SERVICE	-	1			
		TOTAL	**30**	**23**			
		GRAND TOTAL	**180**	**144**			

Under Part IV of the course, students are required to register separately for two Non-Major Elective papers, choosing preferably papers offered by other departments 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.

1. 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 INTERNALASSESSMENT

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	95%

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 the HOD.

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 OF 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 secures 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 requirements 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.
- Studentswhohave**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.
- Studentswhohavelessthan**50%** of attendance fall under the―detained‖category and **<u>are not</u>** 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 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 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, candosowithin7 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 mark**	**% of Weightage**
External Exam	3 hours examination	100	50
	Grand total(CIA+ESE)		**100**

a. **CONDUCT OFEXAMINATION**

- 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-lineoralongwiththeregular ESE.

b. **VALUATION**

- Valuation of the answer scripts are undertaken at the central valuation camp lead by the ControllerofExaminationortheCampOfficerappointedbytheControllerofExaminations.
- Single valuation of answer scripts by external examiners is adopted for both UG andPG courses.

c. **PUBLICATION OFRESULTS**

TheExaminationresultswillbepublishedontheweb duringthesecond/thirdweekofMay for the II, IV and VI semester examinations and during the second / third week of December for the I, III and V semesterexaminations

PROVISION FOR OBTAINING PHOTOCOPY AND REVALUATION OF VALUED ANSWERSCRIPTS

- 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 theCOE.
- 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 ofthe answer script.
- Revaluation /obtaining photocopy of answer scripts is permissible only for the current semester papers and not for any arrearpaper.
- For re-valuation, the answer papers will be valued by two external examiners separately and the average mark of the valuations will be taken intoaccount.
- The revaluation results will be forwarded to the Principal within 15 workingdays.
- 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 _Nochange‘.

d. **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 thesemesters.

Conversion of Marks to Grade Points and Letter Grade (Performance in apaper/course)

Range of Marks		**Grade Points**		**Letter Grade**		**Description**	
PG &UG		**PG &UG**		**PG &UG**		**PG &UG**	
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+		VeryGood	
60-69		6.0-6.9		A		Good	
50-59		5.0-5.9		B		Average	
PG	**UG**	**PG**	**UG**	**PG**	**UG**	**PG**	UG
00-49	40-49	0.0	4.0-4.9	U	C	Re-appear	Satisfactory
	00-39		0.0		U		Re-appear
ABSENT		0.0		AAA		ABSENT	
B.Com(Hons)		**B.Com(Hons)**		**B.Com(Hons)**		**B.Com(Hons)**	
00-59		0.0		U		Reappear	

Classification ofGrades

CGPA		**GRADE**		**CLASSIFICATION OF FINALRESULT**	
PG&UG		**PG&UG**		**PG&UG**	
9.5-10.0		O+		First Class –Exemplary*	
9.0andabovebutbelow9.5		O		First class-outstanding*	
8.5andabovebutbelow9.0		D++		First Class withDistinction*	
8.0andabovebutbelow8.5		D+			
7.5andabovebutbelow8.0		D			
7.0andabovebutbelow7.5		A++		FirstClass	
6.5andabovebutbelow7.0		A+			
6.0andabovebutbelow6.5		A			
5.5andabovebutbelow6.0		B+		SecondClass	
5.0andabovebutbelow5.5		B			
PG	**UG**	**PG**	**UG**	**PG**	**UG**
0.0andabovebutbelow5.0	4.5andabovebutbelow5.0	U	C+	Re –appear	ThirdClass
	4.0andabovebutbelow4.5		C		
	0.0andabovebutbelow4.0		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 aSemester/Year:

GRADE POINT AVERAGE [GP] = $\sum_i C_iG_i/\sum_iC_i$

$$GPA = \frac{\text{Sum of the multiplication of grade points by the credits of the courses}}{\text{Sum of the credits of the courses (passed)in a semester/year}}$$

For the entireprogramme:

$$CGPA = \frac{\text{Sum of the multiplication of grade points by the credits of the entire programme}}{\text{Sum of the credits of the courses of the entire programme}}$$

CUMULATIVE GRADE POINT AVERAGE [CGPA] =$\sum_n\sum_iC_{ni}G_i/\sum_n\sum_iC_{ni}$

(CGPA is calculated only if the candidate has passed in all the courses in the entire programme)

C_1 = Credits earned for course *i* in any semester /year.
G_1 = Grade Point obtained for course *i* in any semester /year.
*n*refers tothesemester/yearinwhichsuchcourses werecredited. C_i = Credits earned for course i in anysemester.
G_n = Grade Points obtained for course i in anysemester.
nrefers tothesemesterinwhichsuchcourses werecredited

PassingMinimum

- ForallU.G.ProgrammeexceptB.Com(Hons)passingminimumofeachsubjectis 40% in CIA, 40% in E.S.E and 40% in aggregate i.e., CIA +ESE
- For B.Com(Hons)

  i. No passing minimum for internal b) For ESE, passing minimum is 50% for languages, NME, value education, EVS and 60% for core subjects/internship/project and viva voce c) In aggregate the passing minimum (Ext + Int) is 50% for forlanguages, NME, value education, EVS and 60% for core subjects/internship/project and vivavoce.

- Passing minimum of each subject/course under PG Programmeis 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 coursesjointly
- PassingminimumforeachPGDiploma course offeredbyaPGDepartmentasapartof the curriculum to its students is 50% in ESE and 50% in aggregate i.e., CIA + ESE, since graduates alone are admitted to theseCourses

.

6. **REQUIREMENT FOR PROCEEDING TO SUBSEQUENTSEMESTER**

(a) Candidates shall register their names for the first semester examination after admission in the UGcourses.

(b) 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) semestersubjects

12. ISSUE OFCERTIFICATES

1. Marksheet

Mark sheets will be issued every semester to all students who have taken theexamination.

2. Consolidated MarkSheet

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 respectivedegree.

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 challanis to be submitted to the office of the Controller of Examinations. The certificates will be provided within 15 workingdays.

4. ProvisionalCertificate

AcopyoftheresultsofthesuccessfulfinalyearstudentswillbesenttotheUniversityofMadrasin the prescribed format in July/August and the University will issue a Provisional Certificate through the College. This may take around 2months.

5. Corrections in theCertificates

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 challanis 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 anycircumstances.

6. Issue of Duplicate MarkSheet

In case of loss of mark sheet / certificate, a duplicate may 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 theofficeofthe ControllerofExaminations.Certificateswhicharetornwillnotbereplaced.

7. Duplicate Provisional Certificate / Degree Certificate:

Students have to apply directly to the University of Madras for duplicate provisional certificate and degreecertificate.

8. Verification ofQualification

The agencies who requests for verification of educational qualifications of students under autonomous mode of this college and students who opt for higher studies / employment and who requires 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.

13. CONVOCATION ANDNOTICE

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 inthe college office on or before the last date fixed by the college. Every year after the Convocation heldby 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 thecollege adminoffice.

2. Notice

Candidateswho have completed the duration of the course and left the College, can get information regarding Supplementary Examinations, issueof 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.

SYLLABUS

SEMESTER - I

CORE I - FINANCIAL ACCOUNTING

SUBJECT CODE :	THEORY & PROBLEM	MARKS : 100
SEMESTER : I	CREDITS : 4	No. OF HOURS PER WEEK : 6

(Common to B.Com (BM), B.Com (ISM), BBA and B.Com (A&F))

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.

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)

UNIT III: Classification of errors – Rectification of errors – Preparation of Suspense Account, Insurance claims – Average Clause (Loss of stock only)

UNIT IV: Depreciation – Meaning, Causes, Types – Straight Line Method – Written Down Value Method (simple problems).

UNIT V: 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**

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**	**MARKS : 100**
SEMESTER : I	**CREDITS : 4**	**No. OF HOURS PER WEEK : 5**

(Common to B.Com (ISM), B.Com (BM), B.B.A, 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 - (20 Hours)

Management: Importance – Definition – Is Management art or science –Functions of Management: POLC framework - Role and Functions of a Manager- Managerial skill – Levels of Management – Application of management in various functional areas – Production, Accounting and Finance, Marketing and Personnel Management.

UNIT II - (15 Hours)

Evolution of Management: Classical school of thought: Henry Fayol ,Peter Drucker, Elton Mayo, Max Weber.

Modern School of Thought: Systems Approach, Contingency approach, Kaizen's approach.

UNIT III - (15 Hours)

Planning: Meaning - Objectives of planning - Importance of planning – Types of planning.

Decision making: Nature and significance- Process of Decision making – Types of Decision making- Styles of decision making – analytical decision making, behavioral decision making, conceptual decision making – Decision making techniques – Decision trees, payback analysis and simulations.

UNIT IV - (15 Hours)

Organizing – Meaning and definition of Organizing, Importance of Organizing, and Principles of Organizing: Work specialization, Authority, Chain of Command, Delegation and Span of Control. Types of Organizational Structure – Line Organizational Structure, Staff organizational structure, Divisional Organization structure, Product/Project organizational structure, Matrix Organizational Structure and Hybrid Organizational Structure.

UNIT V- (10 Hours)

Co-ordination: What is co-ordination – Need for co-ordination, Types of co-ordination and essential requisites for excellent co-ordination. Controlling: Meaning and Importance –Function of controlling, Process of controlling 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 Edtion
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 8 questions (each in 300 words)	13-20	6	**30**
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	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 1 - BUSINESS COMMUNICATION

SUBJECT CODE:	**THEORY**	**100MARKS**
SEMESTER: I	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 5**

(Common to B.Com (BM), B.Com (ISM), B.Com (A&F), 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 - (15 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 - (15 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 - (15 Hours)

P**ersonal 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

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 8 questions (each in 300 words)	13-20	6	**30**
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	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	

NME 1 –ANALYTICAL AND LOGICAL REASONING

SUBJECT CODE :	**THEORY**	**MARKS : 100 (50 IA + 50 ES)**
SEMESTER : I	**CREDITS : 2**	**No. OF HOURS PER WEEK : 2**

Common to B.Com (Hons), B.Com (BM), B.Com (A&F) and B.Com (MM), BBA

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 (6 Hrs)

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 AND CORPORATE LAWS

SUBJECT CODE:	**THEORY**	**100MARKS**
SEMESTER: II	**CREDITS: 4**	**NO. OF HOURS PER WEEK : 5**

(Common to B.Com (A&F), B.COM (BM), B.B.A)

COURSE OBJECTIVES:

- Inherit the knowledge about the legal methodology involved in business by the students

UNIT I

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. **(21Hours)**

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 **(15 Hours)**

UNIT III

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. **(12 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. **(15 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. **(10 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	3	**30**
Section B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
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	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	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE IV–BANKING

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER : II	**CREDITS : 4**	**No. OF HOURS PER WEEK : 5**

(Common to B.Com (A&F)

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, Bookwell Publishers, New Delhi, 1997
2. **Mathur**, Indian Banking, Performance, Problems and Challenges, Bookwell 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	3	**30**
Section B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
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	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	

ALLIED: II BUSINESS STATISTICS AND OPERATION RESEARCH-I

SUBJECT CODE:	**THEORY & PROBLEMS**	**100 MARKS**
SEMESTER: II	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 6**

(COMMON TO B.B.A, 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

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. **(15 Hrs)**

UNIT – II

Measures of Dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation – Measures of Skewness. **(20 Hrs)**

UNIT – III

Correlation – Karl Pearson's Coefficient of Correlation – Spearman's Rank Correlation – Regression Lines and Coefficients. **(20 Hrs)**

UNIT – IV

Introduction to OR: Definition, Applications of OR, Techniques or tools of OR –LPP model formulation– Graphical and Algebraic Solution. **(Simple Problems only) (17 Hrs)**

UNIT - V

Network Analysis - PERT and CPM (no crashing) **(Simple Problems only) (18 Hrs)**

Prescribed Text:

1. Statistical Methods – S.P. Gupta, Sultan 2000.
2. Introduction to Operations Research – Dr. P.R. Vittal, Margham Publications

Reference Books:

1. Statistics - Elhance
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
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:

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	2
	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

NME 2 – EMOTIONAL INTELLIGENCE

SUBJECT CODE :	**THEORY**	**MARKS : 100 (50 IA + 50 ES)**
SEMESTER : II	**CREDITS : 2**	**No. OF HOURS PER WEEK : 2**

Common to B.Com (A&F) and 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.Aparna Chattopadhyay,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, 2005 by 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–MARKETING MANAGEMENT

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER : III	**CREDITS : 4**	**No. OF HOURS PER WEEK : 5**

(Common to B.Com (BM), B.Com (ISM), B.B.A, 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 Hrs)

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 Hrs)

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 Hrs)

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 Hrs)

Promotion –Meaning, Objectives – Types - A brief overview of: Advertising - Publicity - Public Relations - personal Selling - Direct selling and Sales promotion.

UNIT V – (15 Hrs)

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) Pt 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 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	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	

CORE VI – CORPORATE ACCOUNTING

SUBJECT CODE:	THEORY & PROBLEMS	100 MARKS
SEMESTER: III	CREDITS: 4	NO. OF HOURS PER WEEK: 6

(Common to B.COM (BM) and B.COM (A&F))

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 - Valuation of Goodwill: Average profit method, Super profit method and Capitalisation 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 Acconting, 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**

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–E- BUSINESS

SUBJECT CODE :	THEORY	MARKS : 100
SEMESTER : III	CREDITS : 4	No. OF HOURS PER WEEK : 6

(Common to B.COM (ISM) 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

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

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

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

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

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**

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 VIII: ENTREPRENEURIAL DEVELOPMENT

SUBJECT CODE:	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

(COMMON TO B.B.A, B.COM (ISM), B.COM (BM), B.COM (A & F))

COURSE OBJECTIVE:

- To create awareness among students about entrepreneurship and its importance.
- To keep the students informed about various financial institutions that promote ED.
- 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. **(13 Hrs)**

UNIT II

Entrepreneurial Development Agencies. - Commercial Banks – District Industries Centre – National Small Industries Corporation – Small Industries Development Organisation – Small Industries Service Institute. All India Financial Institutions – IDBI – IFCI – ICICI – IRDBI **(20 Hrs)**

UNIT III

Project Management - Business idea generation techniques – Identification of Business opportunities – Feasibility study – Marketing, Finance, Technology & Legal Formalities - Preparation of Project Report – Tools of Appraisal. **(15 Hrs)**

UNIT IV

Entrepreneurial Development Programmes (EDP) – Role, relevance and achievements – Role of Government in organizing EDPs – Critical evaluation. **(12 Hrs)**

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 Hrs)**

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	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	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	

ALLIED: III BUSINESS STATISTICS AND OPERATION RESEARCH-II

SUBJECT CODE:	**THEORY & PROBLEMS**	**100 MARKS**
SEMESTER: III	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 6**

(COMMON TO B.B.A, 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

Time Series Analysis – Secular trend: Graphic or free hand method, Method of semi average, Moving average and Method of least squares-Seasonal variation: Method of simple average only. **(15 Hrs)**

UNIT – II

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. **(15 Hrs)**

UNIT -III

Probability – Addition and Multiplication Theorem – Sampling Techniques – Types of Sample and Sampling procedures – Tests of Significance – t, Chi –square test only. (**Simple problems).** **(20 Hrs)**

UNIT – IV

Assignment Problems: Minimisation, Maximisation case in assignment problem. Travelling sales man problem, unbalanced assignment problem. **(20 Hrs)**

UNIT -V

Transportation Problems: North West Corner Method (NWCM) – Lowest Cost Entry Method (LCM), Vogel's Approximation Method (VAM) and MODI Method. **(20 Hrs)**

Prescribed Texts:

1. Statistical Methods – S.P. Gupta, Sultan 2000.
2. Introduction to Operations Research – Dr. P.R. Vittal, Margham Publications

Reference Books:

1. Statistics - Elhance
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
A	**Definition/Principle** Answer ANY 10 out of 12 questions (each in 50 words)	1-12	2	**20**
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C	**Essay** Answer any 2 out of 4 questions (each in 1200 words)	21-24	20	**40**
TOTAL MARKS				**100**

Distribution of Questions:

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

SEMESTER - IV

CORE IX– BUSINESS AND INTERNATIONAL ECONOMICS

SUBJECT CODE:	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

(Common to B.Com (A&F))

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

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. **(15 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. **(15 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. **(15 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 – NewDelhi – 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	3	**30**
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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	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	

CORE X – RESEARCH METHODS IN BUSINESS

SUBJECT CODE:	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

(Common to B.Com ISM)

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 Hrs)

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 Hrs)

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 Hrs)

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 Hrs)

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 Hrs)

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 by C R Kothari – New Age International Publishers
3. Research Methodology in social sciences by P.C. TRIPATHI – Sultan Chand & Sons.

Reference Books:

1. Research Methodology: A Step by Step Guide for Beginners, 2e – 2005 –by Ranjit Kumar – Pearson.

Web Reference: **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	

CORE XI - FINANCIAL SERVICES

SUBJECT CODE:	THEORY	100 MARKS
SEMESTER: IV	CREDITS: 4	NO. OF HOURS PER WEEK: 5

(Common to B.Com (BM), BBA, 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: 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 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, 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, 3rd Edition , 2004,Tata McGraw Hill Publications.
2. Financial Services – B.Santhanam, Margham Publications.
3. Financial services – K.S. Dinesh Kumar, Shri Sai Publishers' Distributors, 2014.

Reference books:

1. Law of Insurance – Dr.M.N. Mishra,2014, Sultan Chand Publications.
2. Indian Financial System – H.r.Machiraju, 4th Edition ,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	3	**30**
Section B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
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	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- XII - FINANCIAL MANAGEMENT

SUBJECT CODE:	**THEORY&PROBLEM**	**100 MARKS**
SEMESTER: IV	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

(Common to B.B.A, B.Com (ISM), 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 and risk 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 Hrs)

Meaning, objectives and Importance of Finance – Sources of finance – Functions of financial management – Role of financial manager in Financial Management.

UNIT II – (20 Hrs)

Capital structures planning - Factors affecting capital structures – Determining Debt and equity proportion – Theories of capital structures – Leverage concept.

UNIT III – (20 Hrs)

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 Hrs)

Dividend policies – Factors affecting dividend payment - Company Law provision on dividend payment –Various Dividend Models (Walter's Gordon's – M.M. Hypothesis)

UNIT V – (10 Hrs)

Working capital – components of working capital – working capital operating cycle – Factors influencing working capital – Determining (or) Forecasting of working capital requirements.

Prescribed Texts

1. Financial Management – Dr. A. Murthy – Margaham Publications
2. Financial Management – S.N. Maheswari

Reference Books:

1. Financial Management - I.M. Pandey
2. Dalston L. Cecil, Financial Management, Learn Tech press, Trichy, 2nd Edition 2015
3. Financial Management – Prasanna Chandra
4. Financial Management – Y. Khan and Jain

Web Reference

1. http://fpacert.afponline.org/Ref/
2. http://www1.worldbank.org/publicsector/pe/oecdpemhandbook.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 1200 words)	21-24	20	**40**
TOTAL MARKS				**100**

Distribution of Questions:

Section	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	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

ALLIED IV–HUMAN RESOURCE MANAGEMENT

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 5**	**No. OF HOURS PER WEEK : 6**

(Common to B.B.A, B.Com (ISM), B.Com (BM), B.Com (A&F))

COURSE OBJECTIVES:

- To understand the nature of human resources and its significance to the organization.
- To familiarise 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

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. **(20 Hrs)**

UNIT II

Induction – Training – Methods – Techniques – Identification of the training needs – Training and Development – Performance appraisal – Transfer – Promotion and termination of services – Career development. **(20 Hrs)**

UNIT III

Remuneration – Components of remuneration – Incentives – Benefits – Motivation: A.Maslow's theory, Mc Gregor's 'X' and 'Y' theory, Herzberg's two factor theory and V room's valence expectancy theory – Welfare and social security measures. **(20 Hrs)**

UNIT IV

Labour Relation – Functions of Trade Unions – Forms of collective bargaining-Workers' participation in management – Types and effectiveness. **(15 Hrs)**

UNIT V

Industrial Disputes and Settlements (Laws Excluded) – Settling Industrial Disputes in India. **(15 Hrs)**

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 Dr Charmine 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	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	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	

SEMESTER - V

CORE XIII COST ACCOUNTING

SUBJECT CODE:	THEORY & PROBLEMS	100 MARKS
SEMESTER: V	CREDITS: 4	NO. OF HOURS PER WEEK: 6

Common to B.COM (ISM)

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 Hrs)

Introduction of 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 – (20 Hrs)

Elements of cost – Classification of overheads- cost sheet- Cost Sheet Vs. production statement- Stock of Raw materials – Specimen cost sheet with inventories- Tenders and quotations.

UNIT III – (20 Hrs)

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 Hrs)

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 Hrs)

Meaning and definition - Importance-Classification – Primary Distribution of overheads, Secondary distribution of overheads – Absorption of overheads - calculation of Machine hour rate.

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	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:

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		2
	Unit – 4		1
	Unit – 5		2
Section C	Unit – 1		
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit – 5		1

CORE XIV - RETAIL MARKETING

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**No. OF HOURS PER WEEK : 5**

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: Introduction to Retail Marketing – retail environment – the growing importance of retail industry. (**15 Hrs)**

UNIT – II : Consumer behavior in the retail context – buying decision process – its implication for retail management. (**15 Hrs)**

UNIT – III : Store lay out – design – Merchandising – private brands – national brands – merchandising buying and handling. (**15 Hrs)**

UNIT - IV: Retail Marketing Mix – 4 Ps – Merchandise Management – Negotiating Purchase – Rural Marketing. (**15 Hrs)**

UNIT – V: Consumerism and ethics in retailing – international retail structures – future of retailing. (**15 Hrs)**

Prescribed Texts:

1. Andrew J. Navman and Peter Cullon – Retailing Environment – Thomson & Organisation
2. Berman : Retail management , 8th Edn. – Prentice Hall of India

Reference Books:

1.Patrick M. Nunne, Robert F. Lusch and David A. Griffith – Retailing

2.Retail Marketing Management – David Gilbrath

3.Marketing Strategy – A. Nag

4. Principles of Marketing – Sherlekhar, Dr. K. Nirmala Prasad and S.A. Salvardine Victor.

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 8 questions (each in 300 words)	13-20	6	**30**
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	2	
	Unit – 4	3	
	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	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE XV- INTERNATIONAL MARKETING

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

COURSE OBJECTIVES:

- To impart knowledge about the various types of marketing in Business.
- To have a in depth knowledge of International marketing.

UNIT – I: Need and importance of international marketing – entry strategy – international trade theories – BOT, BOP. **(20 hrs)**

UNIT – II : International markets – consumer behaviour – market research – product market strategies. **(20 hrs)**

UNIT – III: Pricing – terms – FOB – CIF – foreign exchange fluctuations – channels of distributors. **(20 hrs)**

UNIT – IV: Advertising and sales promotion – insurance and Risk coverages – institutions for promotion of international marketing – marketing assistance – documentation procedures in export & import trading. **(15 hrs)**

UNIT – V: WTO – Trade Blocks – EU – Globalisation – Global Markets. **(15 hrs)**

Prescribed Texts:

1.Varshney and Bhattacharya, INTERNATIONAL MARKETING, Bookwell Publishers, New Delhi, 1999.

2.Philys Cateora and John Graham, INTERNATIONAL MARKETING, Tata Mc Graw Hill, 1999.

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

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 8 questions (each in 300 words)	13-20	6	**30**
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	2	
	Unit – 4	3	
	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	2	
	Unit - 5	1	

CORE – XVI
ADVERTISING MANAGEMENT AND SALES PROMOTION

SUBJECT CODE :	**THEORY:**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common to 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: Advertising: Definition, objectives, need & importance, growth of modern advertising – types & classification of advertisement, advertising spiral – market segmentation, promotional mix and target audience. **(20 Hrs)**

UNIT – II: 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. **(20 Hrs)**

UNIT – III: 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. **(20 Hrs)**

UNIT – IV: Management of sales promotion: Importance & need for sales promotion, planning for consumer schemes & contests, different types of consumer schemes. **(15 Hrs)**

UNIT – V: Control: Measurement of effectiveness – ethics, economics and social relevance. **(15 Hrs)**

Reference 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.
4. Wells, Moriarity & Burnett: Advertising Priniciples & Practices, Prentice Hall.
5. Jefkins, F., Advertising, 4th Edition, Pearson, 2002.
6. 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
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 8 questions (each in 300 words)	13-20	6	**30**
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	2	
	Unit – 4	3	
	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	

ELECTIVE I: INTER DISCIPLINARY ELECTIVE

TOURISM MANAGEMENT

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 Hrs)

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 Hrs)

Tourism product planning and development – User's profile – Tourism life study styles – Market segmentation.

UNIT III (20 Hrs)

Tourism product strategy – Tourism Pricing strategy – Tourism promotion strategy – Tourism distribution strategy.

UNIT IV (15 Hrs)

Typology of tourism – Different kinds of tourism – educational, religious, medical, entertainment, cultural, heritage, sports and adventurous tourism – Travel Documents.

UNIT V (20 Hrs)

ITDC – World Tourism Organisation (WTO) - Role of travel agents and Employment opportunities.

Prescribed Texts:

1."Tourism marketing", S.M.Jha, Himalaya Publishing House, Mumbai, 1Stedition, 2010.

Web Reference:

•http://www.unto.org/index.php
•http://www.indiatourism.com/
•http://www.tamilnadutourism.org
•http://www.incredibleindia.org

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 8 questions (each in 300 words)	13-20	6	**30**
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	2	
	Unit – 4	3	
	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	

SEMESTER - VI

CORE – XVII

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 : Sales objectives – Functions of Sales Management – Duties and responsibilities of Sales Manager – Types of Salesmanship – Advantages and Limitations of Salesmanship. **(15 Hrs)**

UNIT – II: Sales Planning, Sales policy – Sales organization, Structurising and managing sales force, designing sales territories – fixing sales, quota, controlling and motivating sales force. **(15 Hrs)**

UNIT – III: 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 **(20 Hrs)**

UNIT – IV : The Channel of distribution – Its importance – types of channels. Wholesalers & Retailers – Brokers, Commission agents - dealers sole selling agents. **(20 Hrs)**

UNIT – V: Potential in distribution in India – Logistics – Physical Distribution. **(20 Hrs)**

Prescribed Texts:

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.

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 8 questions (each in 300 words)	13-20	6	**30**
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	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 XVIII– MANAGEMENT ACCOUNTING

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common to B.Com (ISM), B.B.A, 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: Management accounting – Meaning, nature, scope, functions, need, importance and limitations Management Accounting vs. Cost Accounting, Management Accounting vs. Financial Accounting.

UNIT II: Analysis and Interpretation of financial statements – Nature, objectives, essentials and 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, and Construction of Balance sheet (simple problems only).

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).

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)

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:

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:

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 XIX– SERVICES MARKETING

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common to 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: 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. **(20 Hours)**

UNIT-II: 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. **(20 Hours)**

UNIT-III: 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. **(18 Hours)**

UNIT-IV: 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. **(20 Hours)**

UNIT-V: 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. **(12 Hours)**

Prescribed Texts:

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 .

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 8 questions (each in 300 words)	13-20	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions (each in 1200 words)	21-26	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	2	
	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 - SUPPLY CHAIN MANAGEMENT

SUBJECT CODE :	**THEORY:**	**MARKS : 100**
SEMESTER : VI	**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: Supply chain Management – Meaning, Definition, Functions, need – Marketing forces affecting supply chain activities – supply chain activities in India. **(20 Hrs)**

UNIT – II: Supply Chain Intermediaries – Meaning, importance, objectives, functions – Types of intermediaries – Selection of channel members – Motivation, training and evaluation of channel members. **(20 Hrs)**

UNIT – III: Transportation – Meaning, importance, Functions – Types of transportation – Methods of Selection of transportation – factors considering fixation of freight charges – Role of containers in modern Transportation. **(15 Hrs)**

UNIT – IV: Warehousing – meaning, characteristics, importance, functions – Types of warehousing – Selection of transportation – warehouse locations – Packaging and material handling – Documents relating to warehousing – Warehousing in India. **(20 Hrs)**

UNIT-V : Inventory Management – Meaning, Importance, Functions – Inventory Control – Inventory control under uncertainties – ABC Analysis – JIT – Cost of inventories – order processing – Customer Services. **(15 Hrs)**

Prescribed Texts:

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 – A managers guide – Pearson Education – New Delhi – 2004.
2.David J. Bloomberg, Stephen Lemay, Joe E. Hanna, Logistics, Printice Hall of India, New Delhi – 2002.
3.Dr. C.B. Gupta and Dr. N. Rajan Nair, Marketing management, Sultan Chand, New Delhi, 2007.
4.Bowersox closs, Logistical Managemevil – The Intergrated supply chain Management, Printice Hall of India, New Delhi – 2004.

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 8 questions (each in 300 words)	13-20	6	**30**
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	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	

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)

VELACHERY ROAD, CHENNAI – 600042

(Re-accredited at 'A' grade by NAAC)

BACHELOR OF SCIENCE

DEPARTMENT OF BIOTECHNOLOGY

Syllabus 2018-2021

DEPARTMENT OF BIOTECHNOLOGY 2018-2021

Sem.	Part	Course Component	Subject Name	Cdts	Hrs	CIA	ESE	Total
I	I	Language	Tamil I	3	6	50	50	100
	II	English	English I	3	4	50	50	100
	III	Core I	Cell Biology	4	6	50	50	100
			Practical I – Cell and Molecular Developmental Biology	-	2	*	*	*
		Allied I	Microbiology I	5	6	50	50	100
			Microbiology Practical*	-	2	*	*	*
	IV	1. NME/ Basic Tamil	Laboratory Quality system	2	2	-	100	100
		2. Skill based subjects	Soft skill I	3	2	-	100	100
II	I	Language	Tamil II	3	6	50	50	100
	II	English	English II	3	4	50	50	100
	III	Core II	Molecular Developmental Biology	4	6	50	50	100
			Practical I – Cell and Molecular Developmental Biology	4	2	50	50	100
		Allied II	Microbiology II	3	6	50	50	100
			Microbiology Practical	4	2	50	50	100
	IV	1. NME/ Basic Tamil	Laboratory Instrumentation	2	2	-	100	100
		2. Skill based subjects	Soft skill II	3	2	-	100	100
III	I	Language	Tamil III	3	6	50	50	100
	II	English	English III	3	4	50	50	100
	III	Core III	Genetics	4	6	50	50	100
			Practical II - Genetics	-	2	*	*	*
		Allied III	Biochemistry I	3	6	50	50	100
			Allied Biochemistry Practical*	-	2	*	*	*
	IV	1. Skill based subjects	Soft skill III	3	2	-	100	100
		2. EVS	Environmental science	-	2	*	*	*
IV	I	Language	Tamil IV	3	6	50	50	100
	II	English	English IV	3	4	50	50	100
	III	Core IV	Plant Biotechnology	4	6	50	50	100
			Practical II - Plant Biotechnology	4	2	50	50	100
		Allied IV	Biochemistry II	3	6	50	50	100
			Allied Biochemistry Practical	4	2	50	50	100
	IV	1. Skill based subjects	Soft skill III	3	2	-	100	100
		2. EVS	Environmental science	2	2	-	100	100
V	III	Core V	Animal and Medical Biotechnology	4	4	50	50	100
		Core VI	Bioinformatics	4	4	50	50	100
		Core VII	Immunology	4	4	50	50	100
		Core VIII	Biostatistics and Computer Applications for Life Sciences	4	4	50	50	100
		Core IX	Practical III - Animal, Medical Biotechnology and Immunology	-	4	50	50	100
		Core X	Practical IV - Genetic engineering and Bioprocess	-	4	*	*	*
		Elective – I	Pharmaceutical Biotechnology	5	5	50	50	100
	IV	Value Education	Value education	2	1	*	100	100
VI	III	Core XI	Genetic engineering	4	4	50	50	100
		Core XII	Bioprocess technology	4	4	50	50	100
		Core XIII	Biotechnology and Nanotechnology	4	4	50	50	100
		Core XIV	Practical III - Animal, Medical biotechnology and Immunology	4	4	50	50	100
		Core XV	Practical IV - Genetic engineering and Bioprocess	4	4	50	50	100
		Elective II	Microbial Biotechnology	5	5	50	50	100
		Elective III	Environmental Biotechnology	5	5	50	50	100
	V	Extension Activities		1	-	-	-	-

B.Sc., DEGREE PROGRAMME IN BIOTECHNOLOGY

SYLLABUS

SEMESTER - I

PAPER 1 - CELL BIOLOGY

Objectives:

The course helps the students to build a sound knowledge in various aspects of cellular biology including the structure and functions of cell, its organelles, microscopic techniques to understand the cell structure and the mechanism behind the metabolism and various activities of the cell. Synthesis and function of macromolecules and membrane structure and function.

UNIT- I:

Organisation of living organisms – Unicellular to higher organisms – organs – tissues – cells.

UNIT II:

Cell: The dynamic cell – the molecules of life- the architecture and types of cells- differentiation of cells into tissues. Molecular aspects of cell division and cell cycle- cellular energetics- cell motility- cell-to-cell signalling-hormones and receptors.

UNIT- III:

Biomembranes, transport across cell membranes- subcellular organization of eukaryotic cells- microscopy and cell architecture.

UNIT- IV:

Genetic code and the synthesis of macromolecules: structure of nucleic acids- nucleic acid synthesis- DNA replication- repair- recombination- protein secretion and sorting, folding, modification, and degradation of proteins.

UNIT – V:

Molecular structure of genes and chromosomes: Regulation of transcription in bacteria and eukaryotic cell. RNA processing and post-transcriptional control - Regulation of gene expression. Hormones, viruses and gene expression; Nuclear-Cytoplasmic interaction.

Learning Outcomes:

Upon completion of this course, the students

- Would have deeper understanding of the cell organization
- Would have deeper understanding Cell structure and function of cellular organelles,
- Would have clear understanding about Biomembranes and working principles of microscopy and identification of cell types.
- Would have broad knowledge on the Genetic Code and a clear understanding of thev macromolecules synthesis.
- Would have better understanding of molecular structure of genes and gene regulation.
- Would develop knowledge about Cell – Cell signal transduction, secondary messengers, Cell energetic.

Recommended Texts:

1. Cooper, G.M. 2000. The Cell- A molecular approach, II Edn., A.S.M. Press, Washington DC.
2. Lodish, H., Berk, A., Zipursky, S.L., Matusudaria, P., Baltimore, D. and Darnell, J., 2000. Molecular Cell Biology, Media Connected, W.H. Freeman and Company, New York.

Reference Books:

1. Brown, T.A 2001. Gene Cloning & DNA analysis. Blackwell Science, London.
2. Benjamin Lewis, 2000. Genes VII. Oxford University Press, London.

Web Sites:

1. http://www.spc.cc.tx.us/biology/bio_links1.htm

PAPER 2 - PRACTICAL – 1

CELL AND MOLECULAR DEVELOPMENTAL BIOLOGY

Objectives:

The students will learn, understand & develop skill and hands on training in basics of cell biology

SEMESTER – I

CELL BIOLOGY:

1. Microscopy
2. Total count of RBC
3. Total count of WBC
4. Enumeration of WBC - Differential leukocyte Count
5. Study of giant chromosomes (polytene) from salivary gland of Chironomous larva
6. Study of mitosis from onion root tip
7. Study of meiosis from grasshopper testis
8. Enumeration of prokaryotic cell
9. Study of Barrbody from buccal smear preparation
10. Cell fractionation (Demonstration).

SEMESTER – II

MOLECULAR DEVELOPMENTAL BIOLOGY

1. Wet mount preparation of chick embryo: 24 hrs
2. Wet mount preparation of chick embryo: 48 hrs
3. Wet mount preparation of chick embryo: 72 hrs
4. Wet mount preparation of chick embryo: 96 hrs
5. Frog Life cycle study
6. To study wound healing mechanism using tadpole
7. Demonstration: Hormone induced frog life cycle study
8. Demonstration: In-vitro fertilization using *Hydroides elegans*

Outcomes:

This practical course will facilitate the students to

- understand the basic techniques to work with cells
- demonstrate working principles of Microscopy
- understand and perform cell staining techniques
- identify the various stages of mitosis
- identify the various processes involved in gastrulation, organogenesis.

ALLIED 1 - PAPER III- MICROBIOLOGY I

Objectives:

This course is aimed give an understanding about the basics of microbiology dealing types of microbes, classification & characterization. The course helps in understanding the microbial world in various aspects of structure, growth, industrial and medicinal applications.

Unit I:

Evolution of Microbiology. Classification of micro-organisms.

Unit II:

Structural characteristics of Bacteria. Actinomycetes, Mycoplasma and viruses.

Structural characteristics of micro algae (Oscillatoria, Volvox and Chlorella), fungi (molds and yeasts) and Protozoa Entamoeba Plasmodium and Euglena)

Unit III:

Basic microbiological techniques: Cleaning of glassware. Sterilization of glassware and media. Streak plate, spread plate, and pour plate enrichment culture, single spore isolation, serial dilution, standard plate count. Lyophilization. Types of culture media. Staining techniques-simple and differential.

Unit IV:

Microbiology of Soil. Microbes in soil, rhizophers and rhizoplane. Nitrogen-fixing, nitrifying and denitryfying bacteria. Sulphur bacteria. Biofertilizers.

Unit V:

Microbiology of water. Potable water. Municipal water purification. Sewage disposal and treatment-Physical and biological. Measurement of microbial growth (turbidity, biomass, cell count, pigments).

Learning outcomes

Students will be able to:

- Explain the Evolution of microbiology and classification of microorganisms.
- Understand the structural characteristics of Bacteria, algae, fungi.
- Demonstrate the various microbiological techniques and sterilization procedures
- Identify different groups of microorganisms using staining techniques
- Explain the role of microorganisms in soil, milk, water
- Explain the various types culture media and their specificity
- Demonstrate the various ways to kill pathogenic microbes and Sewage treatment and disposal – Physical and Biological.

Books

1. *Pelczar, M.J., Chan, E.C.S., King, N.R., 2001. Microbiology- Concepts and Applications. Tata McGraw – Hill, New Delhi.*
2. Ananthanarayan, R. and Paniker, C.K.J. 2000. A text book of Microbiology. 6th edition. Orient Longman Ltd., Hyderabad.
3. Pelczar. 2000. Microbiology. 5th edition. Tata McGraw Hill., New Delhi.
4. Ingraham, J.L., and Ingraham, C.A. 2000. Introduction to microbiology, 2nd edition. Brooks/Cole, Thomson Learning, USA.

Reference books:

1. Kathleen Park Talaro and Talaro, A. 1999. Foundation in Microbiology, 3rd edition, McGraw-Hill, New York.
2. Cappuccino, J.G and Sharman, N. 1999. Microbiology: A Laboratory manual, 4th edition. Addition Wesley Longman Inc., New York.
3. Daniel Lim. 1998. Microbiology, 2nd edition. McGraw-Hill, New York.

Web site:

1. http://science.nhmccd.edu/biol/microbio.html

ALLIED PAPER IV: MICROBIOLOGY PRACTICAL

Objectives:

This practical is designed to give an understanding about the basic techniques in Microbiology

SEMESTER-I

1. Preparation of bacterial smear.
2. Gram staining.
3. Hanging drop method for testing motility of bacteria.
4. Preparation of slants.
5. Enumeration of bacteria from soil, water, air and mils samples. Standard plate count.
6. Observation of pond water for the presence of microorganism- Volvox, Chlorella, Oscillatoria, Entamoeba. Paramoccium and Euglena.
7. Study of photomicrographs of different types of bacteria and viruses.
8. Identification of organisms that spoil the following:
   Citrus fruits, Grapes, Emblica fruits. Coconut Kernal, Milk Products, bread and jam
9. Phosphatase and reductase tests.
10. Study of organisms and their substrates in the formation of the following - lactic acid, Acetic acid, ethanol, pencillin, streptomycin dairy products and alcoholic beverages.

Demonstration

1. Sterilization techniques
2. Preparation of pure culture from mixed culture
3. Culture of root module bacteria
4. Antibiotic assay and Disc sensitivity on microbes.
5. Effect of temperature on the growth of microbes.

SEMESTER II

1. Biochemical characterization and Identification of E. coli
2. Examination of microbes (algae) from pond water
3. Isolation of siderophore producing bacteria from soil sample
4. Isolation of phosphate solubilizing bacteria from Rhizosphere soil sample
5. Isolation of starch degrading bacteria
6. Screening for lipase producing bacteria from grey water sample
7. Identification of fungal species by Lactophenol cotton blue staining
8. Air quality check by open plate technique and colony count
9. Isolation of probiotic (aerobic and anaerobic bacteria) from curd sample

10. Water quality check: MPN (Most probable test) test
11. Demonstration: Estimation of bacterial growth
12. Demonstration: Antibiotic sensitivity test

Learning outcomes

Students will be able to:

- Prepare culture media, sterilizing the media
- Prepare bacterial smear and to perform staining of microbes.
- Understand the isolation and characterization of microbes
- To isolate bacteria from soil, water, air and curd
- To understand the bio applications of microbes.

Reference Books:

1. Ananthanarayanan, R. and Panicker, J. 1986.Text Book of Microbiology. Orient Longmans.
2. Boyd, R.F. 1988. General Microbiology. Times Mirror/Mosby College publishers.
3. Burrows., W. 1978. Text book of Microbiology. W.B. Saunders.
4. Carpenter. P.L. 1990. Microbiology. W.B. Saunders.
5. Frazier, W.C. 1978. Food Microbiology. McGraw Hill.
6. Frobisher, M. 1974. Fundamentals of Microbiology. W.B. Saunders.
7. Jay J.M. 1970. Modern Food Microbiology. Van Nostrand.
8. Ketchum P.A. 1988. Microbiology John Wilcy & Sons.
9. Lakshmanan, M.etal. 1971. Laboratory Experiments in Microbiology and Molecular Biology. Higginbothams (private) Ltd.
10. Peizar and Reid. 1986. Microbiology. Tata McGraw Hill.
11. Purohit S.S. 1991. Microbiology. Agro Botanical Publishers (India)
12. Salle, A.J. 1986.Fundamental Principles of Bacteriology. Tata McGraw Hill.
13. 1964.Bacterial flora of milk and milk products in India. ICAR Publishers.

NME: LABORATORY QUALITY SYSTEM

Objectives:

- Organization of the lab – lab routines – safety rules
- CPCSEA and ethics in animal experiments
- Maintenance of data book – data presentation
- Making reagents and buffers – normality, molarity calculations – Weighing and mixing reagents – pH adjustments - sterilization and storing of reagents.
- Laboratory waste disposal – hazardous and non- hazardous.

Learning outcomes

Students will be able to:

- Understand the various Laboratory safety rules and principles laid down for proper functioning of any laboratory
- Understand the International guidelines and CPCSEA rules.
- Understand the concepts of Normality, Molarity, weighing and mixing of reagents, pH adjustments.
- Explain the various methods sterilization and storage of chemicals.
- Understand the basic and advanced methods of laboratory wastes disposal.

Reference Book:

K. Barker, “At the bench: A laboratory navigator”. I. K. International Pvt. Ltd., New Delhi, 1998.

SEMESTER – II

PAPER V: MOLECULAR DEVELOPMENTAL BIOLOGY

UNIT- I:

Cellular regulation – cell cycle (Overview, mechanism involved, control- role of check point proteins); Cell signaling pathways (GPCR pathway, Tyrosine Kinase pathway- JAK –STAT, Serine threonine pathway with TNF-alpha, Notch delta pathway) and differentiation (Epithelial cell to mesenchymal cells during the development and Ectodermal cells to Skin cells and Neural cells).

UNIT- II:

Transcription (Eukaryotic mechanism-Overview), expression (Eukaryotic gene expression control mechanism) and regulation in eukaryotic development with slime mould and *C. elegans* as model systems

UNIT- III:

Myogenesis in mammals (Overview only) - growth factors: Mitogens and Oncogenes (Role in developmental biology only overview).

UNIT- IV:

Neurogenesis in Drosophila (Neurulation and Neurogenesis mechanism) and Mice (Neurogenesis only the overview) - Regional specification in Drosophila.

UNIT- V:

Embryogenesis (Drosophila as the model animal) - Genes (Maternal effect genes, Zygotic genes, Homeotic genes) involved in the development (Explanation using Drosophila as the model), Mammalian (Mice and Humans) homologs in Drosophila ANT-C and BC-X (overview only).

Recommended Texts:

1. Gilbert, S. 2000. Developmental Biology. Seventh edition. Sinaver Associates Inc. Publishers, MA. USA.
2. Tait, R.C. 1997. An Introduction to Molecular Biology, Horizon Scientific Press, England.

Reference Books:

1. Lodish, H., Berk, A., Zipursky, S.L., Matsudaria, P., Baltimore, D. and Darnell, J. 2000. Molecular Cell Biology. Media Connected. W.H. Freeman and Company, New York.
2. Freifelder, D. 1990. Essentials of molecular biology. Narosa Publishing House, New Delhi.
3. Watson, J.D., and Hopkins, N.H., Roberts, J.W., Steitz, J.A. and Weiner, A.M. 1988, Molecular biology of the gene. 4th edition. Benjamin and Cummings Publishing Company, Inc., California.

Web Site:

1. http://web.wi.mit.edu/sive/pub/generallinks.html

ALLIED SUBJECT – PAPER VI: MICROBIOLOGY II

Objectives:

Microbes play an indispensable role in industrial biotechnology, so study of microbes from basic to advanced level, with understanding of biochemistry, cell structure and application makes this paper significant.

UNIT-I:

Microbiology of air: Microbes in atmosphere (types and their beneficial role), Methods of purification of air.

UNIT-II:

Food microbiology: Microbial spoilage of food (Factors and spoilage of different food items, spoilage of bread, fish and meat) food preservation techniques with special emphasis on preservation of home foods by turmeric, salt, spices, oil and sugar (natural-preservation and chemical preservation)

UNIT-III:

Microbiology of Milk: Microbes in milk and their sources, pasteurization. Milk quality test: Reductase test, Phosphatase test. Dairy Products (Cheese, Yoghurt, Kefir).

UNIT-IV:

Industrial microbiology: Microbes in the production of organic acids (citric acid, L-Ascorbic acid), Antibiotics (Penicillin production) and alcoholic beverages (Beer and wine production)

UNIT-V:

Microbes and diseases: Pathogenesis (host parasite interaction), Immune system(Cells of immune system, Active and Passive immunity) Staphylococcus infection, Pneumonia, Small pox, Polio virus, HINI Infection, AIDS, Yellow virus Dengue, Malaria, Hepatitis. Control of microbes-Physical and chemical methods. Personal hygiene and sanitation.

Learning outcomes

Students will be able to:

- Learn the classification of microbiology – Aerobiology, Food Microbiology, Industrial Microbiology.
- Understand the characteristic and nutritional requirements of microbial growth and the methods or equipments used to control and monitor their growth.
- Demonstrate as to how microorganism interact with their environment
- Discuss the causative organisms, mode of transmission, pathogenicity, symptoms and preventive measures of microbial diseases.
- Understand the role of microorganisms in waste water treatment, bioremediation.
- Demonstrate the various ways to control pathogenic microbes – Physical and Chemical methods with reference to personal hygiene.
- Beneficial applications of microbes and the permissible limit of biological contaminants in food.

NME: LABORATORY INSTRUMENTATION

Objectives:

To familiarize students with various laboratory techniques undertaken before medical intervention and the instruments utilized in common laboratories.

1. Centrifuges and centrifugation – rotor types, type of gradients- calculation of g force.
2. Electrophoresis - basic rules, types of electrophoresis – agarose, SDS-PAGE, iso electric focussig and 2-dimensional gel, PFGE.constant power supplies. Blotting
3. Chromatography – types of Chromatography – Paper, TLC, Columns, GLC, and HPLC.
4. Spectroscopy – UV-visible spectrophotometry, Spectro fluorometers, Luminometers, ELISA readers.

Learning outcomes

Students will be able to:

- Understand the Principles and use of the instruments used in Centrifugation.
- Understand the principle and working of Electrophoresis
- Understand the principle and working of Chromatography
- Explain the various types of spectrophotometer and the various types

Reference Book:

Wilsen K and Walker J (1996) Practical Biochemistry: Principles and Techniques, 4th edition, Cambridge University press, London.

SEMESTER – III

PAPER VII - GENETICS

Objectives:

To enable the students to learn various aspects of genetics. To give an insight into evolution of genetic material, its functional aspects and changes in the environment that bring about evolution.

UNIT I

Classical Genetics – Mendelian laws, monohybrid and dihybrid inheritance. Chromosome structure and organization in prokaryotes and eukaryotes.

UNIT II

Multiple alleles and blood group antigens. Sex chromosomes and sex linked inherited disorders- X linked recessive, dominant inheritance, gender defective phenotypes.

UNIT III

Linkage, Crossing over and genetic mapping of chromosomes.

UNIT IV

Identification of the DNA as the genetic material. Classical experiments of Hershey Chase, Avery McLeod etc. Genetic recombination in bacteria: Conjugation, transduction, and transformation.

UNIT V

Mutagens and Mutation. Principles of variation and selection process of speciation genetic drift, pedigree analysis and Human genome project.

Learning outcomes

The students will be able to

- Understand Classical genetics - Mendel's first and second laws, predict the outcome of monohybrid and dihybird crosses
- Explain the chromosomal basis of sex determination and apply that understanding to predict the sex of individuals with normal and abnormal complements of sex

chromosomes. Define sex-linked characteristics and describe their transmission.

- Understand the concepts of linkage, crossing over and genetic mapping of chromosomes.
- Understand the basis of genetic material. Genetic recombination in bacteria
- Describe Mutations and mutagens, explain the key concept of genetic drift, Founder's principle and Human Genome Project.

BOOKS FOR STUDY

- Lewis, R.2001. Human genetics- concepts and application. 4th edition. McGraw Hill.
- Griffiths, Miller, J.H., An introduction to genetic analysis W.H.Freeman. New York.
- Winter, P.C., Hickey, G.J. and Fletcher, H.L.2000. Instant notes in genetics. Viva books, Ltd.
- Gardener E.J. Simmons M.J.Slustad DP. 1991. Principles of Genetics.
- Goodenough U. 1985. Genetics. Hold Saunders international.

PAPER VIII PRACTICAL II - GENETICS

Objectives:

To enable the students to learn how to prepare culture medium – methods of maintenance, identification of species and mutants. To give an insight into cell division – mitotis and meiosis and their various stages.

Genetics Practical

Preparations of culture medium and culture of Drosophila – methods of maintenance – Identifications of species and mutants. Identifications of human blood groups – mitotic stages of onion (*Alium ceepa*) root tip and meiotic stages of grasshopper testes – giant chromosomes from Chironomous larvae/ Drosophila salivary glands.

Learning outcomes

The students will be able to

- Understand the procedures involved in the preparation of culture media and culture of Drosophila
- Enumerate the various stages of cell division – Mitosis stages of Onion and Meiotic stages of grasshopper testes
- Demonstrate and identify giant chromosomes from Chironomous larvae or salivary glands of Drosophila.

ALLIED SUBJECT II- Paper – IX: BIOCHEMISTRY-I

Objectives:

This paper presents the study of biological substances, studies of their structure, determining how they are synthesized metabolized and degraded in organisms, and elucidating their role in the operation of the organism. To develop understanding and provide scientific basics of the life processes at the molecular level and explain the structure, function and inter-relationships of biomolecules and their deviation from normal and their consequences for interpreting and solving clinical problems.

UNIT I

Structure, chemistry and properties of Carbohydrates; Lipids; and Proteins

UNIT II

Classification of porphyrins, their structure and properties; structure of metalloporphyrins-haeme and chlorophyll; Vitamins and Hormones – (Classification and Examples only – No Structures).

UNIT III

Principles of Bio-energetic (Introduction of 3 thermodynamic laws); Metabolism of carbohydrates – (Glycolysis, TCA Cycle. Glucogenesis, Gluconeogenesis), fats – (β – Oxidation & Synthesis of Palmetic Acid), proteins – (Urea Cycle, purines, pyrimidines (Over view of both de novo and salvage pathway) - their biosynthesis & degradation; mechanism of oxidative phosphorylation & its inhibitors, photo phosphorylation (over view).

UNIT IV

Prostaglandins, leukotrienes, thromboxines, interferons and interleukins; antibodies – (Basic structure and functions); alkaloids – (Types and Examples); (classification and Examples).plant (carotenoid and flavonoids) and animal pigments (melanin and Hemoglobin).

UNIT V

Separation methods: Chromatography - electrophoresis and immunoelectrophoresis, high voltage electrophoresis and isoelectric focusing. Isolation methods – centrifugation, ultra – centrifugation, density gradient centrifugation (principle, overview of types and application).

Learning outcomes

The students will be able to

- Describe the structure and classification of carbohydrates, lipids and proteins
- Understand the classification and bio applications of porphyrins, vitamins and hormones
- Understand the principles of Bioenergetics: metabolism of carbohydrates, fats, proteins, purines, pyrimidines.
- Have a deeper knowledge about Prostaglandins, leukotrines, thromboxines, interferons – animal and plant pigments.
- Understand how to separate biomolecules employing chromatography, electrophoresis and centrifugation.

BOOKS FOR STUDY

- Sathyanarayana. U. 2002. Biochemistry. Books and Allied Pvt. Ltd.
- Murray, R.K., Granner, D.K., Mayes, P.A. and Rodwell, V.W. 2000.
- Harper's Biochemistry, 4th edition. McGraw-Hill.
- Stryer, L. 1999. Biochemistry, 4th edition. W. H. Freeman & Company, New York.
- Zubey, G.L. 1998. Biochemistry, 4th edition. McGraw-Hill.
- Voet, D. and Voet, J.G.1995. Biochemistry, 2nd edition. John Willey and Sons, Inc.
- Lehninger, A.L., Nelson, D.L and Cox, M.M.1993. Principles of Biochemistry, 2nd edition. CBS Publishers and Distributors, Delhi.

PAPER X: ALLIED BIOCHEMISTRY - (PRACTICAL)

Objectives:

To learn and understand the principles behind the qualitative and quantitative estimation of biomolecules (proteins, carbohydrates, lipids, metabolites etc.)

1. Volumetric analysis:
   a. Estimation of ascorbic acid using 2,6 – dichlorophenol indophenol as link solution.
   b. Estimation of calcium in milk.

2. Qualitative analysis:
   a. Qualitative analysis of carbohydrates- glucose, fructose, galactose, lactose, maltose and sucrose.
   b. Qualitative analysis of amino acids – arginine, cysteine, tryptophan and tyrosine.

3. Quantitative analysis: (only for demonstration)
   a. Colorimetric estimation of protein by Biuret method.
   b. Colorimetric estimation of phosphorous.

4. Biochemical preparations:
   a. Preparation of casein from milk.
   b. Preparation of starch from potato.

SEMESTER IV

PAPER XI - PLANT BIOTECHNOLOGY

UNIT – I:

Plant genome: Organization, structure of representative plant genes and gene families in plants – Genome organization of chloroplast and mitochondria.

UNIT – II:

Agrobacterium and crown gall tumors – Mechanism of T-DNA transfer to plants, Ti Plasmid vectors and its utility – Plant viral vectors. Symbiotic nitrogen fixation in Rhizobia.

UNIT – III:

Seed storage proteins (Albumins, Prolamins and Globulins). Regeneration of gene expression in plant transgenic plants (Overview) and applications – plant vaccine and plant development.

UNIT – IV:

Plant Hormones – IAA, GA and cytokinins – molecular basis of action – phytochrome – role in photomorphogeneisis – Regulation of gene expression – abscisic acid – and stress – induced promoter switches in the control of gene expression – Ethylene and fruit ripening.

UNIT – V:

Plant tissue culture (Types of Media and their Preparation, Explant collection, sterilization, inoculation, callus induction) – Suspension cultured cells (Types and organization of suspension cultures) – haploid plants – Cloning of hosts – Micropropagation – somatic embryogenesis – protoplast isolation (mechanical and enzymatic methods) and applications.

BOOKS FOR STUDY:

- Kojima, Lee, H. and Kun, Y. 2001. Photosynthetic microorganisms in Environmental Biotechnology. Springer – Verlag.
- Sudhir, M. 2000. Applied Biotechnology and plant Genetics. Dominant publishers and

distributors.

- Trivedi, P.C.2000. Applied Biotechnology: Recent Advances. PANIMA Publishing Corporation.
- Reynolds, P.H.S. (ed). 1999. Inducible gene expression in plants. CABI Publishing, U.K. pp 1-247.
- Chrispeels, M. J. and sadava, D.F. 1994. Plants, genes and agriculture. Jhones and Bartlett.
- Ignacimuthu. 1996. Applied Plant Biotechnology. Tata McGraw – Hill.
- Lycett, G.W. and Grierson, D. (ed). 1990. Genetic Engineering of crop plants.
- Grierson and Covey, S.N.1988. Plant Molecular biology. Blackie.
- Trigiano, R.N. and Gray, D.J. 1996. Plant tissue culture concepts and laboratory exercise. CRC Press. BocaRatin, New York.
- Street, H.E. 1977. Plant tissue culture. Blackwell Scientific Publications oxford, London.
- Narayanaswamy S. 1994. Plant cell and tissue culture. Tata McGraw Hill Publishing Company limited, New Delhi.

PAPER XII - PLANT BIOTECHNOLOGY (PRACTICAL)

Objectives:

The course will provide an overview of plant biotechnology with focus on industrial applications. The course will even provide basic knowledge in plant biology, plant molecular biology and plant biochemistry.

1. Hands on training in cell and tissue culture and maintenance of culture lines
2. Callus development and Micropropagation of plants (Collection of explants, Surface sterilization of explants – Leaf, Seed, Anther, Identification of different stages of callus)
3. Protoplast manipulation (Isolation of protoplast cells from Tomato Leaf Sample and fusion)
4. Callus propagation using fenugreek/chick pea
5. Agrobacterium technology (Isolation of *Agrobacterium* Spp. from Soil Sample)
6. Isolation of Azotobacter Spp. and demonstration of IAA Production
7. Culture of Spirulina

Demonstration

- Southern Hybridization and Northern Hybridization
- Electroporation
- Biolistic methodology

Learning outcomes

The students will be able to

- Perform cell and tissue culture and maintenance of culture lines
- Describe plant biotech applications within forestry, agriculture, and production of new materials
- Understand callus development and micropropagation of plants
- Perform Electroporation, biolistic transformation, Southern and Northern Hybridization

PAPER XIII: ALLIED BIOCHEMISTRY II

Objectives:

The course aims to provide an advanced understanding of the core principles and topics of Biochemistry and their experimental basis, and to enable students to acquire a specialised knowledge and understanding of the life processes at the molecular level and explain the structure, function and inter-relationships of biomolecules.

UNIT I

Definition and classification of carbohydrates, linear and ring forms (Haworth's formula) for glucose, fructose and mannose and disaccharides (maltose, lactose, sucrose).General properties of monosaccharides and disaccharides. Occurrence and significance of polysaccharides (Homopolysaccharies - starch and cellulose, Heteropolysaccharies – Chitosan, Pectin, Chondritin sulfate)

UNIT II

Amino acids, various classifications, amphoteric nature, isoelectric point. Reactions due to carboxyl, amino and both the groups. Proteins- classification- shape, solubility and composition, biological functions. Proteins- physical properties- ampholytes, isoionic point, salting in and salting out, denaturation, peptide bond (structure and importance) .Secondary structure - helix and pleated sheet, tertiary structure, various forces involved- quaternary structure (Hemoglobin as example). Deamination, transamination and urea cycle (Overview).

UNIT III

Fat-function, classification, simple lipids (Triacylglycerols), fatty acids (saturated and unsaturated) complex lipids (Arachidonic acid, Oleic Acid), derived lipids (Lipopolysaccharides), properties- saponification, rancidity, reduction, oxidation, halogenation. Functions of phospholipids, Cholesterol structure – biological importance, chemical properties.

UNIT IV

Purine and pyrimidine bases: nucleosides, nucleotides, polynucleotides, DNA structure, various types, properties- absorbance, effect of temperature. Different types of RNA,

structure and function. Genetic code. Enzyme definition, units, various classifications, nomenclature, specificity, isoenzymes, factors affecting enzyme activity- substrate, pH and temperature. (Overview of MM equation) Enzyme inhibition, competitive and non-competitive.

UNIT V

Vitamins, definition, classification, water soluble vitamins, B1, B2, B3, B6, B12 and Vitamin C. Deficiency diseases. Fat soluble vitamins- A,D,E and K- Deficiency diseases.

Learning outcomes

The students will be able to

- Understand the classification and significance of carbohydrates
- Understand the classification of amino acids, proteins
- Acquire knowledge about Fatty acids and their biological and chemical importance. Understand the biosynthesis of triglycerides, phospholipids and lipids.
- Understand DNA and RNA structure, Genetic code
- Highlight the biological and chemical importance of Vitamins

RECOMMENDED BOOKS

1. Fundamentals of Biochemistry - JL Jain
2. Text book of Biochemistry - AVS Rama Rao
3. Fundamentals of Biochemistry - AC Deb.

SEMESTER - V

PAPER IX - ANIMAL AND MEDICAL BIOTECHNOLOGY

Objectives:

The course provides the students about the animal cell culture technique and their maintenance. Medicinal approach of biotechnology helps in the understanding of the various techniques and its advancements in medical field.

UNIT I:

Basic principles of Biotechnology (Introduction to Animal Biotechnology only) – manipulation of reproductive process – Artificial insemination – freezing of semen – Embryo technology – in vitro maturation and fertilization – Pregnancy diagnosis – Assisted reproductive technology – cloning strategies (Eg: Dolly) – transgenic animals (Overview of the transgenesis process and Applications with Mice, cow, hen, pig, sheep, fishes and Silk worm as examples).

UNIT II:

Historical aspects (of Animal Biotechnology) – Medical Biotechnology (Vaccines and Examples of construction of engineered tissues with skin as example and their application) – Pathogenic microbes – Bacterial, Viral, Fungal and Protozoan disease (in Cow, hen and sheep) – diagnosis (pertaining to humans) using modern techniques – probes – Cure, control and prevention.

UNIT III:

Health Disease Diagnosis: Hybridoma Technique (Steps involved and application), Monoclonal antibodies (definition and application), application of Probes for diagnosis of existing and emerging disease in animal and human disease.

UNIT IV:

Vaccines – Production of recombinant vaccines – bacterial, viral or parasitic infections – DNA Vaccines (pertaining to humans). Synthetic peptide, anti-idiotype, deletion mutant and vaccine viral vector vaccine – Prophylaxis.

UNIT V:

Genetic engineering of Microorganisms (Recombinant bacteria and virus) and molecules (Recombinnat monoclonal antibodies) – Recombinant DNA, DNA/RNA probes (definition and application) – monoclones (preparation and applications as recombinant cells) – diagnosis (Recombinant DNA for human disease diagnosis) – Animal cell culture –

maintenance and culture (media and its buffer) of primary, secondary and continuous cell lines – applications.

Learning outcomes

By the end of the course, students should be able to:

- Understand the basic principles of Animal Biotechnology and its role in animal breeding.
- Understand the difference between animal biotechnology and medical biotechnology and disease diagnosis using modern techniques.
- Highlight Disease Diagnosis and Hybridoma Technology.
- Provide examples of current applications of Animal Biotechnology and its applications in the different areas like Synthetic peptide, Vaccines preparation.
- To understand the maintenance of animal cell lines as the alternative source of animal models.

BOOKS FOR STUDY

1. Click, B.R. and Pasternark. 2002. Molecular Biotechnology: Principle and applications of recombinant DNA. ASM press.
2. Ramasamy. P. 2002. Trends in Biotechnology, University of Madras of Publications, Pearl Press.
3. Kreuzer, H. and Massey, A. 2001. Recombinant DNA and Biotechnology: A guide for teachers, 2nd edition. ASM Press Washington.
4. Traven. 2001. Biotechnology. Tata McGraw – Hill.
5. Walker, J.M. and Gingold, E.B. 1999.Molecular biology and Biotechnology, 3rd edition. Panima Publishing Corporation.
6. Jenkins, N. (ed). 1999 Animal cell Biotechnology: Methods and protocols. Humana press, New Jesey. Pp 1-302.
7. Ignacimuthu. 1996. Basic Biotechnology. Tata McGraw-Hill.
8. Puhler, A.V.C.H. 1993. Genetic engineering of Animals. VCH Publishers, Weinbeiim, FRG.
9. Watson, J.D., Gilman, M., Witknowski, J. and Zoller, M. 1992. Recombinant DNA (2nd ed) Scientific American Books, NY.
10. Murray, E.T. 1991. Gene transfer and expression protocols – Methods in Molecular biology Vol.7. Humana Press.
11. Watsen, J.D., Hopkins, N.H., Roberts, J.W. Steitz, J.A. and Weiner, A.M. 1987.Molecular biology of gene. Benjamin/ Cummings 4th Ed. Vol.1&2.

PAPER X – BIOINFORMATICS

Objectives:

The course will introduce the subject of bioinformatics to the students of biology. Students should be familiarized to the importance of the bioinformatics, databases, genomics and proteomics, tools and software of bioinformatics at the elementary levels. The course also provides the details of dry lab conditions and analysis of macromolecules and genetic material using software and data bases and help the students to have a brief knowledge about analysis of sequences of the same.

UNIT I

(Scope of Bioinformatics, Biological Databases and their importance) Genomic and cDNA sequences – (Sequence retrieval from NCBI portal) : output management from different biological output sources (Sequence retrieval from Uniprot), gene prediction rules and software – Human Genome Project – Mutations (Homology Modelling – Among Humans and Rats, Case Study – BRCA1 gene), Population studies (Case Study - ASPA gene).

UNIT II

Gene therapy: Analysis of genomic and proteomic information with respect to biological systems (online tools for docking, Protein ligand interaction and Protein DNA interactions) – Genome application – Transgenic animals (databases involved in Xenobiotics) and plants (Bt cotton, Bt brinjal) – pathway regulatory networks (KEGG Pathway). Drug design / discovery and identification, synthesis of new drugs; Management of diverse chemical libraries (Pubchem).

UNIT III

Gene expression: Microarrays and recent developments in expression analysis: (Databases only) Genes; Oncogenes – protooncogenes – Classification of Cancer types – (Overview of Carcinoma, Sacroma and Lymphoma and their specific marker genes and proteins- and their databases): Application of Microarrays in Drug toxicity testing, metabolic pathways (DDBJ, KEGG).

UNIT IV

Sequence analysis (Proteins and Nucleic acids) Sequence alignment - Methods (FASTA, Expasy) – Proteomics: Proteins analysis – structural comparisons (PyMol) – 2D gel (Introduction to Softwares for Protein 2D gel analysis only), Mass spec (Introduction to mMASS Open source mass spectroscopy tool), protein (Cancer Diagnosis) and antibody arrays (Cancer Diagnosis).

UNIT V

Protein Database (Introduction to Uniprot): Comparison of Protein sequences and Database searching – methods for protein structure prediction (Principle, Instrumentation and Application of X-Ray Crystallography and NMR) – conserved patterns in protein sequences and structures (Databases) – Comparison of protein 3D structures – predicting functions based on DNA and protein sequences (PyMol).

Learning outcomes

Upon completion of this course, students will be able to

- Understand Genomic and cDNA sequences: Human Genome Project, Mutations and Population studies.
- Acquire knowledge about Gene therapy: Analysis of genomic and proteomic information with respect to biological systems.
- Acquire knowledge about Gene expression and Apply micro arrays for expression analysis. Classification of cancer types.
- Understand Sequence analysis (Proteins and Nucleic acids) - computational based solutions for biological perspectives.
- Protein database – Comparison of protein sequences and database searching and various methods of protein structure predication and function prediction.

BOOKS FOR STUDY:

1. Pennington, S.R. and Punn, M.J. 2002.Proteomics: from protein sequence to function. Viva books Pri. Ltd.
2. Maleolm and Goosfship. J. 2001. Genotype to phenotype, 2nd edition. Bios Scientific Publishers Ltd.
3. Misener, S. and Krawetz. S.A. 2000. Bioinformatics: Methods and Protocols. Humana press.

4. Attwood, T.K. and Parry-Smith, D.J.1999. Introduction to Bioinformatics. Pearson Education Asia.
5. Primrose, S.B. 1998. Principle of genome analysis. 2nd edition. Blackwell Science.
6. Durbin, R., Eddy, S., Krogh, A. and Mitchison, G. 1998. Biological sequence analysis. Cambridge University Press.
7. Friedman, C.P. and Wyatt. J.C. 1997. Computers and Machine: Evaluation methods in medicinal information. Springer-verlag, New York.
8. Bishop, M.J. and Rawhings. C.J. 1997. DNA and protein sequence analysis: A practical approach. Oxford University press. New press.
9. Kolodner, R.M. 1997. Computer in Health care: Computerizing large integrated health networks. Springer – Verlag, New York.

PAPER XI – IMMUNOLOGY

Objectives:

This course helps the student to understand about the immune system of the body and the structure, functions and integration of immune system. The antigen-antibody interactions and how the immune system is protecting the body from foreign pathogens/germs. The various techniques of monoclonal and engineered antibodies (important therapeutic molecules) production, for treating most of the human diseases.

UNIT I:

(Basics of Immunology: Immune system: Immune cells & role, immune system, types of immune response: Innate immune response and Acquired immune response), Antigen: Isolation, purification and characterization of various antigens and haptens from pathogens and other biological molecules.

UNIT II:

Purification of mononuclear cells from peripheral blood: Isolation and Characterization of T cell subsets; B cells and macrophages; Macrophage cultures; Assay for Macrophage activation; Isolation of dendritic cells [Immune reactions: Agglutination and precipitation reactions].

UNIT III:

Hybridoma and monoclonal antibody production, purification of antibodies, Quantification of Immunoglobulins, Immunodiagosis and Applications of Monoclonal antibodies in biomedical research (Therapeutic approaches).

UNIT IV:

[Hypersensitivity (Type-I, Type-II, Type-III, Type- IV)], Assessment of delayed hypersensitivity reactions; *in situ* and *in vivo* characterization of cells from tissues; (MHC-I, MHC-II) HLA typing.

UNIT V:

Biology and assay of cytokines; Vaccine technology including DNA vaccines; Immunotechnology and infectious diseases (Tuberclusosis and HIV infection diagnosis and treatment).

Learning outcomes

Students will be able to:

- Understand the basic concepts of Immunology and antigen: isolation, purification and characterization.
- Understand the purification of mononuclear cells from blood and isolation of various immune cells.
- Acquire knowledge about Hybridoma and monoclonal antibody production and their applications in biomedical research.
- Assess the hypersentivity reactions both In situ and in vivo. HLA typing.
- Understand the biology and assay of cytokines; Vaccine technology including DNA Vaccines.

BOOKS FOR STUDY

1. Ramasamy, P and R.E.B.Henna, 2002. Immunity and inflammation. University of Madras Publications Division, M/S. Pearl press, Chennai, India.
2. Parslow, T.G., Stites, D.P. and Terr, A.L. 2001. Medical immunology, 10th edition. McGraw-Hill publishing.
3. Goldsby, R.A., Kindt, T.J. and Osborne, B.A. 2000. Kuby immunology. 4th edition. Freeman and company.
4. Zola, H. 2000. Monoclonal antibodies. Bios Scientific Publishers ltd.
5. Roitt, I. 1996. Immunology. Black well Scientific Publications.
6. Weir, D. M. 1992. Immunological techniques. 3 Volumes. Black well Scientific Publishers.

PAPER XII: BIOSTATISTICS AND COMPUTER APPLICATION IN LIFE SCIENCE

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.

UNIT – I

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

Normal distribution. Simple Correlation. Hypothesis testing- Student's t-test; Chi-square analysis.

UNIT – III

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

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

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.

Learning outcomes

Students will be able to

- Understand types of data collection, classification and tabulation of various data.
- Understand Normal distribution, simple correlation including Student's T Test, Chi – Square Analysis.
- Acquire knowledge about Computers, their organization, types and milestones in hardware and software applications.
- Understand the various types of data storage devices and output devices.
- Understand MS – Office including MS-Word, MS-Excel and uses of internet for solving biological problems.

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).

PAPER XIII - ANIMAL, MEDICAL BIOTECHNOLOGY AND IMMUNOLOGY (PRACTICAL)

Objectives:

To give practical training in the functioning of immune system and to give laboratory training in different immunological and immunotechnological techniques.

Animal and Medical Biotechnology

Preparation of tissue culture medium and membrane filtration; Preparation of single cell suspension from spleen (only); Cell counting and cell viability (Tryphan blue method); Macrophage monolayer from PEC and measurement of phagocytic activity (Phagocytic assay by NBT test); Establishment of monolayer, Trypsinization of monolayer and sub culturing; Cryopreservation and thawing (demonstration); Measurement of doubling time (demonstration); Role of serum in cell culture (demostrataion).

Immunology

Blood groups and Rh Typing – Handling of animals (mice) and Raising Antibodies (demonstration) – Direct agglutinations – Slide and Tube methods (WIDAL test):- Whole cell agglutination – Slide and tube methods (RBC cells) – Serotyping by slide Agglutination (demonstration with typhoid positive serum)– Indirect Agglutination test: Particle Agglutination – Latex Hbs Ag, ASLO – Passive Haemagglutination – TPH – Precipitation – Single Radial Immuno Diffusion (SRID) – Double Immuno Diffusion – Amboceptor titration (Demonstration) – ELISA (Demonstration) – Skin test for demonstration cutaneous hypersensitivity (Demonstration).

Learning outcomes

The students would

- Be aware of preparation of tissue culture medium and membrane filtration, preparation of cell suspension from spleen and thymus.
- Understand about Cell Counting and cell viability and phagocytic activity
- Acquire knowledge about Cryopreservation and thawing and role of serum in cell culture.
- Acquire knowledge about Blood groups and Rh Typing – Handling of animals and Raising Antibodies – Direct agglutinations – Slide and Tube methods
- Acquire knowledge about Immunodiffusion (Single & Double) and Amboceptor titration and ELISA (Demonstration)

PAPER XIV – GENETIC ENGINEERING AND BIOPROCESS (PRACTICAL)

Objectives:

To provide the students hands-on experience in performing basic recombinant DNA techniques. Introduce students to the theory behind in each technique and to describe common applications of each methodology in biological research. And also to train the students on enzyme characterization, immobilization and medium optimization methods. To train on methods to investigate the growth of microorganisms in different systems under different conditions.

GENETIC ENGINEERING

Extraction and estimation of intracellular proteins from E. Coli – Lowry's Method – SDS - PAGE – Production of competent cells for transformation – Bacterial transformation – Isolation of genomic DNA – Extraction of RNA – Restriction Digestion of DNA – Absorption spectra of Nucleic acid – Estimation of DNA by Diphenyl amine method – Agarose gel electrophoresis – Isolation of plasmid DNA – Screening of Recombinants – PCR – Melting temperature of DNA (DEMO) Southern hybridization (DEMO) – Western Blotting (DEMO) – DNA amplification.

BIOPROCESS TECHNOLOGY

Bioprocess – Fermentor – Part and design, types of fermentor / Bioreactor – Production of Biomass and its estimation (dry weight) – Isolation and characterization of microorganisms involved in biodegradation of amylolytic activity by DNS method – Compost making – Production of wine from grapes using baker's yeast – Production of alcohol by *S. cerevisae* – Isolation of Rhizobial colonies involved in biofertilization – Isolation of lactic acid bacteria.

Learning Outcomes

At the end of this course, students will be able to:

- Describe the methods of main principles of Extraction and estimation of intracellular proteins from E. Coli – Lowry's Method
- Describe the methods of Isolation of genomic DNA – Extraction and estimation of RNA – Restriction Digestion of DNA, Agarose gel electrophoresis –
- Perform SDS – PAGE – Agrobacterium mediated gene transfer – Isolation of plasmid DNA – Screening of Recombinants- Southern hybridization (DEMO) – Western Blotting (DEMO) – DNA amplification – PCR (DEMO)
- Understand Bioprocess – Fermentor – Part and design, types of fermentor / Bioreactor – Production of Biomass and its estimation
- Acquire knowledge about Isolation and characterization of microorganisms involved in biodegradation of amylolytic activity by DNS method and Production of alcohol and acids.

ELECTIVE I – PHARMACEUTICAL BIOTECHNOLOGY

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:

Pharmaceutical biotechnology an introduction. Microbes in pharmaceutical industry (*Penicillium* - antibiotics, *Bacillus* - Enzymes, Lactobacillus and Sacharomyces – Probiotics, Clostridium – aminoacids, Fungus - Niacin). Formulation (Oral and Parenteral) of biotech products including biopharmaceutical considerations (Microbiological Considerations). Shelf life of protein based pharmaceuticals (antibody based vaccines, insulin and oral enzyme formulations). Delivery of proteins – Rate and target site – specific delivery. Site specific delivery of protein drugs (antibody vaccines, liposome based vaccines and viral based vaccines).

UNIT II:

Pharmacokinetics and Pharmacodynamics – Peptide and protein drugs (Insulin). Elimination of protein Therapeutics and Distribution of therapeutics, Protein binding of proteins therapeutics, Heterogeneity of protein therapeutics. Chemical modification of protein therapeutics and immunogenicity (antibody vaccines).

UNIT III:

Protein engineering, Peptide chemistry and Peptidomimetics (idiotyping antibody based vaccines), catalytic Antibodies, Glycobiology (introduction, mechanism of producing recombinant, fusion receptor proteins) and biosensors (introduction, types and examples). Impact of biotechnology on drug discovery. Gene therapy – *ex vivo* and *in vivo* gene therapy (Definition, mechanisms and examples). Hematopoietic growth Factors, Chemical description, pharmacology - Pharmaceutical Concerns, clinical and Practice aspects (Indian Pharmacopoeia).

UNIT IV:

Pharmacology and Formulations – Vaccines, Modern vaccine technologies, pharmaceutical aspects. Formulation of monoclonal antibody – Based pharmaceuticals, development of antibody based therapeutics.

UNIT V:

Biotechnology products in pipeline – Drug development, Protein Pharmaceutical in development. Development of Nucleic acid therapies (Introduction). Development of Adhesion molecules (Collagen, Hyaluronic Acid). Examples of glycoprotein and carbohydrate based pharmaceuticals.

Learning Outcomes:

The knowledge gained in this course

- Would be used to understand Pharmaceutical Biotechnology and evaluate different pharmaceutical parameters and formulation of biotech products and protein based pharmaceuticals
- Would pave a way to the students to acquire knowledge on Pharmacokinetics and Pharmacodynamics and Heterogeneity of protein therapeutics. Chemical modification of protein therapeutics and immunogenicity.
- Would facilitate the students to acquire knowledge and understanding of Protein engineering, Peptide chemistry and Peptidomimetics.
- Would make the students understand the Pharmacology and Formulations of vaccines, Monoclonal antibody –Based pharmaceuticals, development of antibody based therapeutics.
- Would make the students acquire knowledge about Biotechnology products in pipeline and development of Adhesion molecules.

BOOKS FOR STUDY

1. Daniel Figeys (Ed.) 2005. Industrial proteomics: Applications for Biotechnology and Pharmaceuticals. Wiley and Sons, Incorporated.
2. O. Kayser, R.H. Muller. 2004. Pharmaceutical Biotechnology – Drug Discovery and clinical applications. Wiley – VCH.
3. Heonrich Klefenz. 2002. Industrial Pharmaceutical Biotechnology.
4. Leon Shargel, Andrew B. C. Yu, Susanna Wu-Pong and Yu Andrew B.C.2004.

Applied Biopharmaceutics and pharmacokinetics. McGraw- Hill Companies.

5. Sefania Spada, Garywalsh. 2004. Directory of approved biopharmaceutical.
6. Garywalsh. 2003. Biopharmaceutical, biochemistry and biotechnology.
7. Thomas Lengauer (Ed) 2002. Bioinformatics – from Genomes to drugs. Vol.I and II. Wiley – VCH.
8. JOHN F. Corpenter (ed.) Mark C. Manning. 2002. Rational design of stable formulation theory and practice (Pharmaceutical Biotechnology). Plenum, US. I Edition.
9. D.I.A. Crommelin et al, 2002. Pharmaceutical biology. Amazon prome publications.
10. Werner kalow, UA Meyer and Rachel F Tyndale. 2001.

SEMESTER - VI

PAPER XV - GENETIC ENGINEERING

Objectives:

To discuss the specialized topics and advances in field of genetic engineering and their application in plant improvement. And to learn the gene cloning methods and the tools and techniques involved in gene cloning and genome analysis. To explain the production of recombinant proteins and PCR techniques.

UNIT I

Restriction and modification systems in bacteria (DAM methylase). Restriction enzymes (Restriction enzymes: Endo & Exonucleases) Modifying enzymes- DNA & RNA polymerase, reverse transcriptase, terminal transferase; nucleases (DNases, RNases, S1) T4 polynucleotide kinase, Alkaline Phosphatase and ligase (E.coli & T4). Ligation Cloning vectors (plasmid -definition, properties and types. pUC19 & pBR322- phage vectors (λ & M13) Core techniques in gene manipulation: Cloning strategies; Construction of gene libraries & cDNA libraries and probes (radioactive & non-radioactive) detection

UNIT II

Recombinant technology: gene cloning – Selection and screening for recombinants – RFLP, DNA finger printing.

UNIT III

DNA sequencing Maxam Gilbert (chemical & Sanger's), Polymerase chain reaction (Principle, types and applications); Ligase chain reaction, Site directed mutagenesis (Introduction)

UNIT IV

Expression systems and their applications (Bacteria pBR322, Yeast (*Sacchromyces cervicisae*): Production of protein from cloned genes.

UNIT V

Gene cloning and manipulation in Research (*E.coli, Pichia pastoris*), Medicine (Human insulin and recombinant vaccines hepatitis B) agriculture (β carotene, Banana –Vaccines against streptococcus, Mango –Increase carotenoid and sugar content)

Learning outcomes

The students after completing this course, the students would

- be aware of restriction and modification systems in bacteria and restriction enzymes, cloning vectors. How to clone commercially important genes.
- be aware of Recombinant technology: gene cloning – Selection and screening for recombinants – RFLP, DNA finger printing.
- Understand DNA sequencing, Polymerase chain reaction; Ligase chain reaction, site directed mutagenesis
- Acquire knowledge about Expression systems and their applications: Production of protein from cloned genes
- Acquire knowledge about Gene cloning and manipulation in research, medicine and agriculture.

BOOKS FOR STUDY:

1. Thiel. 2002. Biotechnology DNA to Protein: A laboratory Project. Tata McGraw-Hill.
2. Ring, C.J.A. and Blair, E.D.2001. Genetically Engineered viruses. Development and application. Bios Scientific publishers.
3. Davidson, E.H.2001. Genomic regulatory systems: Development and evaluation. Academic press.
4. Kreuzee and Massey, A. 2001. Recombinant DNA & Biotechnology. ASM Press.
5. Mukhopadhyay, S.N.2001. Process Biotechnology fundamentals. Viva books.
6. Jognand, S.N. 2000.Gene Biotechnology. Hemalaya publishers.
7. Walker, M. and Gingold, E.B. 1999. Molecular biology and Biotechnology, 3rd edition. Panama Publishing Corporation.
8. Old, R.W. and Primrose, S.B.1998. Principles of An introduction to Genetic Engineering Blackwell Science.U.K.
9. Brown, T.A. 1995. Gene cloning an introduction. Chapman & Hall. London.

PAPER XVI - BIOPROCESS TECHNOLOGY

Objectives:

The course curriculum helps the students learn the overall industrial bioprocess so as to help them to manipulate the process to the requirement of the industrial needs. Also helps the students in understanding the bioreactors and the kinetics and dynamics behind the bioprocess technology.

UNIT I

Introduction to bioprocess: An overview of traditional and modern applications of biotechnological process, [difference between fermentation and bioprocess] integrated bioprocess and the various (Upstream and downstream) unit operations involved in bioprocesses (overview).

UNIT II

Fermentation processes: General requirements of fermentation processes (valves involved), main parameters to be monitored and controlled in fermentation processes, aerobic an anaerobic fermentation processes and their application in the Biotechnology industry.

UNIT III

Enzymatic bioconversion processes: Kinetics and thermodynamics of enzyme – catalyzed reactions, basic design and configuration of immobilized enzyme enzyme reactors, applications of immobilized enzyme technology. Media design and sterilization for fermentation processes: Medium requirements for fermentation processes and for industrial fermentation.

UNIT IV

Metabolic stoichiometry and energetics: Stoichiometry of cell growth and product fermentation, elemental balances, degrees of reduction of substrate and biomass, yield coefficients of biomass and product formation, maintenance coefficients energetic analysis of microbial growth and product formation.

UNIT V

Kinetics of microbial growth and product formation: Phases of cell growth in batch cultures, simple unstructured kinetic models for microbial growth – Growth associated (primary) and non- growth associated (secondary) product formation kinetics – leudeking – Piret models.

Learning outcomes

Upon completion of the course the students will be able to

- Acquire knowledge about Bioprocess technology and the modern applications of biotechnological process (Upstream and Downstream)
- Acquire knowledge about the various Fermentation processes, their requirements, main parameters and operations
- Understand the enzymatic conversion processes, Kinetic thermodynamics of enzyme based reactions. Media design and sterilization for industrial fermentation processes.
- Understand Metabolic stoichiometry and energetic of cell growth
- Understand the kinetics of microbial growth and product formation, Phases of cell growth in batch cultures.

BOOKS FOR STUDY

1. Shuler, M.L. and Kargi, F. 2002. Bioprocess engineering – Basic concepts. Prentice Hall of India.
2. Shuler, M.L. and Kargi, F. 1992. Bioprocess engineering, Prentice Hall.
3. Bailey and Ollis, 1986. Biochemical Engineering Fundamentals, McGraw Hill (2^{nd} Ed.).

PAPER XVII BIOTECHNOLOGY AND NANOTECHNOLOGY

Objectives:

To enable students to be familiar with the basics of biotechnology together with a fundamental knowledge on the application of nanotechnology. This helps the students to understand the various nanomaterials, their construction and biological approach of the same in medical field.

UNIT I:

Nanobiology – concepts, definitions, prospects; nanoparticles – size, shape, properties. Bionanoparticles nanostarch, nano composites – dendrimers. Hot – Dot nanoparticles. Types of biomaterials. Biodegradable polymers.

UNIT II:

Synthesis of Nanomaterials: Top down – ball milerling; Bottom up – co-precipitaion – sol-gel – electrodeposition – using natural nanoparticles – chemical vapor deposition.

UNIT III

Characterization: X-ray diffraction – Scherrer"s formula – Scanning Electron Microscopy – Transmission Electron Microscopy – Fluorescence Microscopy.

UNIT IV

The Carbon Nanotube – New Forms of Cabon – Types of Nanotubes – Formation of Nanotubes – Uses for nanotubes – Biological Applications.

UNIT V

Nanotechnology in Agriculture and Food Technology Nanotechnology in Agriculture - Precision farming, Smart delivery system – Nanofertilizers: Nanourea and mixed fertilizers, Nanofertigation - Nanopesticides, Nanoseed Science. Nanotechnology in Food industry – Nanopackaging for enhanced shelf life - Smart/Intelligent packaging - Food processing and food safety and bio-security – Electrochemical sensors for food analysis and contaminant detection.

Learning outcomes

Students will be able to:

- 1Understand the definition and history of biotechnology – Major areas of Biotechnology – Agriculture, Food and Pharmaceutical industry and Beverages. Indian scenario in Biotechnology.
- 2Understand the types and uses of vectors like plasmids (pBR 322, pBR 327), Phage – M13, Cosmid insertion vectors, Replacement vectors, Shuttle vectors and High expression vectors.
- 3Understand the steps involved in gene cloning and to compare the methods of DNA cloning and transformation.
- 4Acquire knowledge about tissue culture, culture media – composition and preparation and importance cell line culture. 5Understand the fundamental principles of nanotechnology and their application in medicine, environment, food and bioremediation. The different types of nano particles, their synthesis and 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.

ELECTIVE II - MICROBIAL BIOTECHNOLOGY

Objectives:

This subject introduces students to microbial biotechnology, the use of microbes to generate useful products or to degrade wastes (bioremediation). Examples include the microbial production of enzymes (e.g. amylase), antibiotics (e.g. penicillin) or hormones (e.g. human insulin), and the development of microbial strains that are highly efficient at catabolising natural organic compounds or synthetic chemical compounds. To familiarize about the various microbial processes/systems/activities, which have been used for the development of industrially important products/processes.

UNIT I

History and scope of microbial biotechnology, microbial diversity and its use, cultivation and preservation of microorganisms (Slant, glycerol stock, lyophilisation and liquid nitrogen storage), Types of fermenter and their application, Pilot scale in fermentors, bioreactors, immobilized cells and microbial polysaccharides- Microbial Biomass (Strain improvisation and estimation of Biomass)

UNIT II

Production of microbial enzymes and applications, production of organic solvents-single cell proteins (*Spirulina* spp.., and *Candida utilis*).

UNIT III

Beverages Production of beverages, beer, wine, microbes in banking- production of baker yeast, milk products (Cheese and Curd).

UNIT IV

Biofertilizers and Biopesticides, Biomass from carbohydrates, higher alkanes, methanol, biofertilizers (*Rhizobium* spp., *Azotobacter* spp., and Cyanobcater) – manufacture, formulation and utilization, biopesticides (*Bacillus thuringenesis*).

UNIT V

Bioremediation: Microbes in mining, ore leaching, oil recovery, waste water treatment, biodegradation of non cellulose and cellulosic wastes (Bioethanol) for environmental conservation, protein.

Learning outcomes

Upon successful completion of this subject, students would:

- be able to understand the history and scopes of microbial biotechnology, microbial diversity and their potential for use in microbial biotechnology
- be able to have a deeper knowledge about the production of microbial enzymes and applications, production of organic solvents- single cell proteins
- acquire knowledge about Beverages Production of beverages, beer, wine, microbes in baking- production of baker yeast, milk products
- be able to understand the process of biofertilizers, biopesticides – manipulation, manufacture, formulation and utilization.
- acquire knowledge on bioremediation, microbes in mining, ore leaching, biodegradation of non cellulose and cellulosic wastes for betterment of the society.

BOOKS AND STUDY:

1. El-mans, E.M.T., and Bryce, C.F.A 2002. Fermentation microbiology and Biotechnology. Taylor and Francis group.
2. Prave, P., Faust, V., Sitting W. and Sukatseh, D.A. (eds.). 1987. Fundamentals of Biotechnology. WCH Weinhein.
3. Moo-Young, M. (ed.) 1985. Comprehensive biotechnology - Volume 2,3 and 4. Pergamon Press.
4. Stanbury, P.F. and Whitaker. A. 1984.Principles of fermentation Technology. Pergamon Press.
5. Coulson, J.M. and Rocjardspm, J.F. 1984. Chemical Engineering. Pregamon press.

ELECTIVE III – ENVIRONMENTAL BIOTECHNOLOGY

Objectives:

The course is an introduction to environmental biotechnology and focuses on the utilization of microbial processes in waste and water treatment, and bioremediation. The course deals with the study of ecosystem, bioremediation and metal mining. This ensures the students in better understanding of environmental crisis and its remediation.

UNIT I

Biofilm Kinetics: Soluble microbial products and inert biomass. Reactors: Reactors types – A batch reactor – A continuous- flow stirred- tank reactor with effluent recycle – A Plug flow reactor with effluent recycles – Reactors with recycle of settled cells.

UNIT II

Linking stoichiometric equations to mass balance equations – Engineering design of reactors – Reactors in series. Reactor configurations (Generation I, II and III) – Special factors for the design of anaerobic sludge digesters.

UNIT III

Denitrification: Physiology of denitrifying bacteria – Tertiary denitrification – One – sludge denitrification – Drinking water treatment: Anaerobic treatment by methanogenesis – Uses for methanogenic treatment and aerobic process (microalgae phytoremediation)

UNIT IV

Detoxification of Hazardous chemicals: oil spill clearance, Factors causing molecular recalcitrance – Biodegradations of problem environmental contaminants – Bioremediation of problem environmental contaminants – Bioremediation: Engineering strategies for Evaluating bioremediation.

UNIT V

Sewage and waste treatment: Types of waste, Pollution monitoring control (Global and Indian monitoring Standards), and remediation (petroleum industry, paper industry, chemical industry etc).

Learning outcomes

By the end of the course, the student should be able to

- Understand Biofilm kinetics - Soluble microbial products and various types of Reactors: Reactors types - Reactors with recycle of settled cells.
- Understand the biochemical equations, engineering design of reactors, configuration. Special factors for the design of anaerobic sludge digesters.
- Acquire knowledge about denitrification, Physiology of denitrifying bacteria, Drinking water treatment and methanogenesis and its uses.
- Understand the detoxification of hazardous chemicals; factors causing environmental pollution and biodegradation of organic pollutants, taking microbial and physical/chemical environmental pollutants.
- Acquire knowledge about Sewage and waste treatment: Pollution monitoring, control and remediation.

BOOKS FOR STUDY:

1. Rittmann, B.E. and McCarty, P.L. 2001. Environmental Biotechnology: Principles and applications. McGraw – Hill, New York.
2. Ahmed, N. Qureshi, F.M. and Khan, O.Y. 2001. Industrial Environmental Biotechnology. Horizon press.
3. Smith, J.E. 1996. Biotechnology, 3rd edition. Cambridge Low price edition. Cambridge University press.
4. Sohal, H.S and Srivastava, A.K. 1994. Environmental and Biotechnology, 1st edition. Ashish Publishing House, New Delhi.

GURU NANAK COLLEGE(Autonomous)

VELACHERY ROAD, CHENNAI – 600042
(Re-accredited at 'A' grade by NAAC)

BACHELOR OF SCIENCE

DEPARTMENT OF ADVANCED ZOOLOGY & BIOTECHNOLOGY

(SEMESTER SYSTEM WITH CREDITS)

Regulations
&
Syllabus

B.Sc., DEGREE PROGRAMME IN ADVANCED ZOOLOGY AND BIOTECHNOLOGY

SEMESTER SYSTEM WITH CREDITS
(Effective from the Academic year 2017--18)

RULES AND REGULATIONS

1. 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 with a choice of a variety of Job-oriented courses, Elective courses and courses involving Soft-skills. Students are permitted to choose any course of their interest during the study period and earn extra credits and certificates in addition to the regular hardcore (compulsory) subjects.

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 as well as empowers them with the flexibility of learning at their convenience.

2. ELEGIBILITY FOR ADMISSION

Candidates for admission to the first year of the UG programme shall be required to 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.

3. 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. The odd semester include 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.

4. COURSE OF STUDY

The main subject of study for Bachelor‘s Degree shall consist of the following:

FOUNDATION COURSES :

PART – I Tamil or other Language (Hindi / Sanskrit/ French)

PART – II English

CORE COURSES

PART – III consisting of (a) Main subjects, (b) Allied Subjects, (c) Elective subjects related to the main subject of study and project work.

PART –IV

1. **(a)** Those who have not studied Tamil up to XII standard, and taken a non-Tamil language under **Part – I** shall take Tamil comprising of Two courses (level will be at 6^{th} standard).

(b) Those who have studied Tamil up to XII standard, and taken a non—Tamil language under **Part –I** shall take **Advanced Tamil** comprising of two courses.

(c) Others who do not come under a or b can choose **non-major elective comprising of two courses.**

2. Soft Skills. (I , II, III & IV Semesters **)**

3. Environmental Studies (IV Semester)

4. Value Education (V Semester)

PART –V Compulsory Extension Service

A candidate shall be awarded one credit for compulsory extension service.

All the students shall enroll for **NSS / NCC / NSO (Sports & Games) Rotract / Youth red cross 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 before **31st March in a year.** If a student LACKS **40 HOURS ATTENDANCE** in the first year, he / she shall have to compensate the same during the subsequent years. Literacy and population, educational field work shall be compulsory components in the above extension service activities.

5. COURSE STRUCTURE:

Sem.	Part	Course Component	Subject Name	Cdt	Hrs	CIA	ESE	Total
I	I	Language	Tamil I	3	6	50	50	100
	II	English	English I	3	4	50	50	100
	III	Core I	Diversity and Functional Anatomy of Invertebrates	4	6	50	50	100
			Practical I – Invertebrata and Chordata	-	2	*	*	*
		Allied I	Botany I	3	6	50	50	100
			Allied Botany Practical	-	2	*	*	*
	IV	1. NME/ Basic Tamil	Aquaculture	2	2		100	100
		2. Skill based subjects	Soft skill I	3	2		100	100
II	I	Language	Tamil II	3	6	50	50	100
	II	English	English II	3	4	50	50	100
	III	Core II	Diversity and Functional Anatomy of Chordates	4	6	50	50	100
			Practical I – Invertebrata and Chordata	4	2	50	50	100
		Allied II	Botany II	3	6	50	50	100
			Allied Botany Practical	4	2	50	50	100
	IV	1. NME/ Basic Tamil	Public health and hygiene	2	2		100	100
		2. Skill based subjects	Soft skill II	3	2		100	100
III	I	Language	Tamil III	3	6	50	50	100
	II	English	English III	3	4	50	50	100
	III	Core III	Cell and Molecular Biology	4	6	50	50	100
			Practical II- Cell Biology, Genetics and Evolution	-	2	*	*	*
		Allied III	Chemistry I	3	6	50	50	100
			Allied Chemistry Practical	-	2	*	*	*
	IV	1. Skill based subjects	Soft skill III	3	2		100	100
		2. EVS	Environmental science	-	2	*	*	*
IV	I	Language	Tamil IV	3	6	50	50	100
	II	English	English IV	3	4	50	50	100
	III	Core IV	Genetics and Evolution	4	6	50	50	100
			Practical II- Cell Biology, Genetics and Evolution	4	2	50	50	100
		Allied IV	Chemistry II	3	6	50	50	100
			Allied Chemistry Practical	4	2	50	50	100
	IV	1. Skill based subjects	Soft skill III	3	2		100	100
		2. EVS	Environmental science	2	2		100	100
V	III	Core V	Developmental Biology and Endocrinology	4	4	50	50	100
		Core VI	Biotechnology and Nanotechnology	4	4	50	50	100
		Core VII	Animal Physiology, Biochemistry and Immunology	4	4	50	50	100
		Core VIII	Biostatistics and Computer Applications for Life Sciences	4	4	50	50	100
		Core IX	Practical-III Animal Physiology, Biochemistry, Developmental Biology and Immunology	-	4	50	50	100
		Core X	Practical-IV- Environmental Biology, Biotechnology and Microbiology	-	4	*	*	*
		Elective – I	Medical Laboratory Technique	5	5	50	50	100
	IV	Value Education	Value education	2	1	*	100	100
VI	III	Core VIII	Taxonomy, Ecology and Paleontology	4	4	50	50	100
		Core IX	Recombinant DNA technology	4	4	50	50	100
		Core X	Microbiology and Industrial Biotechnology	4	4	50	50	100
		Core XI	Practical-III-Animal Physiology, Biochemistry, Developmental Biology and Immunology	4	4	50	50	100
		Core XII	Practical-IV Environmental Biology, Biotechnology and Microbiology	4	4	50	50	100
		Elective II	Sericulture and Apiculture	5	5	50	50	100
		Elective III	Economic Entomology and Pest Management	5	5	50	50	100
	V	Extension Activities		1	-	-	-	-

- Examination will be held in the even semester.

Under Part IV of the course, students are required to register separately for two Non-Major Elective papers, choosing preferably papers offered by other departments 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.

6. 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	95%

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, port folio 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 the HOD.

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 OF 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 secures 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 requirements 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 **<u>are not</u>** 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 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 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 mark**	**% of Weightage**
External Exam	3 hours examination	100	50
	Grand total (CIA+ESE)		**100**

7. 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.

8. 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.

9. 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.
- 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‘.

10. 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)

Range of Marks		**Grade Points**		**Letter Grade**		**Description**	
PG & UG		**PG & UG**		**PG & UG**		**PG & UG**	
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	
PG	**UG**	**PG**	**UG**	**PG**	**UG**	**PG**	UG
00-49	40-49	0.0	4.0-4.9	U	C	Re-appear	Satisfactory
	00-39		0.0		U		Re-appear
ABSENT		0.0		AAA		ABSENT	
B.Com (Hons)		**B.Com (Hons)**		**B.Com (Hons)**		**B.Com (Hons)**	
00-59		0.0		U		Reappear	

Classification of Grades

CGPA		**GRADE**		**CLASSIFICATION OF FINAL RESULT**	
PG & UG		**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			
PG	**UG**	**PG**	**UG**	**PG**	**UG**
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] = $\sum_i C_i G_i / \sum_i C_i$

$$GPA = \frac{\text{Sum of the multiplication of grade points by the credits of the courses}}{\text{Sum of the credits of the courses (passed) in a semester/year}}$$

For the entire programme:

CUMULATIVE GRADE POINT AVERAGE [CGPA] = $\sum_n \sum_i C_{ni} G_i / \sum_n \sum_i C_{ni}$

$$CGPA = \frac{\text{Sum of the multiplication of grade points by the credits of the entire programme}}{\text{Sum of the credits of the courses of the entire programme}}$$

(CGPA is calculated only if the candidate has passed in all the courses in the entire programme)

C_1 = Credits earned for course *i* in any semester / year.
G_1 = Grade Point obtained for course *i* in any semester / year.
n refers to the semester/year in which such courses were credited.
C_i = Credits earned for course i in any semester.
G_n = Grade Points obtained for course i in any semester.
n refers to the semester in which such courses were credited

Passing Minimum

- For all U.G.Programme except B.Com (Hons) passing minimum of each subject is 40% in CIA, 40% in E.S.E and 40% in aggregate i.e., CIA + ESE
- For B.Com (Hons)

a) No passing minimum for internal b) For ESE, passing minimum is 50% for languages, NME, value education, EVS and 60% for core subjects/internship/project and viva voce c) In aggregate the passing minimum (Ext + Int) is 50% for for languages, NME, value education, EVS and 60% for core subjects/internship/project and viva voce.

- 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

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11. REQUIREMENT FOR PROCEEDING TO SUBSEQUENT SEMESTER

(a) Candidates shall register their names for the first semester examination after admission in the UG courses.

(b) 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

12. ISSUE OF CERTIFICATES

1. Marksheet

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 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 requests for verification of educational qualifications of students under autonomous mode of this college and students who opt for higher studies / employment and who requires 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.

13. 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 admin 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 PRACTICAL

QUESTION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 40 MARKS** **THREE HOURS DURATION**
QUESTION 1-12 **Answer any 10 questions**	**PART-A (10X2=20 MARKS)** **ANSWER ANY 10 QUESTIONS** **EACH QUESTION CARRIES 2 MARK**
QUESTION 13-20 **Answer any FIVE out of 8**	**PART-B (5X 8=40)** **ANSWER ANY FIVE QUESTIONS** **EACH QUESTION CARRIES 8 MARKS**
QUESTION 21 TO 24 **Answer any TWO out of 4**	**PART-C (2X 20=40 MARKS)** **ANSWER ANY TWO QUESTIONS** **EACH QUESTION CARRIES 20 MARKS**

B.Sc ADVANCED ZOOLOGY AND BIOTECHNOLGY

SYLLABUS

PAPER I: DIVERSITY AND FUNCTIONAL ANATOMY OF INVERTEBRATES

Credit: 4

Objectives **90 Hrs**

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 orders 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, Enterobius, Ancylostoma*

Annelida : *Nereis,* Excretory Organs in Annelida

UNIT-IV **21 hrs**

Arthropoda : *Penaeus,* Larval Forms in Crustacea

Mollusca : *Pila,* Foot in Molluscs

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.

PAPER II: DIVERSITY AND FUNCTIONAL ANATOMY OF CHORDATES

Credit: 4

Objectives **90 Hrs**

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 **15 hrs**

Urochordata : *Herdmania;* Development and Affinities:
Alternation of generation in Urochordata.

UNIT-II **20 hrs**

Cephalochordata : *Branchiostoma;* Development and affinities.
Cyclostomata : *Petromyzon;* Migration.

UNIT-III **20 hrs**

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.

Book 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

PAPER-III PRACTICAL I: INVERTEBRATA AND CHORDATA

I. DISSECTION

A. Cockroach:

1. External characters
2. Digestive system
3. Nervous system
4. Male Reproductive system
5. Female Reproductive system

B. Any Bony Fish:

6. External characters
7. Digestive system
8. Aortic arches

II. MOUNTING

Mouth parts of: 1. Cockroach 2. Mosquito 3. Prawn: appendages 4.*Mugil* : Ctenoid 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 H Hermit crab
30. *Vipera russelli*
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

Frog <u>Osteology</u>

40. Skull and lower jaw
41. Vertebral column
42. Pectoral girdle
43. Pelvic girdle
44. Forelimb
45. Hindlimb

Palate in Birds

46. Pigeon 47. Crow 48. Duck

Dentition 49. Rabbit 50. Dog – Dentition

PAPER IV : CELL AND MOLECULAR BIOLOGY

Credit: 4

Objectives **90 Hrs**

To enable the students to learn various aspects of cell biology.

UNIT I **20 hrs**

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, Functions and its Role During Mitosis.

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, Cell Ageing 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**

Golgi complex: Morphology, Chemical Composition, Relationship with other cell components, its function with special reference to cell secretion.

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.

PAPER V: GENETICS AND EVOLUTION

Credit: 4

Objectives **90 Hrs**

To enable the students to learn various aspects of heriditary. 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 (except in chemistry, models and concepts). 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. Sixth Edition.
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.

PAPER VI: PRACTICAL II. CELL BIOLOGY AND GENETICS

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

PAPER VII : DEVELOPMENTAL BIOLOGY AND ENDOCRINOLOGY

Credit: 4

Objectives **60 Hrs**

To enable the students to know about the development of all the vertebrates from an egg to the embryo. To acquaint the students with the functions of various endocrine glands and their secretions i.e. hormones

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.

UNIT III **12 hrs**

Development of membranes and Formation of placenta. Types of placentae in mammals, pregnancy tests. Bio-chemical basis of embryology, regeneration, metamorphosis.

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.

UNIT-V **12 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. An Introduction to Embryology, Saunders Company.
2. Turner, C.D. and Bagnars, W.B. (1976) General Endocrinology, Saunders Company.
3. Highnam, K.C. and Hill, L.(1981) Comparative Endocrinology of invertebrates, Enwaral Arnold Ltd.., London.
4. Golds Worthy, G.J. Robinson, J. and Mordue, W. 1981. Endocrinology, John Wiley and Sons, New York.
5. Tombes, A.S.(1970) An Introduction to invertebrates endocrinology, Academic Press, New York.

PAPER VIII: BIOTECHNOLOGY AND NANOTECHNOLOGY

Credit: 4

Objectives **60 Hrs**

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 Publication (India).

PAPER IX: ANIMAL PHYSIOLOGY, BIOCHEMISTRY AND IMMUNOLOGY

Credit: 4

Objectives **60 Hrs**

To make the students understand the physiological and biochemical processes going on inside the vertebrates together with an exposure to immunological components.

UNIT-I **7 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 **15 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 **8 hrs**

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 **15 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), Cutaneous-Associated Lymphoid Tissues. Complement system: Major Histocompatibility Complex.

UNIT V **15 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. 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. Roitt I.M. 2000. Essential Immunology. Blackwell Scientific Publishers
5. Chakravarthy, A. K.1996. Immunology, Tata Mc Graw Hill, New Delhi.
6. Lehninger A.L., Nelson D.L., Cox M.M. (2005). Principles of biochemistry (W. H. Freeman, USA).
7. Stryer L, J. M. Berg, J.L. Tymoczko (2001). Biochemistry (W.H. Freeman and Company, New York).
8. Rawn J.D. (1989). Biochemistry (Neil Patterson).
9. Voet D., Voet, J.G. (2004). Biochemistry (John Wiley & Sons).
10. 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

Objective: **60 Hrs**

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.

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).

PAPER – XI : TAXONOMY, ECOLOGY & PALAEONTOLOGY

Credit: 4

Objectives **60 Hrs**

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. To make the students understand the importance of Palaeontology and to acquaint the students with origin of different vertebrates and ancestries of some vertebrates.

UNIT-I **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; 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.

UNIT-II **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-III **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 – IV **12 hrs**

Freshwater habitats – Lentic and Lotic; Marine habitat- Zonation

National and International Environmental Organizations, Red Data Book. Wildlife Management

UNIT –V **12 hrs**

Introduction to Palaeontology : Stratigraphy ; Principles, Importance, Successive stratigraphic steps, History, Fossils and fossilization. General account of Palaeo-Meso- and Cenozoic Eras with a mention of important fossil groups in different Eras, Periods and Epochs.

Books Recommended

1. Dobzhansky, T., Genetics and the origin of species. Columbia, Univ. Press, New York.
2. Mayr, E., Systematics and the origin of species, Columbia Univ. Press, New York.
3. Mayr, E., Principles of Systematic Zoology, McGraw-Hall, New York.
4. Kreb, J.C., Ecology, Harper & Row, Publ., New York.
5. Odum, E.P., Fundamentals of Ecology, Saunders College Publishers, Philadelphia.
6. Kendeigh, S.C., Ecology with special reference to animals, Prentice-Hall of and New Delhi.
7. Smith, Ecology, Harper & Row Publishers, New York.
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

PAPER XII GENETIC ENGINEERING AND RECOMBINANT DNA TECHNOLOGY

Credit: 4

Objectives **60 Hrs**

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, Linkers Adapters, Homopolymer Tailing.

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, Cosmid, Phagemid, Bacterial Artificial Chromosomes (BACs), Shuttle Vectors.

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, Nick translation , Random priming, Site directed mutagenesis (Cassette , Primer Extension, RT, Real Time, Multiplex, Inverse).

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

Objective: **60 Hrs**

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.

PAPER ELECTIVE 1: MEDICAL LABORATORY TECHNIQUES AND BIOINSTRUMENTATION

Credit: 5

Objectives: **60 Hrs**

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, Leismaniasis. Helminths – filariasis, Cysticercasis.

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:

2. Baker F.J. and Silverton R.E. Introduction to Medical Laboratory Technology.

ELECTIVE II SERICULTURE AND APICULTURE

Credit: 5

Objectives: **60 Hrs**

Silkworm and honey bee rearing, besides being a favorite past time, has also become a small scale cottage industry. This paper enables students to understand the culture techniques

Unit I **12 hrs**

History of Sericulture: Types of Silkworm – Mulberry, Tasar, Muga and Eri. Mulberry Silkworms: Morphology and Life cycle of silkworms. Silkworm rearing: Rearing house and equipments.

Unit II **12 hrs**

Silk reeling: Selection of raw material for reeling – Storage and preservation of raw materials. Marketing and the role of Central Silk Board in the Development of sericulture.

Unit III **12 hrs**

Apiculture: Bee keeping down the ages – Present status of Apiculture in India – Species of Honey bees. Embryology and life history – Anatomy and Physiology of honey bee.

Unit IV **12 hrs**

Bee colony, Castes. Natural colonies and their yield. Types of beehives – structure – location, care and management.

Unit V **12 hrs**

Honey yield in national and international market. Uses of honey and beeswax in Indian medicine.

Reference Books:

1. Manual of Silkworm Rearing: Manual of Mulberry Cultivation by Food and Agricultural Organization (FAO), United States.
2. Yoshimaro Tanaka. Sericology, central Silk Board, 99-B, Meghdoot, Merine Drive, Bombay.
3. Yokoyama, T. synthesized science of Sericulture.
4. Kovaleve, P.A. Silkworm breeding Stocks, Central Silk Board, Merine Drive, Bombay.
5. NPCS Board of Consultants & Engineers. 2007 Publisher: NIIR PROJECT CONSULTANCY SERVICES.
6. Singh, D., Singh, D. Pratap. 2006. A Handbook of Beekeeping. AGROBIOS (INDIA)
7. Sardar Singh. Bee keeping in India.
8. Cherian and Ramanathan, S. Bee keeping in south India.
9. Sharma P.L. and Singh, S.H. Book of Bee keeping

ELECTIVE III : ECONOMIC ENTOMOLOGY AND PEST MANAGEMENT

Credit: 5

Objectives: **60 Hrs**

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: 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. Desctructive 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

ANIMAL PHYSIOLOGY

1. Use of Kymograph unit, B.P. apparatus, Respirometer.
1. Survey of Digestive enzymes in cockroach.
2. Estimation of Oxygen consumption in a fish with reference to body weight.
3. 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

ENVIRONMENTAL BIOLOGY

1. Estimation of O_2, salinity, pH, free CO_2, Carbonates and bicarbonates, Calcium in water samples.
2. Use of Rain guage, 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 ELECTIVES
AQUACULTURE

Credit: 2

30 Hrs

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 practives, 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.

NME - PUBLIC HEALTH AND HYGIENE

Credit: 2

30 Hrs

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: Poliomyletis, 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.

Books for Reference:

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.

NME – VERMITECHNOLOGY

Credits 2

30 Hrs

UNIT I: **6Hrs**

Introduction: Definition and concept of vermiculture. Soil: major types (red soil, black soil, alluvial soil). Influence of soil organisms in vermitechnology- bacteria, earthworms, entomofauna mites etc. Litter degradation and decomposition. Problems in vermiculture and remedial solutions.

UNIT II: **6Hrs**

Types of earthworms: Endemic and exotic species of earthworms. Ecological classification of earthworms- epigeic, anecic and endogeic forms. Physical, chemical and biological changes caused by earthworms in soil- drilospheres and vermicasts.

UNIT III: **6Hrs**

Vermicomposting- Vermicomposting materials, Vermicomposting methods (raised bed method and pot method). Establishment of vermiculture unit: materials required and maintenance of vermiculture unit.

UNIT IV: **6Hrs**

Vermicompost - harvesting of vermicompost - quality, properties and advantages over chemical fertilizers, packaging and marketing- cost benefit analysis.

UNIT V: **6 Hrs**

Natural enemies of earthworms- Pests, parasites and pathogens affecting earthworms. Uses of earthworms in food and medicine- ayurvedic and unani medicine. Recycling of food wastes in vermitechnology. Application and scope of vermitechnology.

Text Books:

1. Ismail,S.A. 1997. Vermicology. The biology of Earthworm.Orient Longman, India, 92 pp.
2. Ranganathan, L.S. – 2006 – Vermicomposting technology – from soil health to human health.

Reference books:

1. E.L. Jordan and P.S.Verma.1993. Invertebrate Zoology, 12 th Edition, S.Chand & Co., Delhi.
2. Naren kumar, Dutta ,Principles and practice of soil science.
3. N.S. Subba Rao, Soil Microbiology. 4. P.K.Gupta, Vermicomposting. 5. T.V Sathe , Vermiculture and Organic Farming

NME- HUMAN GENETICS

30 Hrs **Credits: 2**

Unit – I **6 Hrs**

Introduction: The growth of Human Genetics. Human chromosomes: preparation of human Chromosome complement; Banding techniques; Karyotype preparation; classification; application. Chromosome mapping; cytological maps; cloning and gene arrangement. Human genome project; Social ethical and legal implications. Modes of inheritance; Pedigree charts; construction of pedigree charts for autosomal dominant and recessive traits, sex linked recessive traits and Y linked traits.

Unit – II **6 Hrs**

Multiple allelic inheritance; ABO blood groups; Rh blood group and significance. Polygenic inheritance; skin colour in man and Intelligence. Sex determination – heterogametic theory; Hy antigens; SRY genes; Sex chromatin; Lyon hypothesis. Sex limited and sex influenced genes. Chromosome aromalies; Syndromes – Down, Klinefelter, Turner, XYY, Intersex, Cri-du-chat, Philadelphia.

Unit – III **6 Hrs**

Common genetic disorders: Metabolic blocks in phenylalanine metabolism albinism. Genetic cause, diagnosis and treatment of the following disorders – thalassemia and sickle cell anemia, Haemophilia, muscular dystrophy, Diabetes and hypertension. G6PD and favism – Primaquine sensitivity. Congenital defects – Critical period in fetal development - chromosome anomalies and spontaneous absorption.

Unit – IV **6 Hrs**

Genes and mental illness; Schizophrenia and psychosis, self-multilation and Lesh Nyhan syndrome. Immunogenetics: Antibody diversity; histocompatiblity; HLA genes. Heritability and Environment: Twin studies and impact of environmental factors on heredity. DNA polymorphism – DNA profiling and applications. Dermatoglyphics and genetic analysis.

Unit – V **6 Hrs**

Genetic counseling – Determining risk; consanguinity; Teratogen; age 35 threshold; strategies – Prenatal diagnosis: Ultrasound scanning; Amniocentesis; Chronic villus sampling; AFP Test; Triple test; genetic screening; options available. Management of genetic disorders: Therapeutic measures; Gene therapy; alternative reproductive technologies; stem cell therapy. Cancer and genes; protocogenes, oncogenes and artincogenes; BRAC genes.

Text Book:

1. Edlin.G. (1984) Human Genetics, Jones and Bartlett publishers, Boston.

Reference Books

1. Elane Mangae and Mangae (1993), Human genetics. Freeman and company.
2. Ricki. L. (1994) Human Genetics. WCB Publishers.
3. Sam Singer (1985) Human Genetics, Freeman and Company, New York.
4. Ursula Good enough (1985) Genetics. Holt Reinhart and Winstan New York. 36 36

NME- DAIRY FARMING

30 Hrs

Credits: 2

Unit – I **6 Hrs**

Dairy breeds & breeding: Scope of Dairy farming – Dairy breeds of India – cattle & buffaloes – Exotic cattle breeds. Selection of dairy cows. Systems of breeding – Hybrid vigour – grading-up, pure breeding .Merits and demerits of inbreeding and out breeding. Anatomy and physiology of mammary gland – milk secretion and milk let-down/ejection.

Unit – II **6 Hrs**

Feeding and Nutrition: Structure of digestive system and physiology of digestion. Importance of colostrums feeding. Common cattle feed ingredients and their nutritive values – minerals, feed additives. Fodder preservation methods- hay and silage making. Ration formulation. Computation of balanced ration.

Unit – III **6 Hrs**

Live stock diseases: Viral diseases – rinderpest, Foot and mouth disease and cow pox. Bacterial diseases – Mastitis, Anthrax, Tuberculosis, Haemorrhagic – septicaemia, Brucellosis. Metabolic disorders – Milk fever, ketosis and bloat. A brief account of external and internal parasites.

Unit – IV **6 Hrs**

Dairy Technology & Marketing: Milk – composition and Nutritive value – Techniques to detect milk adulteration – Spoilage of milk – pasteurization of milk – Preparation of Dahi, Butter and Ghee. Role of Co-operative societies in milk production& Marketing.

Unit – V **6 Hrs**

Farm management: housing and equipment for dairy cows. care and management of newborn calves – technique of producing quality milk. Structure of reproductive system and physiology of reproduction . Artificial insemination – Semen collection, storage & insemination Techniques.

Text Book:

1. G.C. Banerjee – A Text book of Animal Husbandry – Oxford & IBH Publication, New Delhi. Books for **Reference**:
1. GH Schmidt; T.D. Van Vleck, - Principles of Dairy science – Surget Pvt. Ltd., 1982.
2. N.S.R. Sasting or C.K.Thamos – Farm Animal Management – Vikas Publishing House P. Ltd., 1976.
3. Dr. A.K. Sachetic – Animal Reproduction and Artificial insemination: NCERT, 1989.
4. M.M. Rai, - Dairy Chemistry and Animal Nutrition – Kalrant Publishers, 1985.
5. C.K.Thomas and N.S.R.Sastry, 1990.Dairy Bovine Production, Kalyani Publishers, New Delhi. 6. ICAR, 2002 Handbook of Animal Husbandry- The Indian Council of Agricultural Research, New Delhi.

NME -POULTRY SCIENCE AND MANAGEMENT

Credits 2

30 Hrs

Unit – I **6 Hrs**

External features of fowls – skeletal system – digestive system – endocrine system – feathers – Respiratory system – reproductive system. Genetics of fowls: Breeds of fowls – inheritance of morphological characters (List of autosomal and sex linked character – breeding methods – systems of breeding – modern method of breeding.

Unit – II **6 Hrs**

Poultry industry in India– choosing commercial layers and broilers – Poultry housing – deep litter and cage system-merits and demerits.

Unit – III **6 Hrs**

Practical aspects of chick rearing –brooding management- grower and layers – management of broilers – lighting, summer winter management – debunking.

Unit – IV **6 Hrs**

Poultry Nutrition: Energy – protein and aminoacids – Vitamins – essential organic elements – Non – nutrition feed additives – feed stuffs for poultry – feed formation.

Unit – V **6 Hrs**

Diseases: Viral, bacterial, fungal and parasitic disease of poultry. Vaccines and vaccination programme.

Reference Books :

1. Gopalakrishnan C.A and G.Murley Mohan Lal 1997, Livestock and Poultry enterprises for rural development, Vikash, New Delhi.
2. Gnaanamani M.R., 1998 Modern aspects of commercial poultry keeping, Giri.
3. Banarjee G.C., 1992 Poultry, Oxford and IBH, New Delhi.
4. Chauhan H.V.S. and S.Roy, Poultry diseases, diagnosis and treatment New Age International, 1996.
5. John William S. (Ed) 2003. Poultry for sustainable Food Production and Livelihood. Loyola Publication,

SYLLABUS - ALLIED ZOOLOGY I (THEORY)

Credit: 3

Paper – I **90 Hrs**

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)

1. **Text Book**: Ekambaranatha Ayyar, M and Ananthakrishnan, T.N. 1993, Outlines of Zoology, Vol.I and II, Viswanathan and Co. Madras.

Reference Books:

2. P.S. Dhami and J.K. Dhami – Invertebrate Zology – S. Chand and Co. New Delhi.
3. Jordan, E.K. and P.S. Verma, 1993. Chordate Zoology, 12th edition, S. Chand & Co. Ltd., Ram Nagar, New Delhi.

SYLLABUS - ALLIED ZOOLOGY II (THEORY)

Credit: 3

Paper – II **90 Hrs**

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: Gametogenisis – 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

I. Dissection:

1. Cockroach: Digestive and Nervous system

II. Mounting:

1. Mouth parts of cockroach
2. Mouth parts of Mosquito

III. Spotters:

Plasmodium, Sycon, Obelia geniculata, Taenia solium (Entire & Transverse section), Leech (Entire & Transverse section), Fresh water mussel, *Amphioxus*, Shark (Placoid scale), Pigeon (feathers) and Rabbit.

DEPARTMENT OF CHEMISTRY

UG - SYLLABUS

(*Effective for the batch of candidates admitted in 2016-2019 and thereafter*)

GURU NANAK COLLEGE
(AUTONOMOUS)
(Reaccredited at 'A' by NAAC)
VELACHERY,
CHENNAI – 42

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7	NME	Forensic Chemistry	11
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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 - I	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 – I	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***	V	4	5	50	50	100
38		Value Education	V		2	50	50	100
VI SEMESTER								
39	Core Theory - 9	Thermodynamics and solutions	VI	5	4	50	50	100
40	Core Theory- 10	Chemistry of d & f block elements and Coordination chemistry	VI	5	4	50	50	100
41	Core Theory- 11	Analytical Chemistry - II	VI	5	4	50	50	100
42	Elective – 2	Elective – II***	VI	5	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	3	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 student must choose one Elective paper in Semester – V and Two Elective papers in Semester - VI from the list of offered electives.

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, Mullikan 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, 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, New Delhi, S. Chand & Company Pvt. Ltd, second edition, 2006.
2. M. K. Jain, 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.

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UNIT –1: Nuclear chemistry **(15 hrs)**

Fundamental particles of the nucleus - nucleon - terminology, nucleides, isotope, 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 B.E 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 stainless rings.

Alkenes - preparation and properties – Electrophilic and free radical addition - Orientation of addition reaction (Markovnikov's and peroxide effect) – addition reaction with H_2, X_2, H_2O , HX, HOBr and H_2SO_4. 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 with H_2, X_2, H_2O with $HgSO_4$, oxidation, ozonolysis and hydroboration.

Polynuclear hydrocarbons – naphthalene, anthracene and phenanthrene - isolation, properties, synthesis and uses – carcinogenicity.

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 molality, normality, molarity and molefraction. Definition and examples of primary and secondary standard. Calculation of equivalent weights of acid, base, salt, metal and oxidizing and reducing agent.

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: Organo Halogen Compounds (15 hrs)

Nomenclature and classification – Preparation and properties of alkyl halide – Mechanisms of nucleophilic substitution and elimination reactions of alkyl halide (SN^1, SN^2, SN^i, E_1, E_2, E_1CB) - Reactivity of alkyl, vinyl, allyl, benzyl halide towards substitution and elimination reaction – coupling reaction - Wurtz reaction – Ullman reaction .

Dihalogen compounds – Geminal dihalide – Vicinal dihalide – preparation and chemical reaction – poly halogen compound – BHC, DDT, Haloform, carbon tetrachloride, freons – Unsaturated halides – Vinyl halides – Allyl halides.

Preparation and properties of aryl halides – reactivity of vinyl halide vs. aryl halide - aromatic halogen compounds and their harmful effects to animal/humans. Comparison between alkyl and aryl halide.

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, New Delhi, 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 ofMg(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 - desibutter - 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 - Bulgaxious 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 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.

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 defector 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 pastes, face powder, soaps and detergents, shampoos, nail polish, perfumes - general formulation and preparations - possible hazards of cosmetics 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

Objectives:

To strengthen the knowledge about oxygen compounds.

UNIT - 1: Alcohols, Ethers, Epoxides and Phenols **(10 hrs)**

Alcohols: Mono hydric alcohols – nomenclature - preparation, properties - acidity, reactions of alcohols. Dihydric alcohols – nomenclature, preparation, properties, chemical properties and reactions of vicinal glycols, oxidative cleavage [$Pb(OAc)_4$ and HIO_4]. Trihydric alcohols – preparation and properties of glycerol.

Ethers and Epoxides (oxiranes): Aliphatic and aromatic ethers – nomenclature – preparation and properties. Preparation and reactions of epoxides.

Phenols: Classification, nomenclature, acidity. Preparation and properties of Phenol, α-Naphthol, β - Naphthol and their electrophilic substitution reactions.

UNIT –2: Aldehydes and Ketones **(15 hrs)**

Preparation of aldehydes and ketones - acidity of alpha hydrogen - Mechanism of enolization reactions - nucleophilic addition ($RMgX$, HCN, $NaHSO_3$, NH_3, NH_2OH, $C_6H_5NHNH_2$). Mechanism of reductions with $NaBH_4$, $LiAlH_4$, Wolf-Kishner and MPV reaction, oxidation, haloform reaction and Michael addition. Electrophilic substitution reactions of aromatic aldehydes and ketones.

Mechanism of Norrish Type - I & Type - II, Cannizaro reaction, Aldol condensation, Claisen condensation, Reformatsky reaction, Perkin, Knoevenagel reactions, benzoin condensation and Wittig reaction.

UNIT –3: Carboxylic Acids and its Derivatives **(10 hrs)**

Carboxylic acid - preparation and properties of mono carboxylic acid - effect of substituent on acidity - hydroxy acids (Lactic, Tartaric and Salicylic acid) – unsaturated acids (Crotanic and Cinnamic acid). Preparation and properties of dicarboxylic acids (upto 6 carbon) and aromatic diacid - Action of heat on hydroxy and dicarboxylicacids - Stereospecific addition of maleic and fumaric acids.

Preparation and reactions of acid chlorides, acid anhydrides and acid amides - Mechanism of Hoffmann reaction and Rosenmund reduction.

UNIT –4: Esters and Active Methylene Compounds **(10 hrs)**

Prepartion and reaction of ester - Mechanism of Hydrolysis of ester ($B_{Ac}2$, $A_{Ac}2$), Trans - esterification, Clasien ester condensation, fat, wax, soap - Compounds containing active methylene group – keto-enoltautomerism.

Preparation and synthetic applications of malonic ester, acetoaceticesters, cynaoacetic ester, diazo methane and diazoacetic ester.

UNIT –5: Carbohydrates **(15 hrs)**

Classificationof carbohydrate, Glucose – mutarotation and chemical properties of glucose – structure – conformation & configuration - open chain, furanose and pyranose forms (evidence) – anomer – epimer. Determination of ring size and configuration.

Fructose – properties – furanose and pyranose form - determination of ring size and configuration.

Interconversion of aldose to ketose, ketose to aldose, arabinose to glucose, glucose to arabinose and glucose to mannose.

Starch and cellulose – Structure, properties and uses.

REFERENCE BOOKS:

1. R. T. Morrison, R. N. Boyd, and S. N. Bhattacharjee. Organic Chemistry, Pearson Education, Asia, seventh edition, 2012.
2. T. W. Graham Solomons, Organic Chemistry, John Wiley & Sons, fifth edition, 1992.
3. A. Carey Francis Organic Chemistry, Tata McGraw-Hill Education Pvt., Ltd., New Delhi, seventh edition, 2009.
4. I. L. Finar, Organic Chemistry, Wesley Longman Ltd, England, sixth edition, 1996.
5. J. A. Joule and G. F. Smith. Heterocyclic Chemistry, England, Van Nostrand Reinhold (UK) Co., Ltd., second edition, 1984.
6. 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-blocks 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 acid, 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 thiosulfate. 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, New Delhi, 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, sulfide, sulfate, thiosulfite, 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 IV	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, Levels of protein structure, Protein denaturation / renaturation.

UNIT –3: Nucleic acids and Heterocyclic Compounds (10 hrs)

Introduction, constituents of nucleic acids, ribonucleosides and ribonucleotides. 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, quinolone 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. Structures of Coniine, Piperine and Nicotine.

UNIT –5: Terpenoids **(10 hrs)**

Terpenoids: Classification, isoprene rule, isolation and general properties, occurrence, general structure and physical properties 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, VanNostrand 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 for 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 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 chemisorptions - Freundlich adsorption isotherm - Langmuir adsorption isotherm – applications of adsorption

UNIT - 3: Electrical Conductance **(15 hrs)**

Electrical transport and 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 laws - 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 (Wein effect) and high frequencies (Debye - Falkenhagen effect), Transport number & Hittorf's rule. Determination by Hittorf's method and moving boundary method. Application of conductance measurements - Determination of λ_o 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 E. M. F 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 and methods; resolution and methods.

Asymmetric synthesis: Partial and absolute – Cram's rule (Elementary approach only) - Walden inversion.

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 and 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 , 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, liquid 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 column and ion–exchange chromatography; thin layer and paper 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 thermogravimetric 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.

CORE THEORY–9: THERMODYNAMICS AND SOLUTIONS

SEMESTER VI	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 andΔH 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 - Chemical potential - Gibb's Duhem equation - effect of pressure and temperature on chemical potential –Duhem

Margulus equation - concept of fugacity and activity - determination of fugacity of gas - 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 behavior - vopour 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.

Colloids: Definition - types - preparation and purification of colloids - properties - kinetic, optical and electrical stability of colloids - gold number. Emulsions: types, preparation, properties and applications.

Gels: types, preparation, properties and applications.

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 VI	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, lower oxidation states and stabilization, 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.

Metallurgy of Ti, V, W, Cr. M-M bonding and cluster compounds; oxides, mixed oxides, halides, and oxohalides of transition metals; synthesis and reactivity of vanadates, chromates, dichromate, molybdates, tungstates, tungsten bronzes, manganite and permanganate; polycations.

UNIT - 2: Chemistry of f-Block Elements **(10 hrs)**

General characteristics of f-block elements - comparative account of lanthanides and actinides.

Lanthanides: lanthanide contraction, similarity in properties, occurrence, oxidation states, chemical properties of Ln(III) cations, magnetic properties. Color and electronic spectra of lanthanide compounds.Separation of lanthanides: solvent extraction, ion exchange, chemical properties of Ln (III) metal ions.

Actinides: occurrence, preparation of actinides, oxidation states, general properties, the later actinide elements. Uranium - occurrence, metallurgy; chemical properties of hydrides, oxides, and halides. Preparation, properties and uses of ceric ammonium sulphate, thorium dioxide, thorium nitrate, uranium hexafluoride, uranyl acetate.

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 of nomenclature of coordination ligands, mononuclear and dinuclear complexes; chelate effect. Stable, unstable, inert and labile complexes - methods of preparation of complexes - detection of complex formation - applications of complexes in analysis and metallurgy. Factors affecting the stability of complexes.

Isomerism: linkage, ionization, hydrate, coordination, coordination position isomerism, geometrical (cis and trans and facial and merdional), optical isomerism in 4 - coordinated and 6-coordinated complexes, trans effect, stability of coordination compounds – overall and step wise stability constants.

UNIT - 4: Theories of Coordination Complexes (10 hrs)

Werner's coordination theory, Sidgwick's 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 in Coordination Compounds and Synthesis of Coordination Compounds (10 hrs)

Substitution reactions in octahedral complexes: dissociative and associative and interchange mechanisms. Electron transfer reactions: inner - sphere and outer - sphere mechanisms, non - complementary electron transfer reactions. Inorganic photochemistry: principles, photosubstitution, photoisomerization, and photo redox reactions. Substitution reactions in square planar complexes: dissociative and associative mechanisms. Cis- and trans-effects in synthesis of square planar and octahedral complexes. Metal template synthesis - metal phthalocyanins and Schiff bases. 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 VI	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&VI	SUBJECT CODE:	PRACTICAL	MARKS 100	CREDITS 4	HOURS 60

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&VI	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&VI	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 V&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 V&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 V&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: Drugs **(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: Chemotherapy **(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 V&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 V&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

Advance Zoology & Biotechnology)

SYLLABUS FOR ALLIED CHEMISTRY

ALLIED CHEMISTRY - I
(For Mathematics & Physics Students)

SEMESTER I	SUBJECT CODE:	THEORY	CREDIT 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 II	SUBJECT CODE:	THEORY	CREDIT 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	CREDIT 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 – 5: 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 II	SUBJECT CODE:	THEORY	CREDIT 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 I & II	SUBJECT CODE:	PRACTICAL	CREDIT 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.

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
(COMPUTER SCIENCE)

Regulations and Syllabus
(For the Candidates admitted in 2018 - 2019)

COURSE STRUCTURE

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	Problem solving using C programming	4	6	50	50	100
		Core II	Problem solving using C practical	4	4	50	50	100
		Allied I	Mathematics I	5	6	50	50	100
	IV	1. NME/ Basic Tamil	Office Automation Tools – Practical / Basic Tamil – I	2			100	100
		2. Skill based subjects	Soft Skill Elective I – Essentials of Language and Communication skill	3	2		100	100
II	I	Language	Language – II	3	6	50	50	100
	II	English	English – II	3	4	50	50	100
	III	Core III	Programming in C++	4	6	50	50	100
		Core IV	Programming in C++ - Practical	4	4	50	50	100
		Allied II	Mathematics II	5	6	50	50	100
	IV	1. NME/Basic Tamil	HTML Lab – Practical / Basic Tamil –II	2			100	100
		2. Skill based subjects	Soft Skill Elective II – Essentials of Spoken and Presentation Skills	3	2		100	100
III	I	Language	Language – III	3	6	50	50	100
	II	English	English – III	3	4	50	50	100
	III	Core V	Analysis of Algorithms and Data Structures	4	6	50	50	100
		Core VI	Analysis Of Algorithms And Data Structures Using C++	4	6	50	50	100
		Allied III	Operations Research (syllabus changed)	5	6	50	50	100
	IV	Skill based subjects	Soft Skill Elective III – Personality Enrichment	3	2		100	100
IV	I	Language	Language – IV	3	6	50	50	100
	II	English	English – IV	3	6	50	50	100
	III	Core VII	Programming in JAVA	4	4	50	50	100
		Core VIII	Programming in Java- Practical	4	4	50	50	100
		Allied IV	Statistical Methods and their Applications	5	4	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	2		100	100
		2. EVS	Environmental Studies	2	2	*	*	*
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	Visual Programming and Database Management System	4	6	50	50	100
		Core XII	Visual Programming – Practical	4	6	50	50	100
		Elective – I	Interdisciplinary Elective – Internet and its applications	5	5	50	50	100
	IV	Skill based subjects	Soft Skill Elective V – Value Education	2	1	*	100	100
VI	III	Core XIII	Data Communication & Networking	4	6	50	50	100
		Core XIV	Web Programming with PHP and MySQL	4	6	50	50	100
		Core XV	Web Programming with PHP and MySQL - Practical	4	6	50	50	100
		Elective II	Software Engineering/Data Mining /Software Testing	5	6	50	50	100
		Elective III	Mini Project	5	6	50	50	100
	V	Extension Activities	Participation in NSS/NCC/ROTRACT etc.	1	-	-	-	-

CORE I
PAPER TITLE: PROBLEM SOLVING USING C PROGRAMMING

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: I	**CREDITS**: 4	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES:
This course introduces the basic concepts of programming in C

UNIT I : (15 Hours)

Computer Fundamentals Basic Computer Organization - Units of a computer, CPU, ALU, memory hierarchy, registers, I/O devices.

Planning the Computer Program: Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation. Techniques of Problem Solving: Flowcharting, , algorithms, Programming methodologies viz. top-down and bottom-up programming.

UNIT II: (18 Hours)

C fundamentals Character set - Identifier and keywords - data types - constants - Variables - Declarations - Expressions - Statements - Arithmetic, Unary, Relational and logical, Assignment and Conditional Operators - Library functions.

(20 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: (19 Hours)

Functions –Definition - proto-types - Passing arguments - Recursions. Storage Classes - Automatic, External, Static, Register Variables.

UNIT IV: (18 Hours)

Arrays - Defining and Processing - Passing arrays to functions – Multi-dimension arrays - Arrays and String. Structures - User defined data types - Passing structures to functions - Unions - Bit wise operations.

UNIT V: (15 Hours)

Pointers - Declarations - Passing pointers to Functions - Operation in Pointers - Pointer and Arrays - Arrays of Pointers - Structures and Pointers - Files : Creating , Processing, Opening and Closing a data file.

PRESCRIBEDBOOKS:

1. P. K. Sinha & Priti Sinha, –Computer Fundamentals, BPB Publications, 2007.
2. Dr. Anita Goel, Computer Fundamentals, Pearson Education, 2010.
3. E. Balaguruswamy, 1995, 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/

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	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE II
PAPER TITLE: PROBLEM SOLVING USING C PRACTICAL

SUBJECT CODE :	**PRACTICAL**	**MARKS : 100**
SEMESTER: I	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 4**

COURSE OBJECTIVES:

- This course train the students to solve the problems using C language

(20 Hours)

1. Write a program to add, subtract, multiply and divide two numbers using menu driven program.(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 and)
4. Write a program to find the maximum and minimum of n numbers (using for- statement)
5. Write a program to check for prime number(do while loop)

(20 Hours)

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)
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)

(20 Hours)

11. Write a program to implement binary search. (1D Array).
12. Write a program to add two matrices (2D Arrays)
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 MATHEMATIC
MATHEMATICS – I
(For B.Sc. Computer Science and BCA)

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER: I	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES:

- To improve basics in Mathematics and analytical skills

UNIT I: (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 hours)

MATRICES: Eigen Values – Eigen Vectors - Cayley - Hamilton Theorem (without proof) Chapter 4 Section 4.5, 4.5.2, 4.5.3

UNIT III: (18 hours)

THEORY OF EQUATIONS: 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 IV: (18 hours)

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 hours)

TRIGONOMETRY: Expansions of $\sin n\theta$, $\cos n\theta$, $\tan n\theta$ - θ, $\cos^n \theta$ - Expansions of Sin 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

PRESCRIBED BOOKS :

1. Allied Mathematics,A.Singaravelu.
2. Ancillary Mathematics, A. ManickavasagamPillai and Narayanan.
3. Allied Mathematics,P.R.Vittal.

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:

1. www.freetechbooks.com/mathematics-f38.html
2. www.e-booksdirectory.com
3. www.freebookcenre.net/SpecialCat/Free-Mathematics-Books-Download.html
4.

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer any **10**questions	1 – 12	2	**20**
Section B	**Short Answer** Answer any **5** questions out of 7	13–19	5	**35**
Section C	**Essay** Answer any **3** questions out of 5	20– 24	15	**45**
	TOTAL			**100**

Distribution of Questions :

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

NON MAJOR ELECTIVE
PAPER TITLE: OFFICE AUTOMATION TOOLS – PRACTICAL

SUBJECT CODE :	**PRACTICAL**	**MARKS : 100**
SEMESTER: I	**CREDITS: 2**	**NO. OF HOURS PER WEEK:**

MS WORD

1. Text Manipulation
2. Bullets And Numbering
3. Header And Footer
4. Text Formatting And Print Options
5. Table Creation

MS EXCEL

6. Using formulas and functions like SUM(), AVERAGE(),IF()
7. Drawing Chart

MS POWER POINT

8. Creating Power Point Presentation

CORE III
PAPER TITLE: PROGRAMMING IN C++

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER: II	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES:

- This course introduces the concepts of Programming in C++

UNIT I: (19 Hours)

Principles of Object-Oriented Programming: A Look at Procedure Oriented Programming – Object- Oriented Programming Paradigm – Basic Concepts of Object- Oriented Programming – Benefits of OOP – Applications of OOP

Tokens, Expressions and Control Structures : Introduction – Tokens – Keywords - Identifiers and Constants – Basic Data Types – User Defined Data Types – Derived Data Types – Symbolic Constants – Type Compatibility – Declaration of Variables – Dynamic Initialization of Variables – Reference Variables – Operators in C++ - Scope Resolution Operator – Member Dereferencing Operators – Memory Management Operators – Manipulators – Type Cast Operator – Expressions and their Types – Special Assignment Expressions – Implicit Conversions – Operator Overloading – Operator Precedence – Control Structures

UNIT II : (19 Hours)

Functions in C++: Introduction – The main function – Function Prototyping – Call by Reference – Inline Functions – Default Arguments – const Arguments – Function Overloading– Math Library Functions

UNIT III: (19 Hours)

Classes and Objects: Introduction – C Structures Revisited – Specifying a Class – Defining Member Functions – A C++ Program with Class – Making an Outside Function Inline – Nesting of Member Functions – Private Member Functions – Arrays within a Class – Memory Allocation for Objects – Static Data Members – Static Member Functions – Arrays of Objects - Objects as Function Arguments – Friendly Functions – Returning Objects – const Member Functions – Pointers to Members.

Constructors and Destructors: Introduction – Constructor – Parameterized Constructors – Multiple Constructors in a Class – Constructors with Default Arguments – Dynamic Initialization of Objects – Copy Constructors – Constructing Two-dimensional Arrays – const Objects – Destructors

UNIT IV: (18 Hours)

Operator Overloading and Type Conversions: Introduction – Defining Operator Overloading – Overloading Unary Operators – Overloading Binary Operators – Overloading Binary Operators Using Friends – Manipulation of Strings Using Operators – Rules for Overloading Operators – Type Conversions

Inheritance: Extending Classes: Introduction – Defining Derived Classes – Single Inheritance – Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes – Abstract Classes – Constructors in Derived Classes – Member Classes: Nesting of Classes

UNIT V: (15 Hours)

Pointers, Virtual Functions and Polymorphism: Introduction – Pointers – Pointers to Objects – this Pointer – Polymorphism - Pointers to Derived Classes – Virtual Functions – Pure Virtual Functions

Managing Console I/O Operations: Introduction – C++ Streams – C++ Stream Classes – Unformatted I/O Operations – Formatted Console I/O Operations – Managing Output with Manipulators

Working with Files: Introduction – Classes for File Stream Operations – Opening and Closing a File – Detecting end-of-file – More about Open(): Files Modes – File Pointers and Their manipulations – Sequential Input and Output Operations – Updating a File: Random Access – Error Handling During File Operations

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RECOMMENDED TEXTS

E. Balagurusamy,1995,Object Oriented Programming with C++, Tata McGraw-Hill Publishing Company Ltd.

REFERENCE BOOKS

i. Robert Lafore, Object Oriented Programming in Microsoft C++, Galgotia publication.
ii. H.Schildt, C++,1998,The Complete Reference-1998-TMH Edition, 1998

Websites:

http://www.cprogramming.com/algorithms-and-data-structures.html

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	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: PROGRAMMING IN C++ - PRACTICAL

SUBJECT CODE :	**PRACTICAL**	**MARKS : 100**
SEMESTER: II	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 4**

COURSE OBJECTIVES:

- This course train the students to solve the problems using C++ language

Simple Programs

1. Program to print average of n integers.
2. Program to illustrate call by value & call by reference.
3. Program to multiply two matrices.

(15 Hours)

Class

4. Student Mark Sheet preparation using Class
5. Class and Object Implementation : to display item and cost

Constructor and Destructor

6. Constructor and Destructor implementation

(25 Hours)

Inline function and friend function

7. To multiply and divide two floating point numbers using inline function
8. To swap private data of two classes using friend function

Polymorphism

9. Function Overloading
10. Overloading unary minus
11. Overloading binary operators - Complex number addition

(20 Hours)

Inheritance

12. Single inheritance
13. Multilevel inheritance

Streams

14. Program to implement Formatted I/O operations.
15. Reading and writing a class object using file

COURSE COMPONENT : ALLIED MATHEMATICS – II
MATHEMATICS – II
(For B.Sc. Computer Science and BCA)

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER: II	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES:

- To improve basics in mathematics and analytical skills

UNIT-I: (18 hours)

INTEGRAL CALCULUS :- Bernoulli's formula – Reduction formula for $\int \sin^n x\,dx$ - $\int \cos^n x\,dx$.
Chapter 2, Sections 2.7 and 2.9

UNIT- II: (18 hours)

FOURIER SERIES : Fourier series for function in $(\alpha,\alpha+2\pi)$, Half-range Sine and cosine series
Chapter 4, Section 4.1 to 4.2

UNIT – III: (18 hours)

DIFFERENTIAL EQUATION : Second order Differential Equation with Constant Coefficient s.Differential equation of the form $(aD^2+bD+C)y = e^{ax}\,ø\,(x)$ where a, b, c are constants, ø (x) = Sin mx (or) 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 hours)

Laplace Transformation - Basic Properties and Simple Problems - $L[e^{at} f(t)]$ - $L[t^n f(t)]$ - $L[e^{at} t^n f(t)]$ - $L[f(t)/t]$.
Chapter 7, Section 7.1.1 to 7.1.4

UNIT – V : (18 hours)

Inverse LaplaceTransformation : - Solving Differential Equation using Laplace Transformation.
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

PRESCRIBED BOOKS :

1. Allied Mathematics,A.Singaravelu.
2. Ancillary Mathematics, A. ManickavasagamPillai and Narayanan.
3. Allied Mathematics,P.R.Vittal.

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:

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 10 questions	1 – 12	2	**20**
Section B	**Short Answer** Answer any **5** questions	13–19	5	**35**
Section C	**Essay** Answer any **2** questions	20– 24	15	**45**
				100

Distribution of Questions :

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

NON MAJOR ELECTIVE
PAPER TITLE: HTML LAB - PRACTICAL

SUBJECT CODE :	**THEORY**	**MARKS: 100**
SEMESTER: II	**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 marksheet using HTML tags.
10) Create Guru Nanak College Website using HTML tags

CORE V

PAPER TITLE: ANALYSIS OF ALGORITHMS AND DATA STRUCTURES

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES:

- This course provides knowledge on design and analysis of algorithms, sorting techniques, data structure.

UNIT I: (12 Hours)

Introduction: Basic Design and Analysis techniques of Algorithms, Correctness Algorithm. Algorithm Design Techniques: Iterative techniques, Divide and Conquer Algorithms.

UNIT II : (12 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 to Tree as a data structure; 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.

RECOMMENDED TEXTS

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.

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.

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	2	
	Unit – 4	1	
	Unit - 5	1	

CORE VI

TITLE: ANALYSIS OF ALGORITHMS AND DATA STRUCTURES USING C++

SUBJECT CODE :	**PRACTICAL**	**MARKS : 100**
SEMESTER: III	**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

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)
5. Array implementation of stack
6. Conversion of infix to postfix using stack operations
7. Postfix Expression Evaluation.
8. Array implementation of Queue
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
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 : OPERATIONS RESEARCH
(For B.Sc. Computer Science)

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER: III	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 8**

COURSE OBJECTIVES:

- To give an overall idea about the various Optimization techniques and their usages

UNIT – I : (18 hours)

Introduction to Operations Research - Linear Programming - Formulation - Graphical Solution - Simplex method.
Chapter 1,Section 1.1 to 1.4
Chapter 2, Section 2.1 to 2.28
Chapter 3, Section 3.1 to 3.54
Chapter 4, Section 4.1 to 4.31

UNIT II : (18 hours)

Big-M Method – Two-Phase method – Duality Dual-Primal relation – Dual Simplex Method.
Chapter 5, Section 5.1 to 5.14
Chapter 6, Section 3.1 to 6.35
Chapter 7, Section 7.1 to 7.37
Chapter 8, Section 8.1 to 8.35

UNIT – III : (18 hours)

Transportation Problem -- Assignment Problem. Chapter 10, Section 10.1 to 10.73
Chapter 11, Section 11.1 to 11.6

UNIT – IV : (18 hours)

Sequencing problem , n jobs through 2 machines ,n jobs through 3 machines Chapter 12Game theory : Two person – Zero game with saddle point – without saddle point – Dominance – solving 2 x n game or m x 2 game by graphical method Chapter 15

UNIT – V : (18 hours)

PERT – CPM : Project Network Diagram – Critical Path (Crashing excluded) – PERT computation Chapter 14, Section 14.1 to 14.70 Content and treatment as in Operations Research by P.R.Vittal and V.Malini

PRESCRIBED BOOKS :

1. V.Sundaresan, K.S.Ganapathy Subramanian, K.Ganesan – Resource Management Techniques (Operations Research).
2. Introduction to Operations Research, P.R.Vittal
3. Gupta P.K. and HiraD.S.Problems in Operations Research, S.Chand& Co.

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.

WEBSITES:

1. www.researchgate.com
2. www.freecomputerbooks.com/special/operationsresearch.html
3. www.freetechbooks.com

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	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

CORE VII
PAPER TITLE: PROGRAMMING IN JAVA

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: IV	**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) – Third Edition TMH 1999.
2. Programming with Java, - A Primer – E.Balaguruswamy.

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/

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	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 VIII
PAPER TITLE: PROGRAMMING IN JAVA - PRACTICAL

SUBJECT CODE :	**PRACTICAL**	**MARKS : 100**
SEMESTER: IV	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 4**

COURSE OBJECTIVES:

- This course trains the students to solve the problems using Java language.

Application

(40 Hours)

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 Hours)

11. Generate various shapes using Applet
12. Point class manipulation
13. Draw a Human face
14. Program to create Checkbox, choice, RadioButton, Label and TextBox
15. Change Font and Color

COURSE COMPONENT : STATISTICAL METHODS AND THEIR APPLICATIONS
(For B.Sc. Computer Science)

SUBJECT CODE :	**PRACTICAL**	**MARKS : 100**
SEMESTER: IV	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 8**

COURSE OBJECTIVES:

- To introduce basic concepts of Statistics and computing statistical aspects

UNIT I : (18 hours)

Measures of location – Arithmetic Mean, Median, Mode, Geometric Mean, Harmonic Mean, and their properties, Merits and demerits -Diagrammatic an Graphical Representation of Data - Measures of Dispersion -- Range, Mean Deviation, Quartile Deviation, Standard deviation, Coefficient of variation, Skewness and Kurtosis and their properties.

Chapter 4, Section 4.1 to 4.4,
Chapter 5, Sectin 5.1 to 5.8
Chapter 6, Section 6.1 to 6.4
Chapter 7, 7.1 and 7.2

UNIT II : (18 hours)

Probability of an Event – Addition and Multiplication theorems – Independent Events – Conditional Probability – Baye‘s theorem.

Chapter 8, Sction 8.1 to 8.9

UNIT III : (18 hours)

Correlation and Regression Lines – Rank Correlation Coefficient – Curve fitting by the Method of Least Squares.

Chapter 13,Section 13.1 to 13.2

UNIT IV : (18 hours)

Concept of Sampling Distributions – Standard Error – Test of Significance based on t, Chi- Square and F-distributions with respect to Mean and Variance – Test of Independence in Contingency table.

Chapter 24, Se24.1,24.2
Chapter 26, Section 26.1,26.2,26.3
Chapter 27
Chapter 28

UNIT V : (18 hours)

Principle of Scientific Experiments – Randomization, Replication and Local Control. Analysis of Variance – One way and Two Way Classification – Analysis of CRD, RBD – Latin Square Designs.

Chapter 29, Section 29.1 to 29.9
Content and treatment as in Statistical and Numerical Methods by P.R.Vittal and V.Malini

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
3. Prentice Hall 4. Statistical Methods - Dr. S.P. Gupta - Sultan Chand & Sons

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

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 questions out of 12	1 – 12	3	**30**
Section B	**Short Answer** Answer any **5** questions out of 7	13-19	6	**30**
Section C	**Essay** Answer any **4** questions out of 6	20-25	10	**40**
				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 :	**PRACTICAL**	**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 and Numerical Methods by P.R.Vittal and V. Malini

BOOKS FOR STUDY AND REFERENCES:

1. Mode, E.B.: Elements of Statistics - Prentice Hall
2. Wilks, S.S.: Elementary Statistical Analysis -Oxford and IBH
3. Snedecor, G.W., & Cochran, W.G.: Statistical Methods, Oxford and IBH Simpson and Kafka: Basic Statistics
4. Burr, I.W.: Applied Statistical Methods, Academic Press.
5. Croxton, FE. and Cowden, D.J.: Applied General Statistics, Prentice Hall Ostleo, B.: Statistics in Research, Oxford & IBH.
6. Sydney Siegel- Non-parametric Methods for Behavioural Sciences. Daniel, W W- Biostatistics.

PRESCRIBED BOOKS :

1. Statistical methods and their applications by P.R.Vittal

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principles** Answer **all** the questions (each in 50 words)	1 –6		

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,.2002 , Operating System Principles ,Sixth 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

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	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
	Unit – 3	1	
	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:

Binary Systems & Code conversion, Boolean Algebra & Logic Gates – Truth Tables – Universal Gates – Simplification of Boolean functions: K-map, – Combinational Logic: Adders & Subtractors.

UNIT-II:

Multiplexer – Demultiplexer - Sequential Logic: RS, Clocked RS, D, JK, Master Slave JK, T Flip-Flops – Shift Registers – Types of Shift Registers.

UNIT-III:

Basic Computer Organization and Design: Computer registers, bus system, instruction set, timing and control, instruction cycle, memory reference, input-output and interrupt.

UNIT-IV:

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:

Input-output Organization: Peripheral devices, I/O interface, Modes of data transfer, direct memory access.

PRESCRIBED BOOKS:

1. M. Morris Mano,2005, Digital Logic and Computer Design, Prentice-Hall of India Pvt. Ltd.
2. M. Mano, Computer System Architecture, Pearson Education 1992.

REFERENCE BOOKS:

1. J. Dos Reis, Assembly Language and Computer Architecture using C++ and JAVA, Course Technology, 2004
2. W. Stallings, Computer Organization and Architecture Designing for Performance, 8th Edition, Prentice Hall of India,2009
3. V. Vijayendran,2004,Digital Fundamentals,S. Viswanathan (Printers & Publishers) Pvt. Ltd.

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		Theory	Problems
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	Unit – 2	2	
	Unit – 3	2	
	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	1	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE XI
PAPER TITLE: VISUAL PROGRAMMING AND DATABASE MANAGEMENT SYSTEMS

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER:V	**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: (12 Hours)

Introduction to VB: Need to Visual Basic – The Visual Basic Environment – First steps in programming – Visual Basic Editing tools – Data Types – Comments – Variables – Strings – Constants – Input Boxes - Customizing a form and writing simple program: Starting a new project – The property window – The common form properties – Creating stand-alone windows program.

UNIT II: (15 Hours)

Building user interface – The Tool box – Creating Controls – Simple event procedures – Message Box – The Grid - Controlling program flow: Determinate loops – indeterminate loops – making decisions – select case – nested if-then – The goto – Built-in-functions – String functions – Numeric functions – Date and Time functions – RND function – procedures and functions.

UNIT III: (18 Hours)

Organizing information via code: Lists – one dimensional array – organizing information via controls: Control arrays – list and combo boxes - Building larger projects: The projects with multiple forms – Do Events functions and sub-main. **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: (15 Hours)

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, Classes 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: (15 Hours)

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. Gary Cornell, –Visual Basic 6 Tata McGraw Hill Publishing.
2. G. V. Post – Database Management Systems Designing and Building Business Application – McGraw Hill International edition – 1999.

REFERENCE BOOKS

1. Byron S. Gottfried – Visual Basic - Schaum's Outlines – McGraw hill Edition 2002.
2. N.Krishnan,Visual Basic 6.0 in 30 days,V.Ramesh,2000
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.

Distribution of Questions :

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	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	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE XII
PAPER TITLE: VISUAL PROGRAMMING - PRACTICAL

SUBJECT CODE :	**PRACTICAL**	**MARKS : 100**
SEMESTER: V	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES:

- This course train the students to solve the problems using Visual Programming

(45 Hours)

1. Write a program to convert Roman numerals to decimal.
2. Write a program to do money conversion. (Conversion of rupees to various currencies).
3. Write a program to design a calculator with arithmetic, sqrt and trigonometric functions.
4. Write a program to perform temperature conversion and inches to feet conversion. The program should include facility to change font size, to display with precision (decimal places). The program should use MDI forms.
5. Write a program to select items form one list and move them to another list.
6. Write a program to implement the timer and shape controls.
7. Write a program to drag and drop an image from one image box to another.
8. Write a program to implement the slider control to change the font size of a text box
9. Write a program to create a sketchpad using picture box.

(45 Hours)

For the following programs use MS-Access, create a database and perform the operations given below:

Use a Menu Driven Program:

(i) Insertion
(ii) Deletio
(iii) Modification
(iv) 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

ELECTIVE I
PAPER TITLE: LINUX PROGRAMMING PRACTICAL

SUBJECT CODE :	**PRACTICAL**	**MARKS : 100**
SEMESTER: V	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES:

- This course introduces the basic concepts of Linux Operating System and trains to write shell scripts.

Lecture Hours: 3 Hours per week

UNIT I: (9 Hours)

Introduction to Linux operating system- features of Linux, basic architecture of Linux system, features of kernel and shell.

UNIT II: (9 Hours)

Structure of file system, creating and viewing files using cat, cd, ls, cp, md, rm, mkdir, rmdir, pwd, more, less, file comparisons – cmp and comm., view files, disk related commands, checking disk free spaces, chmod with its options, cal, date, who, tty, lp, stty.

UNIT III: (9 Hours)

Filters and pipes: head, tail, wc, pr, cut, paste, sort, unique, grep, egrep, fgrep, tee. The process: shell process, parent and children, process status, changing process priority with nice, premature termination of process, mathematical commands – bc, expr, factor, units.

UNIT IV: (9 Hours)

Creating and editing files with VI editor with their command options, Operators, Text deletion, Text movement, changing text, yanking text, filtering text, the ex mode, moving text from one file to another. Communication: the bulletin board – news, write, mesg, talk, mail, elm, pine, finger, vacation.

UNIT V: (9 Hours)

Shell Programming- Introduction to Shell - Set and Unset a variable - Displaying –echo - Expr - Test - Getting input –using read - Conditional & Looping Statement : if statement - if –else statement - Nested if statement - _While‘ Loop - _Until‘ Loop - _For‘ Loop - CASE

PRESCRIBED BOOKS

1. Unix concepts and application – Sumitabha Das – Tata Mcgraw Hill.

REFERENCE BOOKS

1. Unix – Syed Mansoor Sarwar, Robert Kortskey – Pearson education.
2. Using Linux – David Bandel and napier – Pearson Education.

PRACTICALS

(9 Hours)

1. a) Usage of following commands: ls, pwd, tty, cat, who, who am I, rm, mkdir, rmdir, touch, cd.
   b) Usage of following commands: cat(append), cat(concatenate), mv, cp, man, date.

2. a) Usage of following commands: chmod.
   b) Usage of following commands: head, tail, wc, pr, cut, paste, sort, unique,

3. Usage of following commands grep, egrep, fgrep, tee.
4. Usage of following commands: process status, changing process priority with nice.

(9 Hours)

5. Write a shell script to modify –cal command to display calendars of the specified months.
6. Write a shell script to check if the number entered at the command line is prime or not.
7. Write a shell script to accept a login name. If not a valid login name display message Entered login name is invalid.

(9 Hours)

8. Write a shell script to display date in the mm/dd/yy format.
9. Write a shell script to display on the screen sorted output of –who command along with the total number of users.
10. Write a shell script to display the multiplication table for a given number.

(9 Hours)

11. Write a shell script to compare two files and if found equal, ask the choice from the user to delete the duplicate file and delete the file.
12. Write a shell script to find the sum of digits of a given number.

(9 Hours)

13. Write a shell script to merge the contents of three files, sort the contents and then display them page by page.
14. Write a shell script to find the factorial of a given number.
15. Write a shell script to check whether the number is Armstrong or not.

ELECTIVE I
PAPER TITLE: PYTHON PROGRAMMING – PRACTICAL

SUBJECT CODE :	**PRACTICAL**	**MARKS : 100**
SEMESTER: V	**CREDITS: 5**	**NO. OF HOURS PER WEEK: 6**

Lecture Hours: 3 Hours per week

COURSE OBJECTIVES:

- This course introduces the basic concepts of programming in Python and trains the students to solve the problems using Python language.

UNIT I: (9 Hours)

Overview of Programming: Structure of a Python Program, Elements of Python Introduction to Python: Python Interpreter, Using Python as calculator, Python shell, Indentation. Atoms, Identifiers and keywords, Literals, Strings, Operators (Arithmetic operator, Relational operator, Logical or Boolean operator, Assignment, Operator, Ternary operator, Bit wise operator, Increment or Decrement operator)

UNIT II: (9 Hours)

Creating Python Programs: Input and Output Statements, Control statements (Branching, Looping, Conditional Statement, Exit function, Difference between break, continue and pass.), Defining Functions, default arguments, Errors and Exceptions.

UNIT III: (9 Hours)

Tables, Two-dimensional tables, Strings and Lists: String as a compound data type, Length, Traversal and the for loop, String slices, String comparison, string built-in methods – set

UNIT IV: (9 Hours)

Dictionary – file operation- List values, Accessing elements, List length, List membership, Lists and for loops, List operations, List deletion

UNIT V: (9 Hours)

Tuple operators and built-in functions – features of tuples. Regular expressions and Python: - Introduction – special symbols and characters for regular expressions.

PRESCRIBED BOOKS

1. Python programming for absolute beginner, 3rd edition, Michael Dawson.
2. Chun, J Wesley, CORE Python programming, 2nd edition, Pearson, 2010.

REFERENCE BOOKS

1. Jeffrey Elkner, Chris Meyers Allen Downey, learning with python, Dreamtech press, 2015.

PRACTICALS

(11 Hours)

1. Write a Python program to demonstrate arithmetic operations.

2. Write a Python program to calculate electricity bill for each slab using if statement.
3. Write a Python program to generate first n prime numbers using for loop.

(11 Hours)

4. Write a Python program
   a. to get the number of occurrences of a specified element in an array.
   b. to remove the first occurrence of a specified element from an array.
   c. to insert a new item before the second element in an existing array.
   d. to remove a specified item using the index from an array.
5. Write a Python program to calculate the GCD of two numbers using recursion.
6. Write a Python program to find average of numbers using List.

(11 Hours)

7. Write a Python program to illustrate Dictionary object
8. Write a Python program for implementation of Bubble Sort.
9. Write a Python program to demonstrate string manipulation.

(12 Hours)

10. Write a Python program using tuples.

11. Write a Python program to demonstrate the use of regular expressions.
12. Write a Python program to demonstrate exception handling.

CORE XIII
PAPER TITLE: DATA COMMUNICATION AND NETWORKING

SUBJECT CODE :	**PRACTICAL**	**MARKS : 100**
SEMESTER: VI	**CREDITS: 4**	**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, 2001, Introduction to Data Communication and Networking, 2nd Edition, TMH.
2. William Stallings, Cryptography and Network Security -5 th Edition, PHI, 2009.
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/McGraw Hill.
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

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	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE XIV
PAPER TITLE: WEB PROGRAMMING WITH PHP AND MYSQL

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: VI	**CREDITS:** 4	**NO. OF HRS PER WEEK: 6**

COURSE OBJECTIVES:

- To earns skill set to develop online information system using the open sources PHP and MySQL.

UNIT-I Introduction: (15 Hours)

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: (15 Hours)

Arrays: Creating an array- modifying array - processing array – grouping form with arrays - using array functions - creating user defined functions - using files

UNIT-III (15 Hours)

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 (15 Hours)

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: (15 Hours)

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.

TEXT BOOKS:

1. VIKRAM VASWANI, "PHP and MySQL", Tata McGraw-Hill, 2005
2. BEN FORTA, "MySQL Crash course" SAMS, 2006.
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 reprint, 2008.
2. Robert Sheldon, Geoff Moes, "Beginning MySQL", Wrox, 2005.
3. Alexis Leon and Mathews Leon, "Database Management Systems", Vikas, 2008.

Distribution of Questions:

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Section A	Unit – 1	3	
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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	2	
	Unit – 5	2	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

CORE XV

PAPER TITLE: WEB PROGRAMMING WITH PHP AND MYSQL - PRACTICAL

SUBJECT CODE :	**THEORY**	**MARKS : 100**
SEMESTER: V	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

COURSE OBJECTIVES:

- This course train the students to develop applications with PHP and MySQL

1. Creating simple webpage using PHP
2. Use of conditional statements in PHP
3. Use of looping statements in PHP
4. Creating different types of arrays
5. File manipulation using PHP
6. Creation of sessions
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
11. Searching of data by different criteria
12. Sorting of data
13. Demonstration of joining tables
14. Usage of aggregate functions
15. Database connectivity in PHP with MYSQL

ELECTIVE II
PAPER TITLE: SOFTWARE ENGINEERING

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: VI	**CREDITS: 5**	**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 - 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

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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	2	

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.

RECOMMENDED TEXTS

I . J.Han and M. Kamber,2001,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

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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	

ELECTIVE II
PAPER TITLE: SOFTWARE TESTING

SUBJECT CODE :	**THEORY**	**MARKS : 100**
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:

1. Software Testing Principles and Practices, Srinivasan Desikan& Ramesh Gopalswamy, Pearson Education.

REFERENCE BOOKS:

1. Software Testing Technique-Beizer Boris, Dreamtech.

WEBSITES:

1. http://www.inf.ed.ac.uk/teaching/courses/st/2011-12/Resource-folder/

Distribution of Questions:

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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

(MATHEMATICS)

Regulations and Syllabus

(For the Candidates admitted in 2017 -2018 and thereafter)

COURSE STRUCTURE

SEMESTER	PART	SUBJECT TITLE	No.of Hours per week	Exam Hours	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 Calculus	4	3	4
		Allied 1 Chemistry-I	8	3	5
	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 1 Chemistry-II	8	3	5
	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 Differrential Equations and Laplace Transforms	5	3	4
		Core Paper 6 Vector Calculus,Fourier Series & Fourier Transforms	5	3	4
		Allied 2 Physics - I	8	3	5
	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 Mathematical Statistics	4	3	4
		Core Paper 8 Statics	4	3	4
		Allied 2 Physics - II	8	3	5
	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 Operations Research I	6	3	4
		Elective Subject I Programming Language C with Practicals	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 II	6	3	5
		Elective Subject III Graph Theory	6	3	5
	IV	Soft Skill 6 Extension activities	_	_	1
				Total	140

SEMESTER – I

CORE PAPER I

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;

UNIT II **(12 hrs)**

Matrices: Cayley-Hamilton theorem; Eigen values; Eigen Vectors; Similar matrices; Diagonalization of a matrix.

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.

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.

UNIT V **(12 hrs)**

Summation of series: Binomial, Exponential and Logarithmic series (theorems without proof); Summation of finite series using method of differences- Simple problems.

Contents and treatment as in **Algebra- Volume I and II** by T.K.Manikavasagam 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 - II

DIFFERENTIAL CALCULUS

UNIT I **(12 hrs)**

Differential Calculus: n^{th} Derivative; Leibnitz's theorem (without proof) and its applications; Partial differentiations. Total differentials; Jacobians;

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)- Simple problems on these concepts.

UNIT III **(12 hrs)**

Curvature: Curvature; radius of curvature in Cartesian and polar coordinates; p-r equations; Simple Problems.

UNIT IV **(12 hrs)**

Centre of curvature, circle of curvature, envelopes, evolutes and simple problems.

UNIT V **(12 hrs)**

Asymptotes: Methods (without proof) of finding asymptotes of rational algebraic curves with special cases.

Contents and Treatment as in **Calculus** by S.Narayanan, T.K.Manickavachagom Pillai Volume I (Viswanathan Publishers).

Reference Books:

1. Calculus: Dr.S.Sudha (Emerald Publishers)

2. Calculus(I&II): P.R.Vittal (Margham Publishers)

SEMESTER – II

CORE PAPER - III

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-Simple Problems.

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.

UNIT III **(12 hrs)**

Logarithms of Complex numbers.

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.

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-Simple problems.

Contents and treatment as in **Algebra- Volume I and II** by T.K.Manikavasagam Pillai and others (S.Viswanathan publishers)

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 - IV

ANALYTICAL GEOMETRY

UNIT I **(12 hrs)**

Conics:

Parabola: pole, polar, conormal points, concyclic points.

Ellipse : pole, polar, conormal points, conjugate lines, conjugate diameters.

UNIT II **(12 hrs)**

Hyperbola: conormal points, asymptotes, conjugate diameters.

Rectangular Hyperbola: conormal points, concyclic points.

UNIT III **(12 hrs)**

Planes: Planes; General equation of a plane; normal form; intercept form; intersection of planes; angle between planes.

UNIT IV **(12 hrs)**

Straight Lines: Straight Lines; symmetric form; coplanar lines; shortest distance; image of a point and a line on a plane.

UNIT V **(12 hrs)**

Sphere: Equation of a sphere; general equation; section of a sphere by a plane; tangent plane; orthogonal spheres. Transformation of Cartesian coordinates into spherical polar coordinates.

Contents and treatment as in**Analytical Geometry (2D & 3D)** : T.K.Manikavasagam Pillai (Viswanathan Publishers)

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 -V

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- simple problems.

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.

UNIT III **(12 hrs)**

Partial Differential Equations: Formation of PDE by eliminating arbitrary constants and arbitrary functions;Lagrange's equations Pp+Qq=R-Simple problems.

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

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-simple problems.

Contents and treatment as in

1. Engineering Mathematics volume 3: M.K.Venkataraman (National Publishing Co.)
2. Engineering Mathematics volume 3: P.Kandasamy and others (S.Chand and Co.)

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 -VI

INTEGRAL CALCULUS

UNIT I **(12 hrs)**

Bernoulli's formula, Reduction Formula for $\int_0^{\frac{\pi}{2}} sin^m x cos^n\, x\, dx, \int_0^{\frac{\pi}{2}} cos^m x cosnx dx, \int_0^{\frac{\pi}{2}} cos^m x sinnx dx, \int x^m\, (logx)^n dx$ *and s*imple Problems. Beta and Gamma functions, properties and simple problems.

UNIT II **(12 hrs)**

Multiple Integrals: Double integrals, Change of order of integration, triple integrals, area and volume using Cartesian coordinates

UNIT III **(12 hrs)**

Fourier Series: Introduction, Expansions of periodic function of period 2□; expansion of even and odd functions; half range cosine and sine zsseries.

UNIT IV **(12 hrs)**

Vector Differentiation: Gradient, divergence, curl, directional derivative, unit normal to a surface, vector identities.

UNIT V **(12 hrs)**

Vector Integration: Line, Surface and volume integrals; theorems of Gauss, Stoke's and Green (without proof) -problems.

Contents and treatment as in

1. Contents and Treatment as in **Calculus** by S.Narayanan, T.K.Manickavachagom Pillai Volume II (Viswanathan Publishers).
2. Engineering Mathematics volume 3: M.K.Venkataraman (National Publishing Co.)
3. Engineering Mathematics volume 3: P.Kandasamy and others (S.Chand and Co.)

Reference Books:

1. Vector Analysis: Murray Spiegel (Schaum Publishing Company, New York)
2. Vector Analysis: P.Duraipandian and Laxmi Duraipandian (Emerald Publishers)

SEMESTER - IV

CORE PAPER - VII

MATHEMATICAL STATISTICS

UNIT I : (12 hours)

Statistics: Introduction, measures of central tendency- measures of dispersion- skew ness- 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 hours)

Sample space – Events, Definition of probability (Classiscal, Statistical & Axiomatic) – Addition and multiplication laws of probability- Independence- Conditional probability- Bayes theorem- Simple problems.

Ch.4- 4.5 to 4.6.2, 4.6.3, 4.7, 4.7.1 to 4.8

UNIT III : (12 hours)

Random Variables (Discrete and continuous), Distribution function- Expected values , variance Moment generating function- probability generating function- Examples. Characteristic function – Uniqueness and inversion theorems (Statements and applications only) – Cumulants, Chebychev's inequality- Simple problems.

Ch.5- 5.1 to 5.4.1, 5.4.3 to 5.5.5. Ch.6- 6.1 to 6.12.

UNIT IV : (12 hours)

Correlation: Rank correlation coefficient- Concepts of partial and multiple correlation coefficients- Regression: Method of Least squares for fitting Linear, Quadratic and exponential curves – Simple problems.

Ch.9- 9.1,9.1.1. Ch.10- 10.1 to 10.7.5 (omit 10.4)

UNIT V : (12 hours)

Standard distributions – Binomial, Poission, 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

Contents and treatment as in " Elements of Mathematical Statistics" by S.C Gupta and V.K Kapoor (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- VIII
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- IX
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.
Section 3.6 to 3.8

Contents and treatment as in “Topics in Algebra” – I. N. Herstein, Wiley Eastern Ltd.

Reference Book :-

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-X
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

Contents 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 Apostal

CORE PAPER- XI
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 – line of quickest descent - motion along an inclined plane – motion of connected particles.

Chapter 1 - Section 1.1 to 1.4, Chapter 10 - Section 10.1 to 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.) – 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- Enveloping parabola or bounding parabola – impact – impulse force - 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 14.1, 14.5

UNIT – IV **(18 hrs)**

Circular motion – Conical pendulum – motion of a cyclist on a circular path – circular motion on a vertical plane – relative rest in a revolving cone – simple pendulum – central orbits -general orbits - central orbits- conic as centered orbit.

Chapter 15 - Section 15.1 to 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, Chapter 18 - Section 18.1, 18.2, Chapter 19 - Section 19.1 (18 hrs)

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- XII

PROGRAMMING LANGUAGE 'C' WITH PRACTICALS

THEORY

UNIT – I **(12 Hrs)**

Introduction. Constants-Variables-Data-types (Fundamental and user defined) Operators-Precedence of operators – Library functions –Input ,Output statements-Escape sequences-Formatted outputs – Storage classes -Compiler directives.

Chapter 2 Sections 2.1 - 2.8 , Chapter 3 Sections 3.1 – 3.7, 3.12 ,Chapter 4 Sections 4.2 – 4.5

UNIT – II **(12 hrs)**

Decision making and branching: Simple if, if e

lse, nested if, else if ladder and switch statement –conditional operator – go to statement.

Decision making and looping : while, do while and for statement – nested for loops – continue and break statements.

Chapter 5 Sections 5.1 – 5.9 ,Chapter 6 Sections 6.1 – 6.5

UNIT –III **(12 hrs)**

Arrays : One dimensional and 2 dimensional arrays – declarations – initialization of arrays– Operation on strings-String handling functions.

Chapter 7 Sections 7.1 – 7.4 ,Chapter 8 Sections 8.1 – 8.8

UNIT – IV **(12 hrs)**

Functions : Function definition and declaration – Categories of functions – recursion – Concept of pointers. Function call by reference - call by value.

Chapter 9 Sections 9.1 – 9.13

Chapter 11 Sections11.1-11.5

UNIT – V **(12 hrs)**

Files : Definition, operations on files- file operation functions.

Chapter 12, Sections 12.1 – 12.

Content and Treatment as in

Programming in ANSI C 2nd edition by E.Balagurusamy, Tata-Mcgraw Hill Publishing Company.

Reference Books:

1. Venugopal, programming in C
2. Gottfied, B.S : programming with C , Schaum‟s outline series, TMH 2001
3. Yashvant Kanitkar, Let us „C‟ BPB Publications

PRACTICALS **(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
15. To check whether the given string is a palindrome or not using string handling functions.

ELECTIVE - I

OPERATIONS RESEARCH – I

UNIT – I

Linear programming – formulation – graphical solution – simplex method.

UNIT – II

Big – M method – Two- Phase method – duality – primal – dual relation.

UNIT – III

Dual simplex method – revised simplex method – Sensitivity analysis.

UNIT – IV.

Transportation problem – Assignment problem.

UNIT – V

Sequencing problem – n jobs through 2 machines – n jobs through 3 machines – two jobs through m machines – n jobs through m machines.

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.

SEMESTER-VI
CORE PAPER-XIII
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.
   Algebra – S. Arumugam, New Gamma publishing house, Palayamkottai

CORE PAPER – XIV
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 Apostal

CORE PAPER – XV
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 2.9 to 2.12, 2.14 to 2.20 and 2.22

UNIT – II **(18 hrs)**

Linear functions - 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 8.68 to 8.71 and 8.73, 8.74 Chapter 9 : 9.79

UNIT – III **(18 hrs)**

Complex Valued functions- 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 Section 4.30 to 4.42

UNIT – IV **(18 hrs)**

Convergence of sequences and series - Taylor‟s series -Laurent‟s series - zeros of analytic functions. Chapter 5 Section 5.43 to 5.47

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 6 Section 6.53 to 6.57 and Chapter 7 Section 7.60 to 7.65.

Content and treatment as in

Complex variables and Applications (Sixth 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-II

OPERATIONS RESEARCH – II

UNIT – I

PERT and CPM: Project network diagram – Critical path (crashing excluded) – PERT computations.

UNIT – II

Queuing theory : Basic concepts - Steady state analysis of M/M/1 and M/M/systems with infinite and finite capacities.

UNIT – III

Inventory Model: Basic concepts – EOQ Models: (a) Uniform demand rate, infinite production rate with no shortages, (b) Uniform demand rate, finite production rate with no shortages – Classical newspaper boy Problem with discrete demand – purchase inventory model with one price break.

UNIT – IV.

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.

UNIT – V

Integer programming: Branch and bound method.

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-III

GRAPH THEORY

Unit – 1

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 – 2

Degree sequences and graphic sequences – simple problems. Connectedness, walks, trails, paths, components, bridge, block, connectivity – simple problems.

Chapter 3: Sections 3.0 – 3.2, Chapter 4: Sections 4.0 – 4.4 (18 hrs)

Unit – 3

Eulerian and Hamiltonian graphs

Chapter 5 Sections 5.0 – 5.2 (18 hrs)

Unit – 4

Trees – simple 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 - 5

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-I

MATHEMATICS-I

(For Physics and Chemistry)

UNIT-I **(15 hrs)**

ALGEBRA: Partial Fractions, binomial, exponential and logarithmic series(without proof) summation and approximation-Simple Problems.

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- simple problems.

UNIT-III **(15hrs)**

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.

UNIT-IV **(30 hrs)**

FINITE DIFFERENCES: Operator E, difference tables, Newton's forward and backward interpolation formulae, Lagrange's interpolation formulae.

TRIGONOMETRY: Expansions of sinn□, cosn□, tann□. Expansions of $\sin^n$□,$\cos^n$□,$\tan^n$□. Hyperbolic and inverse hyperbolic function.

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-Simple Problems.

Contents and treatment as in "Ancillary Mathematics: S.Narayanan and T.K.Manickavasagam pillai (Viswanathan Printers)"

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-II

MATHEMATICS-II

(For Physics and Chemistry)

UNIT-I **(30 hrs)**

INTEGRAL CALCULUS: Bernoulli's formula, integration by parts, reduction formulae, simple problems, Fourier series for functions in (0,2□),(-□,□).

UNIT-II **(15 hrs)**

ORDINARY DIFFERENTIAL EQUATIONS: Second order linear differential equations with constant coefficients. ay''+ by'+ cy = □(x), where □(x)=x^m, $e^{ax}x^m$, e^{ax}sinmx, e^{ax}cosmx.

UNIT-III **(30 hrs)**

PARTIAL DIFFERENTIAL EQUATIONS: Formation, complete integrals and general integrals, four standard types of Lagrange's equations.

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.

UNIT-V **(30 hrs)**

VECTOR ANALYSIS: Scalar point functions, Vector point functions, gradient, divergence, curl, directional derivatives, normal to a surface. Line and surface integrals, Gauss, Stoke's and Green's theorems (without proof)-Simple Problems.

Contents and treatment as in "Ancillary Mathematics: S.Narayanan and T.K.Manickavasagam pillai (Viswanathan Printers)"

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)

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 for the Academic year 2018-19 and onwards)

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 2018– 2021 batch

Semester	Part	Course Component	Subject Code	Subject Name	Credits	Hours	Max. Marks		
							CIA	ESE	Total
Semester I	I	LANGUAGE - I	17UTAMF01	TAMIL - I	3	6	50	50	100
			16UHINF01	HINDI - I					
	II	ENGLISH	16UENGF41	ENGLISH - I	3	4	50	50	100
	III	CORE – 1	16UPHYC01	MECHANICS AND PROPERTIES OF MATTER	4	5	50	50	100
		CORE PRACTICAL - I	16UPHYC02P	PRACTICAL GENERAL - I	*	3	*	*	*
		ALLIED - I	16UCHEA11	CHEMISTRY - I	4	5	50	50	100
		ALLIED PRACTICAL- I	16UCHEA12P	CHEMISTRY - PRACTICAL	*	3	*	*	*
	IV	NME	18UNME01D	ASTRO PHYSICS	2	2	-	100	100
			16UBAT401	BASIC TAMIL - I					
			17UBAH401	BASIC HINDI - I					
		SOFT SKILL	17UGSLS01	LISTENING AND SPEAKING SKILLS	3	2	-	100	100
	CREDIT TOTAL = 19; TOTAL HOURS =30								
Semester II	I	LANGUAGE -II	17UTAMF02	TAMIL - II	3	6	50	50	100
			16UHINF02	HINDI - II					
	II	ENGLISH	16UENGF42	ENGLISH - II	3	4	50	50	100
	III	CORE THEORY - 2	16UPHYC03	THERMAL PHYSICS AND ACOUSTICS	4	5	50	50	100
		CORE PRACTICAL - I	16UPHYC02P	PRACTICAL GENERAL - I	4	3	50	50	100
		ALLIED - II	16UCHEA13	CHEMISTRY - II	4	5	50	50	100
		ALLIED PRACTICAL-I	16UCHEA12P	CHEMISTRY - PRACTICAL	2	3	50	50	100
	IV	NME	16UADT402	ADVANCED TAMIL - II	2	2	-	100	100
			16UBAT402	BASIC TAMIL - II					
			16UNME02D	NON-CONVENTIONAL ENERGY SOURCES					
			17UBAH402	BASIC HINDI - II					
		SOFT SKILL	17UGSLS02	READING AND WRITING SKILLS	3	2	50	50	100
	CREDIT TOTAL = 25; TOTAL HOURS =30								
Semester III	I	LANGUAGE - III	16UTAMF03	TAMIL - III	3	6	50	50	100
			16UHINF03	HINDI - III					
	II	ENGLISH	16UENGF43	ENGLISH - III	3	4	50	50	100
	III	CORE THEORY - 3	16UPHYC04	OPTICS AND SPECTROSCOPY	4	5	50	50	100
		CORE PRACTICAL - 2	16UPHYC05P	PRACTICAL GENERAL - II	*	3	*	*	*
		ALLIED –II	17UMATA12	MATHEMATICS - I	5	8	50	50	100
	IV	SOFT SKILL	16UGSLS03	PERSONALITY ENRICHMENT	3	2	50	50	100
		NME	16UEVS401	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	16UTAMF04	TAMIL - IV	3	6	50	50	100
			16UHINF04	HINDI - IV					
	II	ENGLISH	16UENGF44	ENGLISH - IV	3	4	50	50	100
	III	CORE THEORY - 4	16UPHYC06	ELECTRICITY AND MAGNETISM	4	5	50	50	100
		CORE PRACTICAL- 2	16UPHYC05P	PRACTICAL GENERAL - II	4	3	50	50	100
		ALLIED - II	17UMATA15	MATHEMATICS - II	5	8	50	50	100
	IV	NME	16UEVS401	ENVIRONMENTAL STUDIES	2	2	-	100	100
		SOFT SKILL	16UGSLS04	COMPUTING SKILL	3	2	50	50	100
		CREDIT TOTAL = 24; TOTAL HOURS = 30							
Semester V	III	CORE THEORY - 5	16UPHYC07	ATOMIC PHYSICS	4	5	50	50	100
		CORE THEORY - 6	16UPHYC08	NUCLEAR PHYSICS AND PARTICLE PHYSICS	4	5	50	50	100
		CORE THEORY - 7	16UPHYC09	SOLID STATE PHYSICS AND ELECTRONICS	4	5	50	50	100
		CORE THEORY - 8	16UPHYC10	ELECTROMAGNETISM	4	5	50	50	100
		CORE PRACTICAL- 3	16UPHYC11P	PRACTICAL GENERAL - III	*	2	*	*	*
		CORE PRACTICAL - 4	16UPHYC12P	ELECTRONICS - I - PRACTICAL	*	2	*	*	*
		CORE PRACTICAL - 5	16UPHYC13P	MICRO PROCESSOR AND INTEGRATED ELECTRONICS - PRACTICAL	*	2	*	*	*
		ELECTIVE - 1	16UPHYE01	NUMERICAL METHODS ***	5	4	50	50	100
	IV			VALUE EDUCATION	2		50	50	100
		CREDIT TOTAL = 23; TOTAL HOURS = 30							
Semester VI	III	CORE THEORY - 9	16UPHYC14	RELATIVITY AND QUANTUM MECHANICS	5	6	50	50	100
		CORE THEORY- 10	16UPHYC15	MATHEMATICAL METHODS IN PHYSICS	5	6	50	50	100
		ELECTIVE – 2	16UPHYE02	INTEGRATED ELECTRONICS ***	5	6	50	50	100
		ELECTIVE - 3	16UPHYE03	MICROPROCESSOR FUNDAMENTALS***	5	6	50	50	100
		CORE PRACTICAL - 3	16UPHYC11P	PRACTICAL GENERAL - III	4	2	50	50	100
		CORE PRACTICAL - 4	16UPHYC12P	ELECTRONICS - I - PRACTICAL	4	2	50	50	100
		CORE PRACTICAL- 5	16UPHYC13P	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 = 140 / 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 insemester – II.

*** The student must choose one Elective paper in Semester – V and Two Electivepapers in Semester - VI from the list of offered electives.

SEMESTER - I

CORE THEORY –1: MECHANICS AND PROPERTIES OF MATTER

SUBJECT CODE: 16UPHYC01	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 75**

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	2	**20**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	8	**40**
Section C	**Essay** Answer any 2 out of 4questions	20– 23	20	**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

SUBJECT CODE: 16UPHYC03	**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 – variation of specific heat capacity of diatomic gases

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	2	**20**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	8	**40**
Section C	**Essay** Answer any 2 out of 4questions	20– 23	20	**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: GENERAL PRACTICALS **– I**

SUBJECT CODE: 16UPHYC02P	**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: 18UNME01D	**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

How things work – 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: 19UNME401D	**THEORY**	**MARKS: 100**
SEMESTER: II	**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: 16UNME02D	**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: 16UPHYC04	**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 – 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. 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 - Experimental study of Raman Effect - Application of Raman effect in molecular structure. Laser: Ruby laser – He-Ne, CO_2 laser construction and working – Application of Laser.

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	2	**20**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	8	**40**
Section C	**Essay** Answer any 2 out of 4questions	20– 23	20	**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 MAGNETISM

SUBJECT CODE: 16UPHYC06	**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: Chemical Effects of Electric Current (15 Hours)

Faraday's laws of Electrolysis - ionic velocities and mobilities. Calculation and experimental determination of ionic mobilities - transport number. Thermoelectricity- Peltier effect - Experimental determination of Peltier coefficient - Thomson coefficient - experimental determination of Thomson coefficient - application of thermodynamics to a thermocouple and connected relations - thermoelectric diagram and uses.

Unit 2: Current electricity and Network analysis (15 Hours)

Ohms law – variation of Resistance with temperature – temperature coefficient of resistance – Wheatstone's network – application – metre bridge. Thevenin's theorem – Norton's theorem – simple solutions using the theorems.

Unit 3: 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 4: 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.

Unit 5: Magnetic Properties of materials (15 Hours)

Susceptibility – permeability – intensity of magnetization – relationship connecting intensity of magnetization and magnetic induction $B = \mu_0(H + I_m)$ – (I – H) curve and B-H curves for a magnetic

material using magnetometer method and ballistic galvanometer method. Terrestrial magnetism – magnetic elements – dip circle.

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	2	**20**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	8	**40**
Section C	**Essay** Answer any 2 out of 4questions	20– 23	20	**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: 16UPHYC05P	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

ENVIRONMENTAL STUDIES

SUBJECTCODE: 16UEVS401	**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	2	**20**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	8	**40**
Section C	**Essay** Answer any 2 out of 4questions	20– 23	20	**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: 16UPHYC07	**THEORY**	**MARKS: 100**
SEMESTER: I	**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	2	**20**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	8	**40**
Section C	**Essay** Answer any 2 out of 4questions	20– 23	20	**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:	**THEORY**	**MARKS: 100**
SEMESTER: I	**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).

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 – fundamental interactions – 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	2	**20**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	8	**40**
Section C	**Essay** Answer any 2 out of 4questions	20– 23	20	**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

SUBJECT CODE: 16UPHYC09	**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.

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 – Properties of different types of insulating materials.

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	2	**20**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	8	**40**
Section C	**Essay** Answer any 2 out of 4questions	20– 23	20	**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 –8: Electromagnetism

SUBJECT CODE: 16UPHYC10	**THEORY**	**MARKS: 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 75**

Course Objective: To understand the basics behind the electromagnetic machines

Unit I 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 II 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 - coeficient of coupling.

Unit III 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.

Unit IV Electromagnetic Machines (15 Hours)

AC generator – Distribution of three phase ac – star and delta connections – Dc Motor – Back emf - serial wound – shunt wound – compound wound motors – induction motor

Unit V Maxwell's Equations and Electromagnetic Theory: (15 Hours)

Basic equations - types of currents - vacuum displacement current - Maxwell's equations - Maxwell's equations in free space - electromagnetic waves in free space - energy density of e.m wave - Poynting's theorem - energy per unit volume.

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	2	**20**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	8	**40**
Section C	**Essay** Answer any 2 out of 4questions	20– 23	20	**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: 16UVED401	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	2	**20**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	8	**40**
Section C	**Essay** Answer any 2 out of 4questions	20– 23	20	**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 –9: RELATIVITY AND QUANTUM MECHANICS

SUBJECT CODE: 16UPHYC14	THEORY	MARKS: 100
SEMESTER: V	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 – Heisenberg's uncertainity principle and its equivalence.

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 – 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.

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	2	**20**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	8	**40**
Section C	**Essay** Answer any 2 out of 4questions	20– 23	20	**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 –10: MATHEMATICAL METHODS IN PHYSICS

SUBJECT CODE: 16UPHYC15	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 5**	**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 - 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 - Degenerate Fermi gas.

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	2	**20**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	8	**40**
Section C	**Essay** Answer any 2 out of 4questions	20– 23	20	**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: 16UPHYC11P	**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. 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: 16UPHYC12P	**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: 16UPHYC13P	**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: 16UPHYE01	**THEORY& PROBLEM**	**MARKS: 100**
SEMESTER: V	**CREDITS: 5**	**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	2	**20**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	8	**40**
Section C	**Essay** Answer any 2 out of 4questions	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	1
	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	2	
Section B	Unit – 1	1	1
	Unit – 2	1	
	Unit – 3	1	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

SUBJECT CODE: 16UPHYE02	**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	2	**20**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	8	**40**
Section C	**Essay** Answer any 2 out of 4questions	20– 23	20	**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: 16UPHYE03	**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 - Programmable peripheral interface 8255-Flashing LEDs

UNIT-V: INTERRUPTS (15 Hours)

Interrupts in 8085 - Hardware and Software interrupts – RIM, SIM instructions and priorities – simple polled and interrupt controlled data transfer- 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	2	**20**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	8	**40**
Section C	**Essay** Answer any 2 out of 4questions	20– 23	20	**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: 16UPHYA13	**THEORY**	**MARKS: 100**
SEMESTER: III	**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	2	**20**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	8	**40**
Section C	**Essay** Answer any 2 out of 4questions	20– 23	20	**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: 16UPHYA15	**THEORY**	**MARKS: 100**
SEMESTER: IV	**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	2	**20**
Section B	**Short Answer** Answer any 5 out of 7 questions	13–19	8	**40**
Section C	**Essay** Answer any 2 out of 4questions	20– 23	20	**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: 16UPHYA14P	PRACTICALS	MARKS: 100
SEMESTER: IV	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

The following procedure is to be followed for internal marks(40 marks)

Attendance : 5 marks

Practical test – best 2 out of 3 : 30 marks

Record : 5 marks

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)

DEPARTMENT OF B.Sc

PLANT BIOLOGY AND PLANT BIOTECHNOLOGY

Regulations and Syllabus

(For the Candidates admitted in 2018 - 19 and thereafter)

DEPARTMENT OF PLANT BIOLOGY AND PLANT BIOTECHNOLOGY

COURSE STRUCTURE 2018- 19 BATCH (Onwards)

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, Fungi & Lichens	4	6	50	50	100
	Core - II	Practical – I (Algae, Fungi & Lichens)	2	2	50	50	100
	Allied - I	Zoology – I	3	6	50	50	100
		Allied Zoology Practical	-	2	50	50	100
IV	**1. NME**	Basic Tamil / Nursery & Landscaping	2	2	50	50	100
	2. Skill Based Subject	Soft Skill – I Essentials of Language and Communication	3	2	50	50	100
Total Credits - 20, 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 - III**	General Microbiology	4	6	50	50	100
	Core - IV	Practical – II (General Microbiology)	2	2	50	50	100
	Allied - II	Zoology - II	3	6	50	50	100
		Allied Zoology Practical	4	2	50	50	100
IV	**1. NME**	Basic Tamil / Mushroom Cultivation	2	2	50	50	100
	2. Skill Based Subject	Soft Skill – II	3	2	50	50	100
Total Credits - 24, Total Hours/ week- 30							

DEPARTMENT OF PLANT BIOLOGY AND PLANT BIOTECHNOLOGY

COURSE STRUCTURE 2018-19 BATCH (Onwards)

Semester - III

PART	Course component	SUBJECT NAME	CREDIT	HRS.	CIA	ESE	Total
I	**Language**	Tamil - III / Hindi - III	3	6	50	50	100
II	**English**	English – III	3	4	50	50	100
III	**Core - V**	Bryophytes & Pteriodophytes	4	6	50	50	100
	Core - VI	Practical – III (Bryophytes & Pteriodophytes)	2	2	50	50	100
	Allied - III	Chemistry – I	3	6	50	50	100
		Allied Chemistry Practical	-	2	50	50	100
IV	**1. Skill Based Subject**	Soft Skill – III	3	2	50	50	100
	2. EVS	Environmental Science	-	2	50	50	100
Total Credits - 18, Total Hours/ week- 30							

Semester - IV

PART	Course component	SUBJECT NAME	CREDIT	HRS.	CIA	ESE	Total
I	**Language**	Tamil - IV / Hindi - IV	3	6	50	50	100
II	**English**	English – IV	3	4	50	50	100
III	**Core - VII**	Gymnosperms, Paleobotany & Evolution	4	6	50	50	100
	Core - VIII	Practical – IV (Gymnosperms, Paleobotany & Evolution)	2	2	50	50	100
	Allied - IV	Chemistry - II	3	6	50	50	100
		Allied Chemistry Practical	4	2	50	50	100
IV	**1. Skill Based Subject**	Soft Skill – IV	3	2	50	50	100
	2. EVS	Environmental Science	2	2	50	50	100
Total Credits – 24, Total Hours/ week- 30							

DEPARTMENT OF PLANT BIOLOGY AND PLANT BIOTECHNOLOGY

COURSE STRUCTURE 2018-19 BATCH (Onwards)

Semester - V

PART	Course component	SUBJECT NAME	CREDIT	HRS.	CIA	ESE	Total
III	Core – IX	Cell Biology & Anatomy	4	4	50	50	100
	Core - X	Morphology, Taxonomy of Angiosperm & Embryology	4	4	50	50	100
	Core - XI	Practical – V (Cell Biology, Anatomy, Morphology, Taxonomy of Angiosperm & Embryology)	2	4	50	50	100
	Core - XII	Plant Biotechnology	4	4	50	50	100
	Core - XIII	Plant Physiology & Biochemistry	4	4	50	50	100
	Core - XIV	Practical – VI (Plant Biotechnology, Plant Physiology & Biochemistry)	2	4	50	50	100
	Elective - I	Plant Diseases & Management	5	5	50	50	100
IV	Value Education	Value Education	2	1	50	50	100
Total Credits – 27, Total Hours/ week- 30							

Semester - VI

PART	Course component	SUBJECT NAME	CREDIT	HRS	CIA	ESE	Total
III	Core – XV	Genetics & Plant Breeding	4	5	50	50	100
	Core - XVI	Plant Ecology & Phytogeography	4	5	50	50	100
	Core - XVII	Plant Microtechnique	4	4	50	50	100
	Core – XVIII	Practical – VII (Genetics, Plant Breeding, Plant Ecology, Phytogeography & Plant Microtechnique)	4	6	50	50	100
	Elective – II	Herbal Science	5	5	50	50	100
	Elective – III	Horticulture	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, FUNGI & LICHENS

SUBJECT CODE :16UPBTC01	**THEORY**	**MARKS:100**
SEMESTER: I	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

- The main objective is to acquaint the students about morphology, biology and importance of algae fungi and lichens.
- To provide knowledge on the structure and reproduction of certain selected algal, fungal and Lichen forms besides giving an overview.
- To introduce students the economic importance of all groups.

Unit – I **20 Hours**

General Characteristics – Habitat, habit. Cell structure – Prokaryotic and Eukaryotic. Reproduction – Vegetative, asexual and sexual. Life cycle patterns. Algal Classification – F.E. Fritsch, 1945.

Unit – II **20 Hours**

Structure and reproduction with special reference to the following algal forms (no development) of (a) ***Nostoc*** (b) ***Chlorella*** (c) ***Cyclotella*** (d) ***Sargassum*** (e) ***Gracilaria***. Economic Importance of Algae.

Unit – III **20 Hours**

General Characteristics – Habit, Nutrition, Cell structure – Unicellular, Mycelial, Reproduction – Asexual, sexual, fruiting bodies. Lifecycle patterns.
Fungal classification – Alexopoulus.

Unit – IV **20 Hours**

Structure and reproduction with special reference to the following forms (no development) of (a) ***Albugo*** (b) ***Saccharomyces*** (c) ***Puccinia*** (d) ***Agaricus*** (e) ***Colletotrichum***. Economic Importance of fungi.

Unit – V **10 Hours**

Occurrence, structure and reproduction of Fruticose lichen - ***Usnea***

Prescribed Books:

1. Vashista Sinha B.R., Singh, V.P., 2002, Botany for Degree students, Algae 9th revised edition, S. Chand & Company Ltd., New Delhi.
2. Chopra G.L., A Textbook of Fungi, S.Nagin & Co. Meerut, India

Suggested Reading

1. Pandey B.P., 2000 Revised edition, Text Book of Botany Algae, S.Chand & Company, New Delhi.
2. Sharma O.P., 1992, Text Book of Algae, Tata McGraw Hill Publication Company Ltd., New Delhi
3. Pandey B.P., 1997 College Botany Vol. I Fungi & Pathology.
4. Mehrotra, R,S and Aneja, K.R.2003. An introduction to mycology. New age International (P) Ltd, Publishers, NewDelhi.

CORE II

PAPER TITLE: ALGAE, FUNGI & LICHENS

SUBJECT CODE :16UPBTC02P	**PRACTICAL**	**MARKS:100**
SEMESTER: I	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

- To provide knowledge on the structure and reproduction of certain Cryptogams and
- To make the student to understand the organization of prokaryotic algae, Fungi and eukaryotic algal cell.

Students will have the knowledge and skills to:

- Identify and classify specimens up to order
- Identify, draw and label diagrams of the specimen
- Highlight on the biological significance of the given specimen
- Understand the morphology and anatomy of Algae , Fungi and Lichens specimen through dissection
- Mount and learn their significance
- Relate structure and function

PRACTICAL - ALGAE, FUNGI & LICHENS **30 Hours**

Micro preparation of the types prescribed in the syllabus.
Identifying the micro slides relevant to the syllabus.
Identifying types of algal mixture.
Morphological study of Algae, Fungi and Lichens.

CORE III

PAPER TITLE: GENERAL MICROBIOLOGY

SUBJECT CODE :16UPBTC03	**THEORY**	**MARKS:100**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

- To provide information on the classification, growth, morphology and genetics of microbes and the recent advances in the field of microbiology. The role of microbes as beneficial and as pathogens is also studied.
- To understand the applied aspects of microbiology in dairy industries, pharmaceuticals, food and waste water.

Unit – I **15 Hours**

History and scopes of microbiology. Mycoplasma - structure and multiplication. VAM fungi and their importance,

UNIT - II **20 Hours**

Cleaning and sterilization of glassware, media Isolation techniques- Pour plate – Spread plate – Streak plate – Serial dilution – Types of culture media- staining techniques – simple and differential staining Control of microbes – physical, chemical and biological methods

Unit – III **20 Hours**

Bacteria - Classification (Bergey's Manual) Ultrastructure and nutrition.
Bacterial genetics – Transformation, Transduction and Conjugation

Unit – IV **20 Hours**

General characteristics – structure, replication and viruses of animals, plants, bacteriophage and human, mode of transmission

Unit – V **15 Hours**

Microbiology of foods – food spoilage, food preservation
Industrial Microbiology – Lactic acid, Citric acid, Alcohol beverages,
Medical Microbiology - Antibiotic production – Penicillin and Streptomycin.

Prescribed Books:

1.Adams, M.R. and M.O. Moss. 1995.Food microbiology . New Age International (p) Ltd., Chennai.
2.Agarwal, 2006. Industrial Microbiolgy: Fundamentals and Application, IBD publishers,, New Delhi.
3.Ananthanarayanan, R and C.K.J. Panikar. 2000. Text book of Microbiology, 6th Edition, Orient Longman.
4.Atlas, R.M. 1989. Microbiology- Fundamental and Applications. McMillan Publishing Company. New York.

Suggested Reading

1. Cruger F. and Anneliese Crueger, 2000. Biotechnology: Industrial Microbiology. Panima Publications.
2. O.P Sharma, 2011. Fungi and Allied microbes. Tata McGraw Hill Pvt. Co.
3. P.D. Sharma, 2005. Fungi and Allied organisms. Narosa Publishing house Ltd.
4. George N., Agrios. 2008. Plant pathology. V edition, Academic Press.
5. P.D. Sharma, 2006. Plant pathology. Narosa Publishing house Ltd.
6. Mehrotra , 2008. Plant Pathology Tata McGraw Hill Pvt. Co.
7. Madigan, M.T. and J.N. Martinko. 2006. Brock Biology of Microorganisms. 11thedition, Pearson Education, inc. Upper Saddle River, USA
8. Mackane, L. and J. kandel, 1996. Microbiolgy-Essential and applications.
McGraw Hill Inc., New York.

CORE IV

PAPER TITLE: GENERAL MICROBIOLOGY

SUBJECT CODE :16UPBTC02P	**PRACTICAL**	**MARKS:100**
SEMESTER: II	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

- To provide knowledge on preparing stained smears, culturing micro-organisms, performing tests to identify bacteria and fungi, and studying microbial growth control methods.
- To understand the Bacterial Morphology, Structures, Motility; & Culture
- To make the students gain knowledge in Media Preparation; Bacterial Culture Characteristics, Biochemical Characteristics.

PRACTICAL : GENERAL MICROBIOLOGY **30 Hours**

Cleaning and sterilization of glassware.

Preparation of different types of culture media.

Isolation of pure culture – streak, spread and pour plate methods.

Staining of bacteria – Simple staining, Gram staining.

Photographs of micro organisms prescribed in the syllabus.

CORE V

PAPER TITLE: BRYOPHYTES & PTERIDOPHYTES

SUBJECT CODE :16UPBTC04	**THEORY**	**MARKS:100**
SEMESTER: III	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

- To build up a sound foundation in cryptogamic botany in general and to acquaint the students about classification, morphology, biology and economic importance of various bryophytic plants and ferns.
- To provide knowledge on the comparative studies of steles, sporangia and gametangia in eusporangiate and leptosporangiate groups.

Unit – I **15 Hours**

General Characteristics – Habitat – Habit – Gametophyte – Sex organs – Sporophyte – Alternation of Generations & life cycle.

Unit – II **20 Hours**

Detailed study of structure and reproduction of

a) ***Marchantia*** b) ***Anthoceros*** c) ***Polytrichum*** (No developmental studies)

Unit – III **20 Hours**

General charactertics – Classification (Reimer's 1954) – Apogamy & Apospory – Homospory & Heterospory – Origin and evolution of Pteridophytes.

Unit – IV **20 Hours**

Detailed study of structure and reproduction in the following forms (no developmental aspects)

a) ***Lycopodium*** b) ***Equisetum*** c) ***Adiantum*** d) ***Marsilea***.

Unit – V **15 Hours**

Stelar system in Pteridophytes – Heterospory and seed habit, Economic Importance of Pteriodophytes.

Prescribed Books:

1. Eames.A, 1963 – Morphology of lower vascular plant, McGraw Hill
2.Forster and Gifford, 1959 – Comparative morphology of vascular plants.
3.Pandey B.R., 1977 – A text book of Botany, Pteridophytes and Gymnosperms, K. Nath & Meerut.
4.Parihar. N.S., 1967 – An introduction of Embryophyta, Vol.III – Pteriodophyta, Central book depot, Allahabad.
5.Smith.G.M., 1955- Cryptogamic Botany, Volume-II– McGraw Hill
6.Sporne.K.L., 1976 – Morphology of Pteriodophytes, 4th edition, B.I.Publication.

Suggested Reading

1.Vashista.P.C., 1971 – Botany for Degree students : Pteridophyta. S.Chand&Co.
2.Watson, E.V. The structure and Life of Bryophytes
3.Prem Puri. 1973. Bryophytes-A broad perspective, Atma Ram & Sons, New Delhi
4. Parihar, N.S. 1991. Bryophytes. Central Book Depot, Allahabad.
5. Parihar, N.S. 1996. The Biology and Morphology of Pteridophytes. Central Book Depot, Allahabad.
6. Puri, P. 1980. Bryophytes. Atma Ram & Sons, New Delhi.
7. Sporne, K.R. 1991. The Morphology of Pteridophytes. B.I. Publ. Pvt. Ltd.

CORE VI

PAPER TITLE: BRYOPHYTES AND PTERIDOPHYTES

SUBJECT CODE : 16UPBTC05P	**PRACTICAL**	**MARKS:100**
SEMESTER: III	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

- Build up the knowledge of the students in the area of seedless plants and
- Open up the students to detailed study on morphology, anatomy and structure of the vegetative and reproductive organs of Bryophyte and Pteridophytes.
- To present students with basic principles of reproductive pattern, including: life cycles, gametangia, sporangia, sporophylls, heterospory, ovules and seeds.

BRYOPHYTES AND PTERIDOPHYTES **30 Hours**

Study of morphology, anatomy and structure of the vegetative and reproductive organs of Bryophyte genera included in the theory syllabus.

Study of morphology, anatomy and structure of the vegetative and reproductive organs of Pteridophyte genera included in the theory syllabus.

CORE VII

PAPER TITLE: GYMNOSPERM, PALEOBOTANY & EVOLUTION

SUBJECT CODE : 16UPBTC06	**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 gymnosperms.
*To provide knowledge on the detailed study of fossils, its kinds and the geological time scale.
*Takes into account the concept of: origin of life and theories associated with it.

Unit – I **15 Hours**

General Characters – Distribution – Morphology – Structure and reproduction of Gymnosperms – Classification of Sporne (1954).

Unit – II **20 Hours**

Detailed study of structure and reproduction (no developmental aspects) of a) ***Cycas*** b) ***Pinus*** c) ***Gneutm***.

Unit – III **20 Hours**

Introduction – fossils – process of fossilization (preservation) – types of fossils - unaltered (Coal, Ice embedded fossils and embedded in Amber) and altered (Compression, petrification, impressions, moulds and casts) – Geological Time Scale.

Unit – IV **20 Hours**

Father of Indian Paleobotany (Birbal Sahni and its contribution). Study of the following fossil form genera a) *Lepidodenron* b) *Lepidocarpon* c) *Calamites* (Fossil Pteridophytes) d) *Williamsonia* (fossil Gymnosperm).

Unit – V **15 Hours**

Origin of Life – Chemosynthetic theory of origin of life – Evolutionary theory of Lamarck and Charles Darwin Theory.

Prescribed Books:

1.Sporne. K.R., 1954- Morphology of Gymnosperms, Hutchinson University Library.
2.Gupta.M.N., 1972, - The Gymnosperms (2nd Edition) Shiva Lal Agarwala & Co., Agra.
3.Vashista, P. C .,1976, Gymnosperms, S.Chand & Co.
4.Sporne, K.R.1991. The Morphology of Gymnosperme. B.I. Publications, New Delhi.

Suggested Reading

1.Bhatnagar, S.P. and Moitra, A. 1996. Gymnosperms, New Age Int. Pvt. Ltd., New Delhi
2. Stewart, W.N. and Rathwell, G.W. 1993. Paleobotany and the Evolution of Plants. Cambridge University Press.

CORE VI

PAPER TITLE: GYMNOSPERMS, PALEOBOTANY AND EVOLUTION

SUBJECT CODE : 16UPBTC05P	**PRACTICAL**	**MARKS:100**
SEMESTER: IV	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

- To provide knowledge on the comparative studies of steles, sporangia and gametangia in eusporangiate and leptosporangiate groups.
- To impart knowledge on morphology, anatomy and reproduction of selected Gymnosperms. This course also includes the study of a few representative fossil forms.

GYMNOSPERMS, PALEOBOTANY AND EVOLUTION **30 Hours**

Study of morphology, anatomy of the vegetative and reproductive organs of *Cycas, Pinus* and *Gnetum.*
Fossil slides of *Lepidodenron, Lepidocarpon , Calamites* & *Williamsonia*
Photographs of Evolution scientists.

CORE IX

PAPER TITLE: CELL BIOLOGY & ANATOMY

SUBJECT CODE : 16UPBTC07	**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.
- To expose the student to understand the plant cell, tissues, and internal structures of stem, root and leaves including their anomalies.

Unit – I **15 Hours**

Cell Theory. Cell Organelles – Plasma Membrane, Ribosomes, Golgi apparatus, Endoplasmic Reticulum, Lysosomes, Peroxisomes, Mitochondria and Chloroplast.

Unit – II **15 Hours**

Nucleus, Nuclear Membrane, Chromosomes – Euchromatin, Heterochromatin - Types of Nucleic Acids. Giant Chromosome (Polytene and Lamp Brush Chromosome), Cell Division (Mitosis and Meiosis).

Unit – III **10 Hours**

Plant Cell Structure – Nature of Plant cell wall, tissue and tissue system – Meristematic tissues, Permanent tissues and secretary cells.

Unit – IV **10 Hours**

Meristems – types of meristems – apical meristem – theories – Apical cell theory, tunica corpus theory and histogen theory. Differentiation of stem, leaf and root, vascular bundle and vascular cambium.

Unit – V **10 Hours**

Structure of Dicot stem – primary and secondary structure – structure of dicot root – primary and secondary, monocot stem, structure of monocot root, nodal anatomy, leaf anatomy – Dorsiventral and Isobilateral, stomatal types. Anomalous secondary growth (Dicot – Nyctanthes, Boerhaavia, Monocot – Dracaena).

Prescribed Books:

1.Verma, P.S. & V.K. Agarwal, 2002, Cytology. S. Chand & Co.Ltd., New Delhi-55.
2.Verma, P.S. & V.K. Agarwal, 2003, Genetics. S. Chand & Co.Ltd., New Delhi-55.
3.Freifelder, D.1987. Essentials of Molecular Biology, Jones & Bartlett, Boston.

Suggested Books

1. Gardner, EJ., Simmons, MJ. & Snustad, D. 1991. Principles of Genetics, John Wiley Sons Inc., 8th Edn., New York.
2. Sinnott, EW., Dunn, LL. & Dobzhansky, T. 1997. Principles of Genetics, Tata Mc Graw Hill Publishing Co., New Delhi.
3. Brown W.V. and Bertke.E.M., 1974, A text book of Cytology C.V.Mosley Co.,St. Louis.
4. Cohn.N.S., 1979, Elements of Cytology, Freeman Book Co.,
5. De Robritis E.D.P. and DeRobrities. E.M.F.jr 1987 – Cell and Molecular biology Lea and Febiger..
6. Feifelder.D., - Molecular Biology, Narosa. Publication
7. Watson. J.D., et.al Molecular biology of the Gene The Benjamin/ Cummings.
8. Freifelder, D. 1987. Essentials of Molecular Biology, Jones Bartlett, Boston, USA.
9. De Robertis & De Robertis. 1990. Cell and Molecular Biology, Saunders College,Philadelphia, USA.
10. Gardner, EJ., Simmons, MJ. & Snustad, D. 1991. Principles of Genetics, 8th Edn., John Wiley & Sons Inc., New York.
11. Glick, B.R. and Thompson, J.E. 1993. Methods in Plant Molecular, Biology and Biotechnology. CRC Press, Boca Raton, Florida.
12. Hackett, P.B., Fuchs, J.A. and Messing, J.W. 1988. An Introduction to Recombinant. DNA Techniques : Basic Experiments in Gene Manipulation. The Benjamin/Cummings Publishing Co. Inc., Menlo Park, California.
13. Hall, J.L. and Moore, A.L. 1983. Isolation of Membranes and Organelles from Plant Cells. Academic Press, London, UK.
14. Harris, N. and Oparka, K.J. 1994. Plant Cell Biology : A Practical Approach. IRL Press, at Oxford University Press, Oxford, U.K.
15. Shaw, C.H. (Ed.), 1988. Plant Molecular Biology: A Practical Approach. IRL Press Oxford.
16. Esau.K. (1985) – Anatomy of Seed Plants –John Willey
17. Cutter.E.G (1989) – Plant Anatomy – Part I – Addison – Wesley Publishing Co..
18. Vashista.P.C. (1988) – A Text Book of Plant Anatomy. S.Nagin & Co.
19. Fageri, K. and Van der Pijl, L. 1979. The Principle of Pol1ination Ecology. Pergamon Press, Oxford.
20. Fahn, A. 1982. Plant Anatomy. (3rd edition). Pergamon Press, Oxford.

CORE X

PAPER TITLE: MORPHOLOGY, TAXONOMY OF ANGIOSPERM & EMBRYOLOGY

SUBJECT CODE : 16UPBTC08	**THEORY**	**MARKS:100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 60**

COURSE OBJECTIVES:

* To acquaint the students about the basic principles involved in classification, naming and identification of angiospermic plants.
* To expose the students to the diagnostic features of selected families and to know the economically important plant products and their utilization.
* To understand the lifecycle of angiospermic plant development and the various processes that are involved.

Unit – I **10 Hours**

Morphology – root system – modifications. Shoot system – modifications – (Aerial, sub-aerial and underground). Leaf-simple and compound- phyllotaxy, modifications, (phyllode, pitcher) tendrils, stipules. Inflorescences – definition and types – racemose, cymose, mixed and special types. Fruits - classification.

Unit – II **15 Hours**

Taxonomy and its importance, Concept of a Taxon – Genus and Species, Author citation, Binomial Nomenclature, ICBN, Taxonomic Hierarchy and Herbarium Techniques.

Systems of Plant Classification – Artificial (Linnaeus), Natural (Bentham & Hooker), Modern and Phylogenetic (Cronquist). Merits and Demerits.

Unit – III **15 Hours**

Detailed study of following Angiospermic families

Dicot

Polypetalae : a) Capparidaceae b) Leguminosae c) Cucurbitaceae

Gamopetalae : d) Rubiaceae e) Apocynaceae f) Solanaceae

Monochlamydeae : g) Euphorbiaceae

Monocot : h) Poaceae

Unit – IV **10 Hours**

Development of anther - Microsporangium – Microsporogenesis, Microspores, male gametophyte.

Development of ovule – Megasporogenesis, female gametophyte

(Monosporic – *Polygonum*, Bisporic – *Allium*, Tetrasporic – *Peperomia*).

Unit – V **10 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.

Prescribed reading:

1.Lawrence.G.H.M, 1985 – An Introduction to Plant Taxonomy, Central Book Depot, Allahabad.
2.Porter.C.L., 1982 – Taxonomy of Flowering Plants, Eurasia Publications House, New Delhi
Rendle.A.B., 1980 – The Classification of Flowering Plants (Vol. I & II), Vikas Students Education.
3.Pandey.B.P., 1987 – Taxonomy of Angiosperms.

Suggested reading

1. Clive AS.1989. Plant Taxonomy and Biosystematics, Chapman and Hall Inc. New
2. York.
3. Lawrence, GH. 1955. Taxonomy of Vascular Plants, MacMillan Co., USA.
4. Samuel, BJ & Arlene, EL. 1987. Plant Systematics, Mc Graw Hill Inc. New York
5. Grant, W.E. 1984. Plant Biosystematics. Academic Press London.
6. Harrison, H.J. 1971. New Concepts in Flowering Plant Taxonomy. Rieman Educational Book Ltd., London.
7. Heslop-Harrison, J. 1967. Plant Taxonomy -English Language Book Soc. & Edward Arnold Pub. Ltd. U.K.
8. Heywood, V.H. and Moore, D.M. 1984. Current Concepts in Plant Taxonomy. Academic Press, London.
9. Jones, S.B. Jr. and Luchsinger, A.E. 1986. Plant Systematics (2nd edition). McGraw-HilI Book Co., New York.
10. Nordenstam, B., EI Gazaly, G. and Kassas, M. 2000 Plant Systematics for 21st Century. Portlant Press Ltd., London.
11. Radford, A.E. 1986. Fundamentals of Plant Systematics. Harper & Row Publications, USA.
12. Solbrig, O.T. 1970. Principles and Methods of Plant Biosystematics. The MacMillan Co-collier-MacMillan Ltd., London.
13. Stebbings, G.L. 1974. Flowering Plant - Evolution above Species Level. Edward Arnold Ltd. London.
14. Stace, C.A. 1989. Plant Taxonomy and Biosystematics (2nd edition) Edward Arnold Ltd., London.
15. Takhtajan, A.L. 1997. Diversity and Classification of Flowering Plants. Columbia University Press, New York.
16. Woodland, D.W. 1991. Contemporary Plant Systematics. Prentice Hall. New Jersey.
17. Maheswari.P. (1991) – An Introduction to Embryology of Angiosperms, Tata McGraw Hill Publishing Co. Ltd.,

18. Swamy B.G.L. and Krishnamoorthy. K.V. (1990) – From Flower to Fruits, Tata McGraw Hill Publishing Co. Ltd.
19. Bhojwani S.S. and Bhatnagar.S.P. (1987) – Embryology of Angiosperms, Vikas Publishing House Pvt. Ltd.,
20. Bhojwani, S S. & Bhatnagar, SP. 1994. Embryology of Angiosperms, Vikas
21. Bhojwani, S.S. and Bhatnagar, S.P. 2000. The Embryology of Angiosperms (4th revised and enlarged edition). Vikas Publishing House, New Deihi.
22. Burgess, J. 1985. An Introduction to Plant Cell Development. Cambridge University Press, Cambridge.
23. Leins, P., TucKer, S.C. and Endress, P.K. 1988. Aspects of Floral Development, J. Cramer, Germany.
24. Lyndon, R.F. 1990. Plant Development. The Cellular Basis, Unnin Byman, London.
25. Murphy, T.M. and Thompson, W.E, 1988. Molecular Plant Development. Prentice Hall, New Jersey.
26. Proctor, M. and Yeo, P. 1973. The Pollination of Flowers. William Collins Sons, London.
27. Raghavan, V. 1997. Molecular Embryology of Flowering Plants. Cambridge University Press, Cambridge.
28. Raghavan, V. 1999. Developmental Biology of Flowering Plants. Springer-Verlag, New York.
29. Raven, P.H., Evrt, R.F. and Eichhorn, S. 1992. Biology of Plants (5th edition). Worth, New York.
30. Steeves, T.A. and Sussex, I.M., 1989. Patterns in Plant Development (2nd edition). Cambridge University Press, Cambridge.
31. Waisel, Y., Eshel, A. and Kafkaki, U. (eds.). 1996. Plant Roots : The Hidden Hall (2nd edition). Marcel Dekker, New York.
32. Shivanna, K.R. and Sawhney, VK. (eds.) 1997. Pollen Biotechnology for Crop Production and Improvement. Cambridge University Press, Cambridge.
33. Shivanna, K.R. and Rangaswamy, N.S. 1992. Pollen Biology : A Laboratory Manual. Springer-Verlag. Berlin.
34. Shivanna, K.R. and Johri, B.M. 1995. The Angiosperm Pollen : Structure and Function. Wiley Eastern Ltd.. New York.

CORE XII

PAPER TITLE: PLANT BIOTECHNOLOGY

SUBJECT CODE : 16UPBTC09	**THEORY**	**MARKS:100**
SEMESTER: V	**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**

Tissue Culture – *In vitro* culture techniques: Sterilization Methods, Culture Media – Composition and types of medium, inoculation, incubation and acclimatization. Callus formation and protoplast fusion with reference to improvement of plants. Somoclonal variation and cryopreservation.

Unit – III **15 Hours**

Single cell protein (SCP) – Micro-organism 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**

Production of primary metabolites – ethanol production by Yeast, citric acid production by *Aspergillus niger*. Production of secondary metabolites - antibiotics – *Pencillin*. Enzymes from microbes and their application – amylase, proteases, renin, pectinase and glucose oxidase. Improvement of plants: alkaloid production, vaccine production luminescent plants and protein sweetener.

Unit – V **10 Hours**

Principles and tools of Genetic Engineering –Restriction enzymes, Cloning vectors, 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. James D Watson et al., 1992. Recombinant DNA (2nd Edition), WH Freeman and Co., New York.
2. Maniatis & Sambrook. 2003. Molecular Cloning- A lab manual Vol.I, II & III, Coldspring Harbor Laboratory Press, New York.
3. Old, RW & Primrose, SB. 2001. Principles of Gene Manipulation-an introduction to genetic engineering, Black Well Science Ltd., New York.
4. Bhojwani. S., Dhawan, V. and Cocking, E.C. Plant tissue culture. Springer – Verlag
5. Bajaj, Y.P.S. Plant, cell and organ culture. Springer – Verlag.
6. Bajaj, Y.P.S. (1987). Biotechnology in agriculture and forestry. Springer – Verlag
7. Halder, T. and Gadgil, V.N., 1981. Plant cell culture in crop improvement. Plenum, New York.

Suggested books:

1. Bernard R Glick & Jack J Pasternak. 2001. Molecular biotechnology-principles and applications of recombinant DNA, (2nd Edition), ASM Press, Washington, D.C.
2. Jogdand, SN. 1997. Gene biotechnology, Himalaya Publishig House, New Delhi. Books for Reference
3. Ernst L. Winnaccker, 2002. From Genes to Clones-introduction to gene technology, VCR Pub., Weintein
4. Neuman, K.H., Barz, W., and E.Reinhard, 1985. Primary and secondary metabolism of plant cell cultures – Springer – Verlag, Berlin.
5. Mantell, S.H., and Hedsmith, 1983. Plant biotechnology, SEB Seminar series 18, Cambridge University Press, Cambridge.
6. Barz, W., Reinhard, E., and Zenk, M.H., 1977. Plant tissue culture and its biotechnology application – Springer – Verlag, Berlin.
7. Mizrahi, A., (1988). Biotechnology in agriculture, advances in biotechnological processes, Vol. 9, Alen R. Liss Loc; New York.
8. Scragg, A.H. The economics of mass culture. Secondary metabolism in plants, Cambridge, London, New York.
9. Thorpe, T.A., 1978. Frontiers of plant tissue culture. University of Calgary Publication.
10. Hu, C.Y. and P.J.Wang, 1984. Hand book of plant cell culture Vol.1. Mac million, New York.
11. Reinert, J. and Y.P.S.Bajaj, 1977. Applied and fundamental aspects of plant cell – tissue culture and organ culture – Springer – Verlag, Heidelbery, Berlin.
12. Gleba, Y.Y. and Sytnik, K.M. (1984). Genetic engineering in higher plants – Springer Verlag, Heidelbery.
13. Bhajwani. S., and Razdan, 1984. Plant tissue culture. Theory and practice.

CORE: XIII

PAPER TITLE: PLANT PHYSIOLOGY & BIOCHEMISTRY

SUBJECT CODE : 16UPBTC14	**THEORY**	**MARKS:100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 60**

COURSE OBJECTIVES

1. To provide an insight into the physico-chemical organization and the functional aspects of plants.
2. To orient the students to understand effectively the concepts on morphogenesis and ultimately plant biochemistry.

Unit – I **10 Hours**

Atomic structure, chemical bonds – ionic bond and covalent bond, pH, buffers and electrolytes. Water relations – movement of water from soil to plant, Apoplast and Symplast. Stomatal physiology – types of transpiration in plants and Guttation.

Unit – II **10 Hours**

Deficiency and symptoms – Absorption and translocation of solutes – active & passive uptake. Enzymes: Classification, properties and mode of action.

Unit – III **15 Hours**

Photosynthesis – Chloroplast pigments, Energy sources, Photosystem I & II, electron flow through cyclic and non-cyclic photophosphorylation – pathways of CO_2 fixation in C_3 and C_4 plants.

Unit – IV **10 Hours**

Respiration – Glycolysis, Krebs cycle, electron transport system, oxidative phosphorylation, respiratory quotient. Anaerobic respiration and fermentation.

Nitrogen assimilation – importance of nitrogen in plant life, biological nitrogen fixation, legume – *Rhizobium* symbiosis.

Unit – V **15 Hours**

Growth – Plant growth regulators (Auxins, Gibberellic acid, cytokinin and Ethylene) – mechanism of action and practical applications.

Physiology of flowering : Photo periodism – Vernalisation. Seed – Dormancy, viability and germination.

Prescribed Books:

1. Buchanan, B.B., Gruissem, W. and Jones, R.L. 2000. Biochemistry and Molecular Biology of Plants, American Society of Plant Physiologists, Maryland, USA.

2. Dennis, D.T., Turpin, D.H., Lefebvre, D.D. and Layzell, D.B. (Eds) 1997. Plant Metabolism (second edition). Longman Essex, England.
3. Galston, A.W. 1989. Life Processes in Plants. Scientific American Library, Springer-Verlag, New York, USA.
4. Hooykaas, P.J.J., Hall M.A. and Libbenga, K.R. (eds) 1999. Biochemistry and Molecular Biology of Plant Hormones, Elsevier, Amsterdam, The Netherlands.

Suggested reading

1. Hopkins, W.G. 1995. Introduction to Plant Physiology. John Wiley & Sons, Inc., New York, USA.
2. Lodish, H., Berk, A., Zipursky, S.L., Matsudaira P., Baltimore, D. and Darnell, J. 2000. Molecular Cell Biology (fourth edition). W.H. Freeman and Company, New York, USA.
3. Moore, T.C. 1989. Biochemistry and Physiology of Plant Hormones (second edition). Springer-Verlag, NewYork, USA.
4. Nobel, P.S. 1999. Physiochemical and Environmental Plant Physiology (second edition), Academic Press, San Diego, USA.
5. Salisbury, F.B. and Ross, C.W. 1992. Plaut Physiology (4th edition). Wadsworth Publishing Co., California, USA.
6. Singhal, G.S., Renger, G., Sopory, S.K., Irrgang, K.D. and Govindjee 1999., Concepts in Photobiology : Photosynthesis and Photomorphogenesis. Narosa Publishing House, New Delhi.
7. Taiz, L. and Zeiger, E. 1998. Plant Physiology (2nd edition). Sinauer Associates, Inc., Publishers, Massachusetts, USA.
8. Thomas, B. and Vince-Prue, D. (1997) Photoperiodism in Plants (second edition). Academic Press, San Diego. USA.
9. Westhoff, P. (1998) Molecular Plant Development from Gene to Plant. Oxford University Press, Oxford, UK.
10. Jain, JL. 1979. Fundamentals of Biochemistry, Chand & Co. Ltd., New Delhi
11. Jain, VK. 2006. Fundamentals of Plant Physiology, S.Chand&Company Ltd.,
12. Verma, SK. 2006. A Textbook of Plant Physiology, S.K.Chand & Co., New Delhi
13. Conn, E & Stumpf, PK. 1979. Outline of Biochemistry Niley Easdtern Ltd., New Delhi
14. Metz, ET. 1960. Elements of Biochemistry. V.F & S (P) Ltd., Bombay
15. Noggle and Fritz, 1976. Introductory Plant Physiology, Prentice Hall, New Delhi
16. Pandey, SN & Sinha, BK. 1989. Plant Physiology, Vikas Publishing House Ltd., New Delhi
17. Robert M. Devlin. 1970. Plant Physiology, East West Press, New Delhi

CORE XI

PAPER TITLE: CELL BIOLOGY, ANATOMY, MORPHOLOGY, TAXONOMY OF ANGIOSPERM, EMBRYOLOGY

SUBJECT CODE : 16UPBTC05P	**PRACTICAL**	**MARKS:100**
SEMESTER: V	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

- To link the anatomical details in naming plants or nomenclature of plants.
- An overview of arrangement of genes on chromosomes through chromosome mapping technique
- To identify the Morphology of leaves, stem, root, and modification, types of inflorescence.
- To identify plants of local flora and family identification and derivation based on reasoning.

CELL BIOLOGY

Squash and Smear techniques.
Ultra structure of Plant cell and cell organelles with the help of ultra-microphotograph.

ANATOMY

Study of internal structure of primary (young) and secondary (Old) stems
Internal structure of monocot stem and root T.S. of dicot and monocot leaf. Stomatal types
Anomalous secondary growth in the stem of *Nyctanthes*, *Boerhaavia* and *Dracaena*

MORPHOLOGY, TAXONOMY OF ANGIOSPERM

Morphology of root, stem, leaves and modifications, types of inflorescence and fruits.
Plants of local flora included under theory syllabus and family identification and derivation based on reasoning.
Dissection, identification, observation and sketching the floral parts of the plants belonging to the families included in the syllabus.
Ten (10) Herbarium sheets and field note book to be submitted.
Economic uses of plants and plant parts included under theory syllabus.
Field trips to places for observation, study and collection of plants prescribed in the syllabus for 2 to 5 days under the guidance of faculties.

EMBRYOLOGY

T. S. of young and mature anther – (Permanent slides only)
Types of ovules, different stages of embryo sac development
Types of Endosperm : Cellular, Nuclear and Helobial.
Stages and the development of dicot embryo (*Capsella)* & monocot embryo (*Najas*).
Dissection and display of any two stages of embryo in *Tridax*.

CORE: XIV

PAPER TITLE: **PLANT BIOTECHNOLOGY & PLANT PHYSIOLOGY AND BIOCHEMISTRY**

SUBJECT CODE : 16UPBTC15P	**PRACTICAL**	**MARKS:100**
SEMESTER: V	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES

- To make the students to understand the lifecycle of angiospermic plant development and the various processes that are involved.
- To expose the students to the diagnostic features of selected families and to know the economically important plant products and their utilization.
- The main objective is to provide an overview of the plant derived natural products for their occurrence, sources, basic chemistry and therapeutic applications.

PLANT BIOTECHNOLOGY

Sterilization techniques in plant tissue culture

Preparation of MS Medium, Embryo culture, Meristem culture and Anther culture

Study of algal biofertilizers, VAM fungi, Bacteria – *Azospirillum*

PLANT PHYSIOLOGY

Experiments to be performed and recorded by students individually:

1. Determination of water potential by plasmolytic method.
2. Determination of water potential by gravimetric method.
3. Effect of temperature and chemicals on membrane permeability.
4. Study of rate of transpiration under different environmental factors.
5. Separation of plant pigments by paper chromatography.
6. Study of rate of photosynthesis under different light intensities.
7. Study of rate of photosynthesis under different wavelength s of light.
8. Measurement of pH of expressed cell's sap and different soils using pH Meter.

DEMONSTRATION – EXPERIMENTS

1. Estimation of proteins and carbohydrates
2. The relationship between Transpiration and Absorption
3. Determination of RQ using Ganong's Respirometer

ELECTIVE -I

PAPER TITLE: PLANT DISEASES & MANAGEMENT

SUBJECT CODE : 16UPBTE01	**THEORY**	**MARKS:100**
SEMESTER: V	**CREDITS: 5**	**TOTAL HOURS: 75**

COURSE OBJECTIVES

1. To study about the plant diseases with special reference to southern India.
2. To understand the diseases, symptoms, causal organisms – etiology of the diseases and control measures.

Unit – I **15 Hours**

Plant Diseases: Introduction, Concept, Importance, History and classification. Basic concept of infection – inoculum, inoculum potential, penetration, infection, invasion, growth, reproduction and dispersal.

Unit – II **15 Hours**

Defence mechanism – ***Innate*** : surface structure, structure of natural openings, inhibitors, suberized, lignified tissue – gum deposition – phenols – phenolic glycosides**.** ***Induced*** : hypersensitivity - histological – cork – abscission – biochemical phenols and phytoalexins. Fundamental concepts on cross protection and induced resistance.

Unit – III **15 Hours**

Study of the following diseases with reference to their incitants, symptom manifestation and control measures. Smut of Sorghum, Rust of Wheat, Downy mildew of Grapes, Bacterial blight of rice, Wilt of cotton, club root of cabbage.

Unit – IV **15 Hours**

Study of casual organisms and symptoms of

1. Blast diseases of rice
2. Red rod of sugarcane
3. Tikka disease of groundnut
4. Citrus cankar
5. Leaf curl of Papaya
6. TMV
7. Insect diseases - Plant galls
8. Parasitic diseases of plants - *Cuscuta*

Unit – V **15 Hours**

Modern methods of disease forecast – epiphytotic – causes, course, decline and prophylaxis; Detection of plant pathogens using molecular tools. Plant protection – Prevention, eradication - environmental, chemical and biological.

Prescribed books:

1. Bilgrami, K.S. and Dube, H.C. 1976. A text book of modern plant pathology. Vikas Publishing House Pvt. Ltd., New Delhi.

Suggested reading

1. Pandey B.P. 1989. A text book of plant pathology, pathogen and plant diseases. S. Chand and Company Ltd., New Delhi.
2. Mukerji, K.G. &Bhasin , J. 1972. Plant diseases of India – A source book.Tata McGraw Hill, New Delhi.
3. Mehrotra. R.S. 1980. Plant pathology. Tata McGraw Hill, New Delhi.
4. Rangaswamy, G. 1975. Diseases of crop plants in India. 2nd Edn. Prentice Hall, India

CORE: XV

PAPER TITLE: GENETICS & PLANT BREEDING

SUBJECT CODE : 16UPBTC12	**THEORY**	**MARKS:100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS: 75**

COURSE OBJECTIVES

To understand the principles of genetics and transfer of hereditary characters.
To make the student to understand the mechanisms of gene expression and its regulation.
To understand the process of crop improvement and hybridization.

Unit – I **15 Hours**

History, branches and application, Mendelian genetics –Mendel's experiment, Mendel's laws. Monohybrid cross and its modification, dihybrid cross and test cross.

Unit – II **15 Hours**

Allelic and non-allelic interactions. Chromosome theory of linkage, crossing over, recombinations and mapping of genes on chromosomes. Polygenic inheritance, Multiple alleles.

Unit – III **15 Hours**

Chromosomal aberrations – duplication, deletion, inversion and translocation, sex linkage, Sex determination in plants. Polyploidy origin, types and significance.

Unit – IV **15 Hours**

Extra nuclear inheritance and its significance. Male sterility in corn. Mutation – types, mutagenic agents (physical and chemical) and significance. Population genetics – Hardy Weinberg principles.

Unit – V **15 Hours**

Principles involved in plant breeding, methods of crop improvement – selection (pure line, mass and clonal). Hybridization : types, selection of parents, emasculation, bagging, heterosis, introduction and acclimatization.

Prescribed Books:

1. Verma, P.S. & V.K. Agarwal, 2002, Cytology. S. Chand & Co.Ltd., New Delhi-55.
2. Verma, P.S. & V.K. Agarwal, 2003, Genetics. S. Chand & Co.Ltd., New Delhi-55. Freifelder, D.1987. Essentials of Molecular Biology, Jones & Bartlett, Boston.
3. Gardner, EJ., Simmons, MJ. & Snustad, D. 1991. Principles of Genetics, John Wiley Sons Inc., 8th Edn., New York.
4. Sinnott, EW., Dunn, LL. & Dobzhansky, T. 1997. Principles of Genetics, Tata Mc Graw Hill Publishing Co., New Delhi.

Suggested reading

1. Brown W.V. and Bertke.E.M., 1974, A text book of Cytology C.V.Mosley Co.,St. Louis.
2. Cohn.N.S., 1979, Elements of Cytology, Freeman Book Co.,
3. De Robritis E.D.P. and DeRobrities. E.M.F.jr 1987 – Cell and Molecular biology Lea and Febiger..
4. Feifelder.D., - Molecular Biology, Narosa. Publication
5. Watson. J.D., et.al Molecular biology of the Gene The Benjamin/ Cummings.
6. Freifelder, D. 1987. Essentials of Molecular Biology, Jones Bartlett, Boston, USA.
7. De Robertis & De Robertis. 1990. Cell and Molecular Biology, Saunders College,Philadelphia, USA.
8. Gardner, EJ. Simmons, MJ. & Snustad, D. 1991. Principles of Genetics, 8th Edn., John Wiley & Sons Inc., New York.
9. Glick, B.R. and Thompson, J.E. 1993. Methods in Plant Molecular, Biology and Biotechnology. CRC Press, Boca Raton, Florida.
10. Hackett, P.B., Fuchs, J.A. and Messing, J.W. 1988. An Introduction to Recombinant. DNA Techniques: Basic Experiments in Gene Manipulation. The Benjamin/Cummings Publishing Co. Inc., Menlo Park, California.
11. Hall, J.L. and Moore, A.L. 1983. Isolation of Membranes and Organelles from Plant Cells. Academic Press, London, UK.
12. Harris, N. and Oparka, K.J. 1994. Plant Cell Biology: A Practical Approach. IRL Press, at Oxford University Press, Oxford, U.K.
13. Shaw, C.H. (Ed.), 1988. Plant Molecular Biology: A Practical Approach. IRL Press Oxford.

CORE: XVI

PAPER TITLE: PLANT ECOLOGY AND PHYTOGEOGRAPHY

SUBJECT CODE : 16UPBTC13	**THEORY**	**MARKS:100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS: 75**

COURSE OBJECTIVES

1. To give an insight into ecology, environmental pollution and microbial processes in the environment.
2. To introduce the students to the essential basics of phytogeography and forestry of India.

Unit – I **15 Hours**

Biotic and abiotic factors and their influence on vegetation – a brief account of microbes, plants, animals, soil, wind, light, temperature, rain fall and fire. Plant succession – Primary and secondary – Xerosere, Hydrosere. Adaptation in xerophytes, hydrophytes and epiphytes.

Unit – II **15 Hours**

Ecosystem – Concept processes and components. Food chain, food web, energy flow in ecosystem. Types of Ecosystems : Coastal and grassland. Ecological pyramids and nutrient cycling.

Unit – III **15 Hour**

Ecological species and genetic species diversity, concept : classical and modern. Allopatric and sympatric speciation.

Unit IV **15 Hours**

Biodiversity: Principles and need for conservation - in situ and Ex situ, Endemism. Endangered plants

Unit V **15 Hours**

Phytogeographic regions of India – Ever green forests, Deciduous forests, Scrub jungle and Mangrove forests.

Prescribed Books:

1. Atlas. R.M. and Bartha.R. (1987) – Microbial Ecology : Fundamentals and applications. The Benjamin/ Cummings Publishing Co. Inc.
2. Colinvaux.P. (1986) – Ecology, John Wiley and Sons.
3. Kumar.H.D. (1990) – Modern concepts of Ecology, Vikas Publishing House Pvt. Ltd.,
4. Krishna Iyer.V.R (1992) Environmental protection and legal defence. Sterling Publishers Pvt. Ltd.,

Suggested reading

1. Mabberley.D.J. (1983) – Tropical Rain forest \ecology, Blackie and Son Ltd.,
2. Odum.E.P. (1983) – Basic Ecology, Holt-Saunders International Editions.
3. Shukla.R.S. and Chandel.PS. (1990) – Plant Ecology, S.Chand & Co. Pvt. Ltd.,
4. Singh.D.V (1985), The Eco Vote : - People's representatives and global environment.
5. Smith.W.H. (1981) – Air pollution and forest : Interactions between air contaminants and forest ecosystems.
6. Vickery.M.L. (1984) – Ecology of Tropical plants, John Wiley and Sons.
7. Krishnamurthy KV. 2003. An advanced text book on Biodiversity - Principle and Practice. Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
8. Melchias, G., 2001. Biodiversity and Conservation, Science Publishers Inc. USA.
9. Sharma, PD. 1999. Ecology and Environment, Rastogi Publishers, Meerut.
10. Asthana, DK & Meera Asthana. 2006. A text book of Environmental studies. S.Chand & Company Ltd. New Delhi.
11. Brian Groombridge. 1992. Global Biodiversity, Chapman and Hall, UK.
12. IUCN, 1985. The World Conservation Strategy, IUCN, Switzerland.
13. Odum, EP. 1970. Fundamentals of Ecology, 3rd edn, W.B.Saunders Ltd., UK
14. Simmons et al., 1980, Conservation of Threatened Plants, NATO Scientific affairs, New York.

CORE XVII

PAPER TITLE: PLANT MICROTECHNIQUE

SUBJECT CODE : 16UPBTC10	**THEORY**	**MARKS:100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS: 75**

COURSE OBJECTIVES:

1. To study the objects for examination under a microscope through various techniques.
2. To study the methods and procedures in the structure, vital activity, development, chemical composition, and physical properties.

Unit I. **10 Hours**

Light microscopy – History and - Optical principles use and care of Microscopes - A brief Survey of different types of microscopes including E.M.

Unit II. **10 Hours**

Microtechnical processes – principles and techniques:
(A) Fixation and Fixatives
(B) Temporary staining and stains

Unit III. **10 Hours**

Microscopic preparation, Semi-permanent and Permanent.

Unit IV. **15 Hours**

Special techniques : smear, squash & maceration

Unit V. **15 Hours**

Microtomy: types of microtomes and their use.
Methods of specific materials:
(A) Whole mount of algae & fungi
(B) Sectioning of bryophytes , pteridophytes and gymnosperms.
(C) Maceration & sectioning of angiosperm materials.

Prescribed Book:

1. Alan peacock H.1966 Elementary Microtechnique Edward Arnold (Pub) Ltd.
2. Duddington - C.L. 1960 Practical Microscopy, Pitinan.
3. Cray P.Hand Book of Basic Microtechnique. Mac - Graw Hill, New Delhi.
4. Johnson D.A. 1940 Plant Microtechnique. Mac - Graw Hill, New Delhi.

Suggested reading

1. MC Clung, C.L.1961, Hand book of Microscopical Technique.
2. Patki L.R.1992 An Introduction to Microtechnique S.Chand & Company, New Delhi.
3. Prasad & Prasad 2000 Emkay Replications, Delhi.
4. Puru's M.J.et al 1966 Laboratory Techniques in Botany Butter Worths.

CORE XVIII

PAPER TITLE: GENETICS, PLANT BREEDING, PLANT ECOLOGY, PHYTOGEOGRAPHY, PLANT MICROTECHNIQUE

SUBJECT CODE : 16UPBTC15P	**THEORY**	**MARKS:100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

- To make the students to understand the lifecycle of angiospermic plant development and the various processes that are involved.
- To expose the students to the diagnostic features of selected families and to know the economically important plant products and their utilization.
- The main objective is to provide an overview of the plant derived natural products for their occurrence, sources, basic chemistry and therapeutic applications.
- An overview of arrangement of genes on chromosomes through chromosome mapping technique

Genetics and Plant Breeding **30 Hours**

Genetics problems : Monohybrid cross, dihybrid cross, test cross and its modification.
Allelic and non-allelic interactions.
Gene Mapping : Three point test cross
Hybridization Technique.

Plant Ecology, Phytogeography **30 Hours**

Study of morphological and structural adaptations of
Xerophyte : Nerium, Casurina
Hydrophyte : Nyphaea, Hydrilla
Epiphytes : Vanda
Map of Phytogeographical regions of India.

PLANT MICROTECHNIQUE **30 Hours**

1. Microscopic preparation of semi-permanent and permanent slides.
2. Special techniques: smear, squash & maceration.

ELECTIVE II

PAPER TITLE: HERBAL SCIENCE

SUBJECT CODE : 16UPBTE02	**THEORY**	**MARKS:100**
SEMESTER: V	**CREDITS: 5**	**TOTAL HOURS: 75**

COURSE OBJECTIVES:

To know the elementary treatment of various morphological, anatomical and biochemical parameters used in the identification and utilization of medicinal plants in general.

To provide an overview of ethnobotany, methods of herbal preparation, tribal medicine and their importance in present day drug research.

Unit – I **15 Hours**

Introduction, Food Plants – Plant and Plant products of Industrial value. Cereals – Rice & Wheat, Millet – Sorghum & Pearl millet, Pulses – Soya bean, Nuts – Peanut.

Unit – II **15 Hours**

Fibers and fiber yielding plants – Cultivation, extraction and uses of Fibres.

Soft fibres – *Corchorous*, Hard fibre – Manila Hemp – *Musa textilis*, Surface fibre – *Gossypium*.

Timber – Harvesting & processing of wood in *Tectona*.

Rubber – Extraction & processing with reference to *Hevea braziliensis*.

Unit – III **15 Hours**

Sugar – *Saccharum officinarum* – cultivation, harvesting and extraction.

Spices – *Eugenia caryophyllata* – cultivation & harvesting.

Beverages – *Coffea arabica* & *Thea sinensis* – cultivation & harvesting.

Pulp and paper – raw materials & manufacture of pulp.

Unit – IV **15 Hours**

Definition, history and scope of Pharmacognosy.

Indigenous systems of medicine – Ayurvedic, Siddha, Unanai and Homeopathy.

Unit – V **15 Hours**

Sources, descriptions, constituents and uses of the following:

Antirheumatic – *Colchicine*

Antitumour – *Vinca*

Antidiabetic – *Gymnema*

Antiseptic - Neem

Prescribed Books:

1. Text book of Pharmacognosy, Wallis, T.E. 1999. CBS Publishers and Distributors, New Delhi.
2. Practical Pharmacognosy, Kokate. 2000. Vallabh, New Delhi.
3. Herbal cure for common diseases. Acharya Vipul Rao, 2000. Diamond books, Pvt. Ltd.

Suggested reading

1. Indian medicinal plants used in Ayurvedic preparations, Dey. A.C. 1998. Bishen Singh Mahendra pal singh.
2. Herbal drug microscopy. Vasudevan, T.N. and Laddha, K.S. 2003. Yucca Pub. House.

ELECTIVE III

PAPER TITLE: HORTICULTURE

SUBJECT CODE : 16UPBTE03	**THEORY**	**MARKS:100**
SEMESTER: V	**CREDITS: 5**	**TOTAL HOURS: 75**

COURSE OBJECTIVES:

- To acquaint the students about the basics of plant propagation, irrigation methods ,manures and organic farming.
- To provide the students a theoretical knowledge of horticulture so as to establish home gardens scientifically.
- Introduce the methodology of food processing.

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, water management : Water quality, irrigation, mulching, nursery structures : Protected cultivation (greenhouses), environment controls.

Unit – II **15 Hours**

Hydroponic culture – types of container. Use of manures and fertilizers in Horticultural crop production. Organic farming. Environment factors influencing vegetable and fruit production.

Unit – III **15 Hours**

Horticultural crops protection – physical control, pruning. Biological control, chemical control – pesticides, fungicides and insecticides.

Unit – IV **15 Hours**

Plant propagation – cutting, layering, grafting. Indoor gardening. Orcharding vegetable farming, floriculture, ornamental gardening and landscape horticulture.

Unit – V **15 Hours**

Technology of horticultural crops – market preparation: harvesting and handling packaging and transport, storage, chemical treatment. Food processing – freezing, bottling and canning, drying and chemical preservation.

Prescribed Books:

1.H.T. Hartmann and D.E. Kester 1989. Plant propagation – principles and practices. Half of India New Delhi.

2. T.K.Bose and Mitra and Sadhu, 1991. propagation of tropical and subtropical horticultural crops. Naya Prakash.

3. Singh S.P 1989 Mist propagation Metropolitan book Co., New Delhi.
4. Arditti, A., 1977. Orchid biology, Gornell Univ., Press. Ithaca.
5. Bose, T.K., and Mukharjee, D., 1977. Gardening in India. Oxford & IBH Pub., Co., Calcutta.
6. Gopalswamy Iyyangar, 1970. Complete gardening in India, Kalyan Printers, Bangalore
7. Rangaswami, G. and Mahadevan, A. 1999. Diseases of Crop Plants in India (4th edition). Prentice Hall of India Pvt. Ltd., New Delhi.

Suggested reading

1. Bose, T.K., and Bhattacharjee, S.C., 1980. Orchids of India.
2. Mukherjee, S.K., 1983. Orchids ICAR, New Delhi.
3. Wltz., S., 1972. The world of gladiolus, NAGC, USA.
4. Bailey, S., 1971. Perpectual flowering carnation, Fabner and Fabner, London.
5. Laurie, A., Kiplingr, D.D., and Nelson, K.S., 1968. Commercial flower forcing. Mc Graw-Hill Book, London.
6. Bunt, A.C., 1976. The chrysanthemum. Nat., Chrysanthemum Soc., London.
7. Cumming, R.W., 1964. The chrysanthemum Book. D.Van., Nostrand Inc.
8. Guenther, F., 1952. The essential oil. Van, Nostrand, Inc., New York.
9. Bhatcharjee, B.S., 1959. Rose growing in tropics. Thackarspink and Co., Calcutta.
10. Biswas, T.D., 1984. Rose growing – Principles and Practices – Assoc., Pub., Co., New Delhi.
11. Champneys, H.P., 1956. Pearsons encyclopedia of roses. Arthur Pearsons Ltd., New Delhi.
12. Hartman, H.T. and Kester, D.E., 1989. Plant propagation printice hall Ltd., New Delhi.
13. Larsen, R.A., 1981. Introduction to floriculture. Academic Press, New York.
14. Abraham, A. and Vatsala, P., 1981. Introduction to Orchids. Trop. Bot. Garden, Trivendrum.
15. Bose, T.K. and Yadav, L.P., 1989. Commercial flowers. Naya Prakash, Calcutta.
16.Mc Daniel, G.L., 1982. Ornamental horticulture. Reston Publ., London.
17.Chadha, K.L., 1986. Ornamental horticulture in India ICAR, Krishi Bhavan, New
18. Meninger, E.A., 1970. Flowering vines. Hearside Press, New York.
19.Trivedi, P.P., 1983. Home gardening, ICAR, New Delhi.
20. Helleyer, A., 1976. The Collingridge Encyclopedia of gardening Chartwell Book, Inc., New Jercy.
21.Bailey, L.H., 1963. The Standard Encyclopedia of Horticulture. Mc Million & Co., London.

NON MAJOR ELECTIVE -I

PAPER TITLE: NURSERY AND LANDSCAPING

SUBJECT CODE : 16UNME01F	**THEORY**	**MARKS:100**
SEMESTER: I	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

1. To expose the students to the principles of vegetative propagation.
2. To provide the students a theoretical knowledge to establish home gardens scientifically.

UNIT – I: **5 Hours**

Introduction, prospects and scope of Nursery and landscaping.

UNIT – II: **5 Hours**

Methods of Propagation – cutting, layering, grafting, budding, Floriculture – Rose, Chrysanthemum, Jasmine – cultivation.

UNIT III: **5 Hours**

Gardening – formal garden, informal garden, vegetable garden, landscaped layout designing – formation and maintenance of lawn.

UNIT IV: **5 Hours**

Nursery structures – Green house – shade house, Mist chamber – topiary, Bonsai culture.

UNIT V: **10 Hours**

Manure, composting - Vermicomposting

Prescribed Books:

1. Edmond Muser and Andres. Fundamentals of Horticulture, McGrawHill Book co.,
2. Gardener, Basic Horticulture Mac Millon N.
3. Lex Lauries and victor H. Rise, Floriculture Fundamentals and practices, McGrawhill publishers.
4. Mukherjee D. Gardening in India, Oxford IBH publishing co, New Delhi.
5. Randhawa, Ornamental Horticulture in India Today and Tomorrow Publishers, New Delhi.
6. Sandhu M.K., plant propogation, willey Easter Ltd., New Delhi.
7. Sundararajan, J.S., Muthuswamy J, shanmugavelu, K.G., and Balakrishnan R., A Guide to Horticulture, Thiruvenkadam Printers, Coimbatore.

Suggested reading

1. Kumar N. Introduction to Horticulture, Raja Lakshimi Publication, Nagercoil, India.
2. Edmond Musser and Andres Fundamentals of Horticulture McGraw Hill Book Co.,
3. Amarnath V., 2006, Nursery and Lanscaping, M/s IBD Publishers, New Delhi.
4. Manibushari Rao K. Text Book of Horticulture, MacMillon India Ltd.

NON MAJOR ELECTIVE –II

PAPER TITLE: MUSHROOM CULTIVATION

SUBJECT CODE : 16UNME02F	**THEORY**	**MARKS:100**
SEMESTER: II	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

1. To help the students to learn mushroom cultivation, bio-composting and biofertilizer production
through hands- on- experience.
2. To enable the students to become self- employed/ entrepreneur.

Unit – I **5 Hours**

Introduction, types of mushroom, identification of edible and poisonous mushroom, changes during the development of the mushroom

Unit – II **5 Hours**

Life cycle of *Agaricus* spp., *Pleurotus* spsp.,

Unit – III **5 Hours**

Mushroom cultivation, Isolation, spawn production, growth media, spawn running and harvesting of mushroom.

Unit – IV **5 Hours**

Medicinal and nutritional value of mushrooms, composting, importance in waste recycling

Unit – V **10 Hours**

Diseases - insect pest, nematodes, mites, viruses, fungal competitors and other important diseases.

Post-harvest technology – freezing, drying and canning.

Prescribed Books:

1. Handbook of Mushroom Cultivation, 1999, TNAU publication.
2. Nita Bahl, 2002, Handbook on Mushroom 4th edition vijayprimlani for oxford & IBH publishing co., Pvt., Ltd., New Delhi. Dr.C. Sebastian Rajesekaran Reader in Botany Bishop Heber College, Trichy – 17.
3. Suman, 2005, Mushroom Cultivation Processing and Uses, M/s. IBD Publishers and Distributors, New Delhi.

Suggested reading

1. Sing, 2005, Modern Mushroom Cultivation, International Book Distributors, Dehradun.
2. Mushroom growing. Dey, S.C., Agrobios (India), Jodhpur.
3. Handbook of Edible Mushroom Today and Tomorrows printers and publishers.
4. Mushroom cultivation. Kapoor, J.N., KrishiBhavan, New Delhi.
5. Mushroom Production and Processing Technology. Pathak, V.N., Yadav, N. and Gaur, M., Agrobios (India), Jodhpur.
9. Diseases and pests of Mushroom. Sharma, V.P., 2006, M/S. IBD Publishers and Distributors, New Delhi.

ALLIED

PAPER TITLE: ALLIED BOTANY- I

SUBJECT CODE : 16UPBTA11	**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 **15 Hours**

Structure and life history of *Funaria, Lycopodium* and *Cycas.*

Unit III **15 Hours**

General characters of Bacteria, ultra structure of *E. coli* , Economic importance. General account of Plant virus (TMV).

Unit IV **20 Hours**

Prokaryotic and Eukaryotic cell (Plant Cell), Cell Organelles – structure and function of chloroplast, Mitochondria and Nucleus. Cell Division - Mitosis and Meiosis.

Unit V **20 Hours**

Tissues : Meristematic and Permanent tissues. Primary structure of Dicot stem, dicot root and dicot leaf. Structure of monocot root.

ALLIED

PAPER TITLE: ALLIED BOTANY- II

SUBJECT CODE : 16UPBTA13	**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**

Study and range of characters of Fabaceae, Cucurbitaceae, Apocynaceae, Euphorbiaceae and Liliaceae.

Unit II **20 Hours**

Absorption of water.
Photosynthesis – Light reaction and dark reaction (Calvin cycle), Respiration – Glycolysis, Krebs cycle & Electron transport system.
Nitrogen cycle.
Growth Hormones – Auxins, Gibberellins and Cytokinins.

Unit III **20 Hours**

Ecosystem – definition, basic components of ecosystem, examples of ecosystem – Fresh water ecosystem, Energy flow in ecosystem – Trophic level, Food Chain, Food web.

Unit IV **20 Hours**

Structure of Mature anther, structure of Ovule and its types.

Unit V **10 Hours**

Plant Biotechnology – Introduction, Genetic Engineering, Tissue culture.

ALLIED

PAPER TITLE: ALLIED BOTANY- II

SUBJECT CODE : 16UPBTA12P	**PRACTICAL**	**MARKS:100**
SEMESTER: II	**CREDITS: 4**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

- To provide knowledge on the structure and reproduction of certain Cryptogams and
- To make the student to understand the organization of prokaryotic algae, Fungi and eukaryotic algal cell.
- Build up the knowledge of the students in the area of seedless plants and
- Open up the students to detailed study on morphology, anatomy and structure of the vegetative and reproductive organs of Bryophyte and Pteridophytes.
- To provide knowledge on the comparative studies of steles, sporangia and gametangia in eusporangiate and leptosporangiate groups.
- To impart knowledge on morphology, anatomy and reproduction of selected Gymnosperms. This course also includes the study of a few representative fossil forms.

ALLIED BOTANY PRACTICAL **30 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 stem, root and leaf.

6. Structure of Mature anther and Ovule types (Permanent slides only).

Suggested reading

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.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
Section A	**Definition / Principle** Answer any 10 out of 12 Questions	01-12	2	**20**
Section B	**Short Answer** Answer any 5 out of 7 questions	13-19	5	**25**
Section C	**Essay** Answer any 3 out of 5 questions	20-24	10	**30**

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	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.

B.Sc. Visual Communication

(SEMESTER PATTERN WITH CHOICE BASED CREDIT SYSTEM)

Syllabus

(For the candidates admitted in the Academic year 2018-19 and thereafter)

PAPER I INTRODUCTION TO VISUAL COMMUNICATION

SUBJECT CODE : 16UVISC01	THEORY	MARKS 100
SEMESTER: I	CREDITS:	TOTAL HOURS: 90

COURSE OBJECTIVES:

To understand the basic concepts in human communication with special reference to visual communication.

UNIT I 18hrs

Need for and the Importance of Human and Visual Communication. Communication a expression, skill and process, Understanding Communication: SMRC-Model

UNIT II 18hrs

Communication as a process. Message, Meaning, Connotation, Denotation Culture Codes etc. Levels of communication: Technical, Semantic, and Pragmatic. The semiotic landscape: language and visual communication, narrative representation

UNIT III 18hrs

Fundamentals of Design: Definition. Approaches to Design, Centrality of Design, Easements Elements of Design: Line, Shape, Space, Colour, Texture. Form Etc. Principles of Design: Symmetry. Rhythm, Contrast, Balance Mass Scale etc. Design and Designers (Need, role, process, methodologies etc.)

UNIT IV 18hrs

Principles of Visual and other Sensory Perceptions. Colour psychology and theory (some aspects) Definition, Optical Visual Illusions Etc. Various stages of design process- problem identification, search for solution refinement, analysis, decision making, implementation.

UNIT V 18hrs

Basics of Graphic Design. Definition, Elements of GD, Design process-research, a source of concept, the process of developing ideas-verbal, visual, combination thematic, visual thinking, associative techni ues, materials, tools (precision instruments etc.) design execution, and presentation.

REFERENCE BOOKS:

1. Vandermark and Leth, Interpersonal Communication, Cummings Publishing co., California, 1977
2. Kincaid, Lawrence and Wilbur Schramm, Fundamentals of Human Communication, East West Communication Institute, Honalulu, 1974.
3. Harry.C, On Human Communication, John Wiley Sons, New York, 19 7.

EBSITES:

1. http: www.slideshare.net arzoosahni visual-communication-102032
2. en.wikipedia.org wiki Visual communication

UESTION PAPER PATTERN

S ction	u stion Com on nt	Numb rs	Mar s	Total
Section A	Definition Principle Answer All uestions (Each In 0 Words)	1-10	2	20
Section B	Short Answer Answer Any Out of 8 uestions (Each In 300 Words)	11-18	8	40
Section C	Essay Answer Any 2 Out Of uestions (Each In 1200 Words)	19-23	20	40

DISTRIBUTION OF UESTIONS

S ctions	Units	No. O u stions	
		Th ory	Probl ms
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit –	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit –	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit –	1	

PRACTICAL I – PRACTICAL DRA ING

SUBJECT CODE :16UVISC0 P	PRACTICAL	MARKS 100
SEMESTER: I	CREDITS:	TOTAL HOURS: 90

COURSE OBJECTIVES:
To provide general orientation on visual literacy.

Record I should contain handwork done by students on basic elements of design. There should be minimum of THREE exercises for each topic outlined below for Record I.

Record

- Lines of different thickness
- Curves of different thickness
- Shapes of different forms
- Patterns-of different kinds
- Distortion-of different kinds
- Lettering(fonts) Alphabets
- Fonts Numbers

PAPER II BASIC PHOTOGRAPHY

SUBJECT CODE :16UVISC0 P	THEORY	MARKS 100
SEMESTER: I	CREDITS:	TOTAL HOURS: 90

COURSE OBJECTIVES:

Photography Papers that impart professional training in the creation of still imagery. Some of the areas of specialization are; Ad photography, product photography, event photography, fashion photography, Wildlife etc. Students of photography are in huge demand in the media industry.

UNIT I **18hrs**

Human Eye and Camera. Basics of Camera (aperture, shutter speed, focal length, f-stop, depth of field etc.,) Camera operations. Types of Camera. Types of Lenses. Visual Perception.
Experiencing e uipment - different types of cameras, lenses, filters, bellows, converters etc.,

UNIT II **18hrs**

Understanding lighting-indoor and outdoor, Exposing and Focusing, Types of lighting, Natural and Artificial Lights, Controlling lights, Exposure Meters, Differential focus, Filters, Flashes. Designing with light.

UNIT III **18hrs**

Types of Film-Sensitivity, Temperature, Speed etc., Reversal Films. Manipulation of Colour and Light. Black and white and Colour photography-negatives, colour materials, processing and printing.

UNIT IV **18hrs**

Basic Re uirements, Equipment's. Developing Process. Control Factors- Fixing, Washing, Drying. Negative (ideal, identifying faults). Printing (paper, chemicals, Enlarger) etc. Special effects techni ues-motion pictures etc., manipulation of image, framing trimming.

UNIT V **18hrs**

Some basic Principles. Aesthetics. Basics of photo-journalism, Photo-features, Photo - essays, writing captions, Visual story telling. Photography for Advertising-Consumer and industrial. Planning a shoot-studio, location, set props and casting.

UESTION PAPER PATTERN

S ction	u stion Com on nt	Numb rs	Mar s	Total
Section A	Definition Principle Answer All uestions (Each In 0 Words)	1-10	2	20
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Section B	Unit – 1	2	
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	Unit – 3	1	
	Unit – 4	2	
	Unit –	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit –	1	

PAPER TITLE: VISUAL LITERACY

SUBJECT CODE :16UNME01M	THEORY	MARKS 100
SEMESTER: I	CREDITS:	TOTAL HOURS: 90

COURSE OBJECTIVES

To Provide General Orientation on Visual Literacy

UNIT I **18hrs**

Reading Visual Elements – Dot, Lines, Shapes, Forms, Contour, Texture, Scale, Perspective Etc.

UNIT II **18hrs**

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 **18hrs**

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 **18hrs**

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 **18hrs**

Effective Understanding of Tools and Different Media of Drawing –Pencil, Crayon, Charcoal, Pastels, Pen and Ink, Markers, Water Color, Gouache, Acrylic, Oil Color, Collage and Mixed Medium and Techni ues.

Pr scrib Boo s:

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

bsit s:

www.Visual-Literacy.Org
www.Vislit.Org Visual-Literacy

UESTION PAPER PATTERN

S ction	u stion Com on nt	Numb rs	Mar s	Total
Section A	Definition Principle Answer All uestions (Each In 0 Words)	1-10	2	20
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	Unit –	2	
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	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit –	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit –	1	

I YEAR SEMESTER II
PAPER V ADVERTISING

SUBJECT CODE :16UVISC0	THEORY	MARKS 100
SEMESTER: II	CREDITS:	TOTAL HOURS: 90

COURSE OBJECTIVES:
To understand the art of making advertisements and also to understand audience.

UNIT I **18hrs**
Definition, Nature Scope of advertising, Roles of Advertising; Societal, Communication, Marketing Economic. Functions of advertising.

UNIT II **18hrs**
Based on target audience, geographic area, Media Purpose. Corporate and Promotional Advertising. Web Advertising.

UNIT III **18hrs**
Environment, Components -Advertiser, Advertising agency Media. Consumer behaviour. Latest trends in advertising - (India and abroad). Ad Agency - Structure of small, medium big agencies, functions. Types of agencies - in-house, Independent, Full-service Specialized. Legal aspects ethical issues.

UNIT IV **18hrs**
Client Brief, Account Planning, Creative Strategy and Brief, Communication Plan, Brand Management - Positioning, brand personality, brand image, brand e uity. Case studies.

UNIT V **18hrs**
Conceptualization and Ideation, Translation of ideas into campaigns, Visualization Designing Layout, copy writing - Types of headlines, body copy base lines, slogans, logos, trademarks. Typography, Writing styles, Scripting. Story board. Advertising campaign-from conception to execution.

REFERENCES
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. Different Years ATLANTIS Publications
Mohan: Advertising Management: Concepts and Cases. Tata McGraw- Hill Jewler, E (1998): Creative Strategy in Advertising. Thomson Learning

UESTION PAPER PATTERN

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Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit –	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit –	1	

PRACTICAL – PHOTOGRAPHY

SUBJECT CODE :16UVISC0 P	PRACTICAL	MARKS 100
SEMESTER: II	CREDITS:	TOTAL HOURS: 90

COURSE OBJECTIVES:

To understand the nuances of photography and lighting techni ues.

Photography record should contain at least 1 black and white and 1 colour photographs.
Each exercise should include all the necessary details (colour, exposure time, lens type etc.). Final practical examination will test students' knowledge on photography (either as a viva or written exam or practical work on fundamentals of photography). Following themes should be covered (minimum)

E rcis s

1. Landscape (scenic, people, birds animals, monuments)
2. Portraits
3. Photo feature, photo language
4. Environmental exposure
. Silhouette
6. Freezing movement
7. Panorama
8. Montage
9. Indoor photography
10. Industrial photography
11. Special effects

PRACTICAL III GRAPHIC DESIGN II

SUBJECT CODE :16UVISA0 P	PRACTICAL	MARKS 100
SEMESTER: II	CREDITS:	TOTAL HOURS: 90

COURSE OBJECTIVES:

To understand the concept of visualization and the idea of graphic design form.

Practical III

Gra hic D si n II Practical Ma . Mar 100 (Practical 5: R cor 5)

Record should contain at least THREE exercises each with written briefs, scribbles and final artwork). Cutting and pasting work for advertisements must be done with design elements (logos, illustrations, lettering etc.) created by the students themselves (cutting and pasting from magazine or any other secondary sources will not be allowed).

Record

- Logo design
- Letterhead
- Visiting Cards
- Brochures
- Print Advertisements-Black White, Colour

PAPER I MEDIA ORGANI ATION

SUBJECT CODE :16UNME0 M	THEORY	MARKS 100
SEMESTER: II	CREDITS:	TOTAL HOURS: 90

COURSE OBJECTIVES:

To understand how to manage media and its related responsibilities.

UNIT I **18hrs**

Media Organization and Design: Some Conceptual Issues. Media as Business and Social Institution. Media entrepreneurship, Greiner s Development Model of a company.

UNIT II **18hrs**

Behaviour in media Organization and Organizational Behaviour. Nature and Structure of different Media Organizations-AIR DD, Private Satellite Channels, Production Houses, employment opportunities in Indian Media industry, Group Behaviour, Innovation and Creativity, Culture of organization

UNIT III **18hrs**

Economics of Media-Relationship between supplier and buyer, Leisure time activity, Cost Factors, Revenue Models, Market Factors, State of the Industry today.

UNIT IV **18hrs**

Project Management in Media-Production Project Cycle (PPC), Management themes in production Process, Project Planning, Production Strategies, PPC in Practice-Initiation (Ideas, Evaluation and Assessment), Risk and Impact Assessment, Pre-production, Production Team, Project Specification, Project work plan, Sources of Funds, Budgeting (tools etc.) Project Responsibility, Production Process (status Report, Assessment, Negotiation, Completion, Follow-up.

UNIT V **18hrs**

Programming Strategies, Audience Rating-Analysing Programming and Audience Trends Marketing Programs arid selling space and time. Different kinds of contracts and legal arrangements, Project Management.

REFERENCES

Block et al. Managing in the Media. Focal Press, 2001

UESTION PAPER PATTERN

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	Unit – 4	2	
	Unit –	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit –	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit –	1	

PAPER TITLE: MEDIA ETHICS

SUBJECT CODE :16UVIS06	THEORY	MARKS 100
SEMESTER: III	CREDITS: 6	TOTAL HOURS: 90

COURSE OBJECTIVES:

To understand the different medium laws and determine the policies involved in the various departments. To know the values of certain acts and control over media

UNIT I **18hrs**

Media – Derived press freedom, Restrictions, limitations; State laws on media control, Contempt of court; defamation- Libel and Slander, Pre independence and post-independence laws (copyright act, press act, RTI, Official secrets act, PrasarBharathi Act, Cable TV ac, Cinematography act, IPC)

UNIT II **18hr**

Media determinants, Owners and Controlling companies; State and the law; Advertisers; economic determinants; History of control over media with special reference to Emergency

UNIT III **18hrs**

Media Duties, Self-Control and regulations, Official bodies such as Press Council, TRAI, BRAI, IBF, CBFC, their constitution and power.

UNIT IV **18hrs**

Values and ethics of media personnel (journalists, advertisers, media organizations), Ethical dilemmas, right to privacy, String Journalism, Yellow Journalism, Misinformation, Disinformation, paid news, vested interests

UNIT V **18hrs**

Power of Media in Development; Development and participatory communication; History of Development Communication, investigative journalism and infringement of personal liberty

PRESCRIBED BOOKS:

1. Rao, M. C. (1974). The Press, National Book Trust.
2. Srivastava, K.M. (200). Media Ethics- Veda to Gandhi and Beyond, Ministry of
3. Information and Broadcasting, Government of India.

REFERENCE BOOKS:

1. Sharma, P.K. (1999). Journalism Ethics, Random Publications.Basu, D.D. (200). Press Laws, Prentice Hall.
2. Iyer ,V. (2000), Mass Media Laws and Regulations in India, AMI

EBSITES:

1. www.slideshare.net SabinaV introduction-to-media-ethics
2. www.mediaethicsmagazine.com
3. ethics.journalism.wisc.edu resources digital-media-ethics

UESTION PAPER PATTERN

S ction	u stion Com on nt	Numb rs	Mar s	Total
Section A	Definition Principle Answer All uestions (Each In 0 Words)	1-10	2	20
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		Th ory	Probl ms
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit –	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit –	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit –	1	

PAPER TITLE: FILM STUDIES

SUBJECT CODE :16UVIS05	THEORY	MARKS 100
SEMESTER: III	CREDITS: 6	TOTAL HOURS: 90

COURSE OBJECTIVES:

The course offers a foundation for understanding cinema and it's a relation to culture, technology and aesthetics

UNIT I **18hrs**

History of Indian Film Industry; Film in the era of freedom movement, Major landmarks inHindi Tamil and other Regional cinema, Indian cinema now

UNIT II **18hrs**

History of International film- Early Cinema (1893-1903). Silent Era and birth of talkies andColor films- Development of classical Hollywood Cinema, German expressionism, French impressionist cinema, French new wave, Soviet montage, Italian Neorealism

UNIT III **18hrs**

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 **18hrs**

Mis-en-scene and framing, Importance of miseen 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 miseen scene in meaning making process

UNIT V **18hrs**

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:

1. Thoraval, Yves (2000) The Cinema of India(1896-2000)
2. Roberge, Gaston: The Subject of Cinema
3. Roberge, Gaston (1977): Films for an ecology of Mind

REFERENCE BOOKS:

1. Halliwell;: The Filmgoers Companion 6th Edition
2. Arora: Encyclopedia of Indian Cinema
3. Baskar, Theodor: Eye of the Serpent

EBSITES:

1. www.filmclass.net ElementsFilm.htm
2. www.raindance.org 9-elements-of-great-films
3. www.elementsofcinema.com cinematography composition.html

UESTION PAPER PATTERN

S ction	u stion Com on nt	Numb rs	Mar s	Total
Section A	Definition Principle Answer All uestions (Each In 0 Words)	1-10	2	20
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	Unit –	2	
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	Unit – 3	1	
	Unit – 4	2	
	Unit –	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit –	1	

PAPER TITLE: SCRIPT RITING

SUBJECT CODE :16UVISC0 P	PRACTICAL	MARKS 100
SEMESTER: III	CREDITS:	TOTAL HOURS: 90

OBJECTIVES:
To understand the importance of good script and also to develop good script writing skills.

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 differencebetween actually being inspired and stealing ideas.

AUDIOVISUAL RITING:
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.

THE ELEMENTS OF SCRIPT RITING:
Action, Character, Setting, Theme, Structure.
Practicals: One-page character sketches of a fictional character & a real person the student knows personally. Characterisation - How to establish characters onscreen. The Protagonist and the Antagonist.

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.

The students would write concepts for short films and bring them to class. Selecting one of these concepts, the students would 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 filmhas to be submitted in the prescribed format which will be directed by the student in the final year as project.

PRACTICAL V COMPUTER GRAPHICS I

SUBJECT CODE :16UVISA0 P	PRACTICAL	MARKS 100
SEMESTER: III	CREDITS:	TOTAL HOURS: 90

COURSE OBJECTIVES

DTP for Publication Design: PageMaker (latest version)
Editing and manipulation of image pictures using Photoshop (latest Versions)

E rcis s

1. Design a logo for an
a. Advertising agency
b. Commercial organization
c. Non-profit organization
d. Government agency
e. Service industry
f. Design a visiting card letter head for the same FIVE organizations mentioned above using the logo created in the previous exercise.
g. Design a newsletter for any one of the above-mentioned agencies.
h. Design the front cover of an in-house journal published by any one of the above mentioned agencies

PAPER TITLE: E PUBLISHING

SUBJECT CODE :16UVISA0 P	PRACTICAL	MARKS 100
SEMESTER: IV	CREDITS:	TOTAL HOURS: 90

COURSE OBJECTIVES:

To impart knowledge on page making and desiging enabling students to do e-publishing.

E rcis s:

1. Front Page Designing
2. Image Designing
3. Content Development
4. Page Designing
. Page Development
6. Page Alignment
7. E-Book Final out
8. Domain
9. Hosting
10. Uploading
11. Hosting Maintenance

Evaluation of the project will be based on the submission of e-book of the student.

PAPER VI TELEVISION PRODUCTION

SUBJECT CODE :16UVIS08	THEORY	MARKS 100
SEMESTER: IV	CREDITS:	TOTAL HOURS: 90

COURSE OBJECTIVES:

To enhance the creativity of students in producing television programmers**.**

UNIT I **hrs**

Introduction of visualization, Different approaches to visualization - TV, Films, and Ad films. Types of telecasting, Production standards NTSC, PAL, Secam etc. Television Crew, an overview of direction, art direction, floor management- indoor outdoor, production management, budget preparation.

UNIT II **hrs**

Principles of script writing, creative writing, script formats. Planning of Story, story board, discussions, screen play, dialogue writing, selection of cast, costumes, locations, set design, Research. Locations: In-door, set, on-sights sets, - Outdoor on-sight sets, blue matte. Etc.,

UNIT III **hrs**

Camera techni ues operation, Types of camera, Video formats (VHS, SVHS, U-MATIC, BETA, DIGITAL), framing, shots movements (wide, medium, close ups, shadow, zoom, pan , tilt, aerial etc.,), usage of various types of camera lenses (Normal, Tele, oom etc.,), usages of various filters (day , night, colour correcting filter, diffusion filter), objectives TV lighting, various types of Lights (baby, Junior, Senior, etc.,) colour temperature, lighting for different situations (interviews, indoor, out-door), types of lighting(Back, Front, full, semi, etc.,) Video recording format - Audio on line or off line. Usage of various kinds of mics (Dynamic mic, condenser mic, ribbon mic, Uni-directional, Bi-directional, omnidirectional mics, Hand mic, Head set mic, uadraphonic mic and wireless mic, lapel etc.,) Knowledge about audio recording (mono, stereo, surround sound, eco etc.,).

UNIT IV **hrs**

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 cede roll editing, etc., Television graphics titling and specials effects, Audio - Dubbing, Back ground Music, synchronizing of video and audio, voice Over (narration)etc. Presentation skills, recording live programmes.

REFERENCES

Millerson, G. H (1993) Effective W. Production. Focal Press
Holland, P (1998). The Television Handbook. Routledge

UESTION PAPER PATTERN

S ction	u stion Com on nt	Numb rs	Mar s	Total
Section A	Definition Principle Answer All uestions (Each In 0 Words)	1-10	2	20
Section B	Short Answer Answer Any Out of 8 uestions (Each In 300 Words)	11-18	8	40
Section C	Essay Answer Any 2 Out Of uestions (Each In 1200 Words)	19-23	20	40

DISTRIBUTION OF UESTIONS

Sections	Units	No. Of uestions	
		Th ory	**Probl ms**
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit –	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit –	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit –	1	

PRACTICAL VIII TV PRODUCTION I

SUBJECT CODE :16UVIS09P	PRACTICAL	MARKS 100
SEMESTER: IV	CREDITS:	TOTAL HOURS: 90

COURSE OBJECTIVES:

To develop overall creative skills in the production of television programmes

E rcis s

1. Students should write original scripts for different formats like-documentary and TV commercial (five exercises)-these should be submitted as separate Record
2. Shoot a Short story or Documentary-duration not to exceed Minutes, and
3. Shoot a Commercial - 1 or 20 second spots
4. Each student should do individual projects containing the record and the program Final practical examination will test students on their ability to prepare a complete script and story board on any of the above-mentioned format.

CORE I
PAPER TITLE: EB DESIGINING

SUBJECT CODE :16UVISC1 P	PRACTICAL	MARKS 100
SEMESTER: V	CREDITS:	TOTAL HOURS: 90

COURSE OBJECTIVES:
To learn the principles of web design and understand the process of designing in graphicform.

E rcis s:
1. Filezilla
2. HTML
3. Bitmap Image Designing
4. Animated Web Banner Development
. Animated Website Development
6. particle Website Development
7. Website Alignment
8. URL Link
9. Details About Domain
10. Details About Hosting
11. Details About Uploading
12. Details About Hosting Maintenance

ELECTIVE II

PAPER TITLE: FILM APPRECIATION

SUBJECT CODE :16UVISE01P	PRACTICAL	MARKS 100
SEMESTER: V	CREDITS:	TOTAL HOURS: 90

COURSE OBJECTIVES:

To understand, assimilate and appreciate the nuances of film and the world of cinema.

E rcis s:

1. To watch the international movies
2. To appreciate and criticize films
3. Understand the film making techni ues
4. To know the film language
. To analyze the world famous film directors style

PAPER TITLE: MASS COMMUNICATION THEORIES

SUBJECT CODE :16UVISC10	THEORY	MARKS 100
SEMESTER: V	CREDITS:	TOTAL HOURS: 90

UNIT I: **18hrs**

Conceptualizing Communication - Dimensions of Communication - Intrapersonal, Interpersonal, Group Communication and Mass Communication - Importance of Verbal and Non-verbal Communication and Role of Kinesics

UNIT II: **18hrs**

Functions and Elements of Mass Communication - Models of Communication: Classical, Intermediary, Interactive, Transactional Models - Aristotle's definition of Rhetoric, Berlo's SMCR Model, Shannon-Weaver Mathematical Model, Westley and MacLean's Conceptual Model - Newcomb's Model of Communication, George Gerbner's Model - Schramm's Interactive Model, and Ecological Model

UNIT III **18hrs**

Theories and Ideologies of Mass Communication - Media Effects: Hypodermic Needle, Two-Step Multi-Step Flow Theory - Psychological and Sociological Communication Theories: Cognitive Dissonance, Selective Perception, Cultivation Theory, Uses and Gratification Theory, Spiral of Silence • Social Learning Theories and Social Change, Developmental Democratic - participation theory

UNIT IV **18hrs**

Role of Ideologies in Understanding the Mass Media - Prominent Ideologies in Media studies – Hegemony - Critical Theory - Political Economy – Multiculturalism - Functionalism and Structuralism - Frankfurt School (Adorno, Horkhiemer Habermas), Print Capitalism (Banedict Anderson) Medium is Message (MacLuhan), Agenda Setting (McComb and Shaw) and Manufacturing Consent (Chomasky)

UNIT V **18hrs**

Normative Theories of Media - Public opinion and democracy: James Bryce and Walter Lippmann - New Media Theories: From Medium Theory to the Second Media - Age: Postmodern society and network society, Networked Societies and Digital -Convergence.

PRESCRIBED BOOKS:

1. Wood, Julia T: Communication Mosaics: An Introduction to the Field of Communication, 2001. Wadsworth
2. Larson, Charles U; Persuation-Reception and Responsibility. Wadsworth, 2001.

Wood, Julia T: Communication Mosaics: An Introduction to the Field of Communication,2001. Wadsworth

UESTION PAPER PATTERN

S ction	u stion Com on nt	Numb rs	Mar s	Total
Section A	Definition Principle Answer All uestions (Each In 0 Words)	1-10	2	20
Section B	Short Answer Answer Any Out of 8 uestions (Each In 300 Words)	11-18	8	40
Section C	Essay Answer Any 2 Out Of uestions (Each In 1200 Words)	19-23	20	40

DISTRIBUTION OF UESTIONS

S ctions	Units	No. O u stions	
		Th ory	Probl ms
Section A	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit –	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit –	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit –	1	

PRACTICAL PROJECT I

SUBJECT CODE :16UVISE0	THEORY	MARKS 100
SEMESTER: VI	CREDITS: 10	TOTAL HOURS: 90

COURSE OBJECTIVES:

To make the students have a portfolio of their work so that it is helpful for them to meet thedemands of the industry.

Criteria for selecting the topic will be based on area of specialization already chosen by the student. Emphasis will be given to producing work that can, be made use in the industry. Projects can be taken up in any one of the following areas.

1 Advertising Photography
2.3D Animation
3.Web Page Design

Stu nts ill start or in on th ir ro cts tails o th r cor an ro ct ill b ro i lat r.

PAPER TITLE: INTERNSHIP

SUBJECT CODE :16UVISC16	THEORY	MARKS 100
SEMESTER: VI	CREDITS:	TOTAL HOURS: 90

COURSE OBJECTIVES

To Help Student Get Exposed to Actual Situations and Functioning of the Media Industry and Experience Reality.

Pro ct

M tho olo y: 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 Sp ecialization. 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

PAPER TITLE: ADVERTISING PRACTICES

SUBJECT CODE :16UVISC1 P	PRACTICAL	MARKS 100
SEMESTER: VI	CREDITS:	TOTAL HOURS: 90

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. Student Learn to Create a Professional Photograph for Advertisement On Basis of Lighting and Concepts Behind Marketing Need On Advertising.

E rcis

The Evaluation Is Based On Submissions of Print Advertisement Developed by The Students Following Classroom Inputs, Using Commercial Photographic Strategies Practiced .

Photo ra hy To ics

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.

PRACTICAL I MULTI MEDIA

SUBJECT CODE :16UVISC15P	PRACTICAL	MARKS 100
SEMESTER: VI	CREDITS:	TOTAL HOURS: 90

COURSE OBJECTIVES:

To get e uipped with multimedia skills and apply that in to other forms of media.
Multimedia: Authoring Tools: Macro-Media Director, 3D Studio Max. Students should be given orientation of multimedia usability issues and interface design basics

Exercises

1. Creation of text in 2D format and a 3-D object with animation.
2. Creation of an image using any special effect with movement. (Image before and after the effect)
3. Animation for an advertisement or concept for 30 seconds. At least FIVE concepts should be included in the record

Note: Each student to provide individual CD-ROMs with all the exercises did during the year with proper dates.

REFERENCES

Hillman, D (1998). Multimedia Learning and Applications
Arora, Deva and Yashwant Multimedia 98: Shaping the future. Tata McGraw- Hill
Vaughan (1999) Multimedia: Making it work
Peck D (1998). Multi-media: A hands on introduction. Thomson Learning

PAPER TITLE: VISUAL TE T ANALYSIS (THEORY)

SUBJECT CODE :16UVIS1	THEORY	MARKS 100
SEMESTER: VI	CREDITS:	TOTAL HOURS: 90

COURSE OBJECTS

Understanding the Meaning of Visual Text
AnalysisLearning Strategies for Visual Text analysis
Learning Impact of Visual Text Analysis on Media's Construction of Society

COURSE OUTCOME

Understand the signs and its meaning making process
Ability to know the types of signs and uotes
Understand about the psycho analtic criticism
Learn about the Marxian analysis of visuals
Identify various medium of communication

UNIT I **15 Hours**

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 **15 Hours**

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 **15 Hours**

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 **15 Hours**

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 **15 Hours**

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

UESTION PAPER PATTERN

S ction	u stion Com on nt	Numb rs	Mar s	Total
Section A	Definition Principle Answer All uestions (Each In 0 Words)	1-10	2	20
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Section C	Essay Answer Any 2 Out Of uestions (Each In 1200 Words)	19-23	20	40

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	Unit – 2	2	
	Unit – 3	2	
	Unit – 4	2	
	Unit –	2	
Section B	Unit – 1	2	
	Unit – 2	2	
	Unit – 3	1	
	Unit – 4	2	
	Unit –	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit –	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

INFORMATION TECHNOLOGY B.Sc(IT)

Regulations and Syllabus

(For the Candidates admitted in 2018 -2019)

ANNEXURE II

B.Sc. (Information Technology) COURSE STRUCTURE 2018 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	8	50	50	100
		Core XI	Practical -- Python Programming Lab	4	6	50	50	100
		Allied IV	Statistics – II	5	6	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**	NoSQLMONGODB	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

SEMESTER-1

COURSE STRUCTURE

SEMESTER	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
	IV	1. NON MAJOR ELECTIVE 1 - BASIC TAMIL/ PRACTICAL - COMPUTING SKILLS	2	2	40	60	100
		1.SOFT SKILL I ESSENTIALS OF LANGUAGE AND COMMUNICATION SKILLS LEVEL-I	2	3	50	50	100
		TOTAL	30	24	700		

4

CORE - I

PROGRAMMING IN C & LINUX

SUBJECT CODE : 18UBITC01	**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 1: **(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-2 : **(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-3: **(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-4: **(18 HOURS)**

Introduction to Linux – Linux Components – Linux Files – File Attributes and Permission – Standard I/O – Redirection –Grep and Stream Editor

Unit-5 : **(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, 2009, “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	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 –II

PRACTICAL – PROGRAMMING IN C & LINUX LAB

SUBJECT CODE : 18UBITC02P	**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 file

ALLIED - I MATHEMATICAL APPROACH TO BIG DATA

SUBJECT CODE : 18UMATA11	**THEORY**	**MARKS 100**
SEMESTER: I	**CREDITS: 5**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

Unit 1 :Mathematical Logic: Statement Calculus – Connectives – normal forms – Predicate Calculus - Theory of inference

Unit 2 :Algebraic Equations : Gauss elimination method - Inverse of a matrix - Gauss -Jordan method- Gauss-Seidel method.

Unit 3: Roots of Equations: Graphical Method – Bisection Method – False-Position Method – Fixed-Point Iteration – Newton-Raphson Method – Secant Method.

Unit 4: Algebraic Sytems : Basic concepts – Semigroups, Monoids, Groups, Subgroups,Normal Subgroup, Semigroup Homomorphism

Unit 5: - Trapezoidal Rule - Simpson's 1/3 rule and 3/8 rule - Applications - Weddle's rule.

Recommended Texts

1. J.P. Tremblay and R. Manohar, 1975, Discrete Mathematical Structures with Applications to Computer Science, Tata McGraw-Hill, New Delhi.
2. P.R.Vittal and V.Malini, Statistical and Numerical Methods, Margham Publications, Chennai.

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** 10**questions**	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 : 16UNME01	**PRACTICAL**	**MARKS 100**
SEMESTER: I	**CREDITS: 2**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

Solve common business problems using appropriate Information Technology applications and systems

Unit 1 : (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 2: (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, optio

Unit 3 : (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 4: (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 5 : (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	ESE	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 : 18UBITC03	**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 1: (**15 HOURS)**

Introduction to Java – Features of Java – Object Oriented Concepts – Lexical Issues – Data Types – Variables – Arrays – Operators – Control Statements.

Unit-2: (**15 HOURS)**

Classes – Objects – Constructors – Overloading method – Static and fixed methods – Inner Classes – String Class – Inheritance – Overriding methods – Using super – Abstract class.

Unit-3: (**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-4: (**15 HOURS)**

I/O streams – File Streams – Applets-String Buffer-Char Array-Java Utilities-Code Documentation.

Unit-5 : (**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**

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 : 18UBITC04P	**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 : 18UMATA12	THEORY	MARKS 100
SEMESTER: II	CREDITS: 5	TOTAL HOURS: 90

COURSE OBJECTIVES:

Unit – 1 :Introduction to Operations Research - Linear Programming - Formulation - Graphical Solution - Simplex method.

Unit 2 : Big-M Method – Two-Phase method – Duality Dual-Primal relation – Dual Simplex Method.

Unit – 3 : Transportation Problem -- Assignment Problem.

Unit – 4 : Sequencing problem , n jobs through 2 machines ,n jobs through 3 machines , 2 jobs through m machines , n jobs through m machines.
Game theory : Two person – Zero game with saddle point – without saddle point – Dominance – solving 2 x n game or m x 2 game by graphical method

Unit – 5 :PERT – CPM : Project Network Diagram – Critical Path (Crashing excluded) – PERT computation

Recommended Texts

1. V.Sundaresan, K.S.Ganapathy Subramanian, K.Ganesan – Resource Management Techniques (Operations Research).

2. Introduction to Operations Research, P.R.Vittal

3. Gupta P.K. and HiraD.S.Problems in Operations Research, S.Chand& Co.

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.

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 **3**out of 5 questions	21–25	15	**45**

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		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 : 16UNME02KP	**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

	PART	SUBJECT NAME	HRS / WEE K	CREDITS	MARKS		
					CIA	ESE	TOTAL
SEMESTER 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 STATISTICS - I	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 : 18UBITC05	**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 1: **(15 HOURS)**

Introduction - Definition of Algorithm – pseudo code conventions – recursive algorithms – time and space complexity –big-"oh" notation – practical complexities .

Unit 2: **(15 HOURS)**

Divide and Conquer: General Method - Finding maximum and minimum – merge sort - Quicksort, Stassen's matrix multiplication

Unit 3: **(15 HOURS)**

Greedy Method:General Method –knapsack problem - Tree vertex splitting - Job sequencing with dead lines – optimal storage on tapes.

Unit 4: **(15 HOURS)**

Dynamic Programming: General Method - multistage graphs – all pairs shortest paths – single source shortest paths - String Editing – 0/1 knapsack.

Unit 5: **(15 HOURS)**

Search techniques for graphs – DFS-BFS-connected components – biconnected componentsBack 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	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 - VI

DATA ANALYSIS USING SPREAD SHEET

SUBJECT CODE : 18UBITC06	**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 1: **(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 2: **(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 3: **(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 4: **(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 5: **(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**

Distribution of Questions

Section	Units	No. of Questions
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 - VII

PRACTICAL - DATA ANALYSIS USING SPREAD SHEET LAB

SUBJECT CODE : 18UBITC07P	**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 : 18UBITC08	**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 1: **(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 2: **(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 3: **(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 4: **(18 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.

Unit 5: **(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	Mark s	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 : 18UMATA14	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 **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		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 : 16UGSLS03	**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- **(6hrs)**

Self Disclosure 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 2 – 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 3 – 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
5. controlling one's breathing.

Unit 4: 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.

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 for managing people at work. 5th ed. New Delhi: PHI Learning.

SEMESTER-IV

SEMESTER	PART	SUBJECT NAME	HRS / WEE K	CREDITS	MARKS		
					CIA	ESE	TOTAL
IV	III	CORE PAPER IX – PYTHON PROGRAMMING	6	4	50	50	100
		CORE PAPER X – DATA BASE MANAGEMENT SYSTEMS	8	4	50	50	100
		CORE PAPER XI - PRACTICAL -- PYTHON PROGRAMMING LAB	6	4	40	60	100
		ALLIED IV – ALLIED STATISTICS - II	6	5	50	50	100
	IV	SOFT SKILL IV- WORD PRESS LAB	2	3		100	100
		ENVIRONMENTAL STUDIES	2	2		100	100
		TOTAL	**30**	**22**	**600**		

CORE – IX PYTHON PROGRAMMING

SUBJECT CODE : 18UBITC09	**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-2 : **(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-3 : **(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-4 : **(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-5 : **(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

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**

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 : 18UBITC10	THEORY	MARKS 100
SEMESTER: IV	CREDITS: 4	TOTAL HOURS: 120

COURSE OBJECTIVES:

Analyze the existing design of a database schema and Create database for real-life application, with constraints and keys, using SQL

Unit-1: **(24 HOURS)**

Introduction to Database Systems – Record based Data Models - Networking Model, Hierarchical Model and Relational Model — Storage and File Structure – RAID Technology.

Unit-2 : **(24 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-3 : **(24 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-4 : **(24 HOURS)**

DML : Record Insertion, Updating and Deletion of Records – Select query : Basic Select Query clauses, usage of Group By, Having, Order By clauses, Like

Unit-5 : **(24 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**

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 : 18UBITC11P	**PRACTICAL**	**MARKS : 100**
SEMESTER: IV	**CREDITS: 4**	**TOTAL HOURS: 90**

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 : 18UMATA21	**THEORY**	**MARKS : 100**
SEMESTER: IV	**CREDITS: 5**	**TOTAL HOURS: 90**

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 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 **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 : 18UGSLS05	**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 : 16UEVS401	**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-2: **(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-3:Ecosystems **(6 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 :- . Forest ecosystem, Grassland ecosystem ,. Desert ecosystem,. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)

Unit-4: **(6 HOURS)**

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-5 : (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, EnvironmentalEncyclopedia, Jaico Publ. House, Mumbai, 1196p.

SEMESTER-V

SEMESTER	PART	SUBJECT NAME	HRS / WEEK	CREDITS	MARKS		
					CIA	ESE	TOTAL
V	III	CORE PAPER XII – BIG DATA ANALTICS	6	4	50	50	100
		CORE PAPER XIII – DATA SCIENCE USING R	6	4	50	50	100
		CORE PAPER XIV - PRACTICAL - R PROGRAMMING LAB	6	4	40	60	100
		ELECTIVE I - INFORMATION SECURITY / SOFTWARE PROJECT MANAGEMENT / NETWORK SECURITY & CRYPTOGRAPHY	6	5	50	50	100
		ELECTIVE II - MARKETING ANALYTICS / DECISION MANAGEMENT SYSTEMS/ E-COMMERCE	5	5	50	50	100
	IV	VALUE EDUCATION	1	2	---	100	100
		TOTAL	30	24			600

CORE –XII

BIG DATA ANALYTICS

SUBJECT CODE : 18UBITC12	**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-1 : **(18 HOURS)**

Basic nomenclature-Analyticsprocessmodel–Analyticsmodelrequirements – Job Profiles in Analytics – Types of Data Sources- Sampling – Sampling - Types of Data Elements

Unit-2: **(18 HOURS)**

Missing Values–Outlier Detection and Treatments– Weight of Evidence Coding. Predictive Analytics basics – Linear Regression-Logistic Regression - Decision Trees

Unit-3 : **(18 HOURS)**

Descriptive Analytics: Association Rules- Support and Confidence- Applications ofAssociation Rule – Sequence Rules – Segmentation.

Unit-4 : **(18 HOURS)**

Hierarchical clustering -Social Network Analytics: Social Network Definitions - Social Network Metrics - Social Network Learning -Relational Neighbor Classifier

Unit-5 : **(18 HOURS)**

Data Quality - Software–Privacy - Model Design and Documentation - Corporate Governance. Example applications: Credit Risk Modeling

Recommended Text:

1. Baesens,2014,AnalyticsinaBigDataWorld:TheEssentialGuidetoDataScienceandIts 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 : 18UBITC13	**THEORY**	**MARKS 100**
SEMESTER: V	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

Understand R Programming Environment and to explore Mathematical and Statistical Functions

Unit -1 : **(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 -2 : **(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-3: **(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-4 : **(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 -5: **(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 : 18UBITC14P	**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 : 18UBITE01	**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-1: **(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-2: **(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-3 : **(18 HOURS)**

Database Security: Security requirements-Reliabilityandintegrity-Sensitivedata-Interface-Multilevel database-Proposals for multilevel security.

Unit-4: **(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-5 : **(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 :Principles and practice, 4th Edition,2006.
2. Kaufman, Perlman, Spincer, Network Security, Prentice Hall, 2nd Edition, 2003
3. Eric Maiwald, Network Security: A Beginners Guide,TMH, 1999
4. Macro Pistoia,Java Network Security, 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

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ELECTIVE - I

SOFTWARE PROJECT MANAGEMENT

SUBJECT CODE : 18UBITE01	**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 1 **(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- Analyze 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 2 **(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 3 **(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 4 **(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 5 **(18 HOURS)**

Risk Management- nature of risk- managing- identification-analysis reducing risks.

Recommended Text:

1. 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:

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

NETWORK SECURITY & CRYPTOGRAPHY

SUBJECT CODE : 18UBITE01	**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 1 : 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 2: 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 3: 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 4: TECHNIQUES **(18 HOURS)**

Data Encryption Techniques-Data Encryption Standards-Symmetric ciphers. Public key Cryptosystems-Key Management.

Unit 5: 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

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 – II
MARKETING ANALYTICS

SUBJECT CODE : 18UBITE02	**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-1: **(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-2 : **(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-3 : **(15 HOURS)**

CUSTOMER NEEDS : Conjoint Analysis - Logistic Regression - Discrete Choice Analysis – Customer Value - Introduction to Customer value, Benefits. 9 IT2015 SRM(E&T)

Unit-4 : **(15 HOURS)**

MARKET SEGMENTATION : Cluster Analysis - User-Based Collaborative Filtering - Collaborative Filtering - Using Classification Trees for Segmentation.

Unit-5: **(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:

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 – II

DECISION MANAGEMENT SYSTEMS

SUBJECT CODE : 18UBITE02	**THEORY**	**MARKS : 100**
SEMESTER: V	**CREDITS: 5**	**TOTAL HOURS: 75**

COURSE OBJECTIVES:

To Learn, Test, Build, Design and Implement Decision Services

Unit-1: **(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-2 : **(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-3 : **(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-4 : **(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-5: **(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	Mark s	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 – II

ECOMMERCE

SUBJECT CODE : 18UBITE02	**THEORY**	**MARKS : 100**
SEMESTER: V	**CREDITS: 5**	**TOTAL HOURS: 75**

COURSE OBJECTIVES:

To Understand the E Commerce Technologies and the security Issues

Unit-1 : **(15 HOURS)**

Electronic Commerce and Opportunities : Background The Electronic Commerce Environment – Electronic Marketplace Technologies – Modes of Electronic Commerce: Overview : Electronic Data Interchange.

Unit-2 : **(15 HOURS)**

Approaches to Safe Electronic Commerce. Overview – Secure Transport Protocols – Secure Transaction – Secure Electronic Payment Protocol (SEPP) – Secure Electronic Transaction (SET)

Unit-3 : **(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-4 : **(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-5 : **(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:

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

VALUE EDUCATION

SUBJECT CODE : 16UVED401	**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 1: **(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 2 : **(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 3 : **(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 4: **(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 5 : **(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 – NoSQLMONGODB	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

NoSQLMongoDB

SUBJECT CODE : 18UBITC15	**THEORY**	**MARKS : 100**
SEMESTER: VI	**CREDITS: 4**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

Master the basics of SQL. Critically analyze and evaluate variety of NoSQL databases.

Unit 1 : (18 HOURS)

Big Databases- SQL – NoSQL Tradeoffs – CAP Theorem – Eventual Consistency - NoSQL – database types – MongoDB- Introduction - MongoDb – Need – MongoDBVs RDBMS – MongoDBDriver Installation – Configuration – Import and Export – MongoDB Server Configuration

Unit 2 : **(18 HOURS)**

Data Extraction Fundamentals - Intro to Tabular Formats - Parsing CSV -Parsing XLS with XLRDParsing XML - Intro to JSONGetting Data into MongoDB - MongoDB- CURD – Database Creation – Update – Read –Delete Using mongo import -Operators like $gt, $lt, $exists, $regex -Querying Arrays and using $in and $all Operators -Changing entries: $update, $set,

Unit 3: (18 HOURS)

Data Analysis - Field Queries -Projection Queries- Limiting – Sorting - - Aggregation - Examples of Aggregation Framework -The Aggregation Pipeline -Aggregation Operators: $match, $project, $unwind, $group –

Unit 4: (18 HOURS)

User Management – MongoDb Data Replication in Servers – Data Sharing – MongoDB Indexes – Create – Find – Drop – Backup – MongoDB – Relationships – Analyzing Queries – MongoDBObjectid

Unit 5 : (18 HOURS)

Advanced MongoDB: MapReduce – MongoDB - Text Processing - Regular Expression – Case Studies – Text processing of large datasets, Map Reduce using MongoDB

Recommended Texts:

1. MongoDB: The Definitive Guide, 2nd Edition , Powerful and Scalable Data Storage, By Kristina Chodorow, Publisher: O'Reilly Media
2. MongoDB Basics - David Hows, Peter Membrey, EelcoPlugge, Publisher Apress - Ebook(free) https://it-ebooks.info/book/4527/

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 –XVI

SOFTWARE ENGINEERING

SUBJECT CODE : 18UBITC16	**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-1: (18 HOURS)

The Product – the process – project management concepts – software projects and project metrics.

Unit-2: (18 HOURS)

Software project planning-risk analysis and management-project scheduling and tracking-software quality assurance.

Unit-3: (18 HOURS)

Software configuration management-system engineering-analysis concepts and principles-analysis modeling.

Unit-4: (18 HOURS)

Design concepts and principles- architectural designs-user interface design.

Unit-5: (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	Mark s	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 – XVII

UI PROGRAMMING

SUBJECT CODE : 18UBITC17	**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-1 : **(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-2 : **(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-3: **(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-4 : **(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-5 : **(18 HOURS)**

Java Script Control Structure , Conditional Statements, Loops, break and continue. Events Familiarization: onLoad, onClick, onBlur, onSubmit, onChang

Recommended Texts

1. Jon Duckett, Web Programming with HTML,XHTML, CSS, JavaScript,Wrox Beginning

2. HTML5 Black Book Kogent Learning Solutions IncDreamtech.

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 - XVIII

PRACTICAL - UI PROGRAMMING LAB

SUBJECT CODE : 18UBITC18P	**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 colour.
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 counter
10. Change the Background Color of a web page using Button Events

Elective – III

CLOUD COMPUTING

SUBJECT CODE : 18UBITE03	**THEORY**	**MARKS : 100**
SEMESTER: VI	**CREDITS: 5**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

To Enable students to understand the Cloud Computing concepts and services.

Unit-1 : (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-2 : (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-3 : (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-4 : (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-5 : (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 Way You Work and Collaborate Online, QuePublishing, August2008.
2. KumarSaurabh, "CloudComputing–Insights into New Era Infrastructure",Wiley Indian Edition, 2011.
3. Haley Beard, 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.

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**
		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

MOBILE COMPUTING

SUBJECT CODE :18UBITE03	**THEORY**	**MARKS 100**
SEMESTER: VI	**CREDITS: 5**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

To Understand Working of Wireless devices and interconnectivity

Unit-1 : **(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-2: **(18 HOURS)**

Telecommunication Systems – GSM – Architecture – Sessions – Protocols – Hand Over and Security – UMTS and IMT – 2000 – Satellite Systems.

Unit-3 : **(18 HOURS)**

Wireless Lan - IEEE S02.11 – Hiper LAN – Bluetooth – Security and Link Management.

Unit-4 : **(18 HOURS)**

Mobile network layer - Mobile IP – Goals – Packet Delivery – Strategies – Registration – Tunneling and Reverse Tunneling – Adhoc Networks – Routing Strategies.

Unit-5 : **(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,2nd edition, 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**
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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**

Distribution of Questions:

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	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 :18UBITE03	**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-1 : **(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-2 : **(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-3 : **(18 HOURS)**

Introduction to Interconnection Networks - Network Properties- Design issues of Interconnection Network- Various Interconnection Networks-Concept of Permutation Network - Performance Metrics.

Unit-4 : **(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-5 : **(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.Akl*Parallel 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

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 BUSINESS ADMINISTRATION

BACHELOR OF BUSINESS ADMINISTRATION

(B.B.A)

Regulations and Syllabus

(For the Candidates admitted in 2018 -2021)

Modification in 2018-2021 Batch Syllabus

S.No	Semester	Subject Title	Unit Number	Modification Carried out
1.	III	Financial Management	Unit No. 5	Inclusion of Capital Budgeting
2.	IV	Business Taxation	Unit No. 1,2,3,4 &5	Inclusion of GST
3.	V	Event Management	Unit No. 1,2,3,4 &5	Modification done based on industry's requirement
4.	VI	Human Resource Management	Unit No. 3	Inclusion of Motivational theories
			Unit No. 5	Inclusion of Arbitration, adjudication and settlement

SEMESTER - I

PART	COURSE COMPONENTS	COURSE TITLE	Credit	Ins. Hours/	Marks		
					CIA	Ext. Exam	Total
	SEMESTER – I						
I		Language	3	6	50	50	100
II		English	3	6	50	50	100
	Core Subject -I	Financial Accounting (Common to BBA, B.Com (ISM,BM,MM,A&F)	4	6	50	50	100
III	Core Subject – II	Principles of Management (Common to B.Com (ISM,BM,MM,A&F)	4	5	50	50	100
	Allied – I	Business Communication (Common to BBA, B.Com (ISM,BM,A&F)	5	5	50	50	100
	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 (ISM,HONS,BM,MM,A&F & Hons)	2	2		100	100
			24	30			

SEMESTER – II

PART	COURSE COMPONENTS	COURSE TITLE	Credit	Ins. Hours/	Marks		
					CIA	Ext. Exam	Total
	SEMESTER – II						
I		Language	3	6	50	50	100
II		English	3	6	50	50	100
	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 (BM,MM,ISM,A&F)	4	6	50	50	100
	Allied – II	Managerial Economics	5	5	50	50	100
	Soft Skill	Skill based subject (English Dept)	3	-		100	100
IV	Non Major Elective	Non-Tamil Students : Basic/ Advanced Tamil Tamil Students: Basics Of Insurance BBA, (Common to B.Com (BM)	2	2		100	100
			24	30			

THIRD SEMESTER

PART	COURSE COMPONENTS	COURSE TITLE	Credit	Ins. Hours/ Week	Marks		
					CIA	Ext. Exam	Total
	SEMESTER - III						
	Core –V	Marketing Management (Common to BBA, B.Com (ISM,BM,MM,A&F)	4	5	50	50	100
	Core –VI	**Financial Management** **(Common to BBA, B.Com (ISM,BM)**	4	6	50	50	100
	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
	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
			24	30			

FOURTH SEMESTER

PART	COURSE COMPONENTS	COURSE TITLE	Credit	Ins. Hours/ Week	Marks		
					CIA	Ext. Exam	Total
	Core –IX	International Economics (Common to BBA, B.Com (BM)	4	5	50	50	100
	Core - X	Management Information System (Common to BBA, B.Com (ISM)	4	5	50	50	100
	Core –XI	Financial Services (Common to BBA, B.Com (BM,MM,A&F)	4	5	50	50	100
	Core –XII	**Business Taxation** **(Common to 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
	Soft Skill		3	2		100	100
IV	Environmental Studies		2	2		100	100
			26	30			

FIFTH SEMESTER

PART	STUDY COMPONENTS	COURSE TITLE	Credit	Ins. Hours / Week	Marks		
					CIA	Ext. Exam	Total
	SEMESTER – V						
	Core –XIII	Business Environment	4	6	50	50	100
	Core –XIV	Organizational Behaviour	4	5	50	50	100
	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
	Elective – I :	**(1) Event Management**	5	6	50	50	100
IV	Value Education		2	1		100	100
			23	30			

SIXTH SEMESTER

PART	STUDY COMPONENTS	COURSE TITLE	Credit	Ins. Hours/ Week	Marks		
					CIA	Ext. Exam	Total
	Core –XVII	Operations Management	4	6	50	50	100
	Core –XVIII	**Human Resources Management(Common to BBA, B.Com (ISM), B.Com (MM) & B.Com (BM)**	4	6	50	50	100
	Core –XIX	Services Marketing (Common to B.Com (MM)	4	6	50	50	100
III	Elective – II :	(1) Customer Relationship Management (Common to B.Com (BM))	5	6	50	50	100
	Elective – III :	Project Work (Group)	5	6	20	80	100
V		Community Services	1				
			23	30			
		TOTAL	**144**	**180**			

CORE – I
FINANCIAL ACCOUNTING

SUBJECT CODE : 17UBBAC01	**THEORY**	**MARKS : 100**
SEMESTER : I	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common to B.Com (ISM), B.Com (BM), B.COM (MM) and B.Com(A&F)

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)

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 (20 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 (10 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. Reddy T.S. &A.Murthy, Financial Accounting - Margham Publications Chennai – 5
2. Manikandan Dr. S. and R.Rakesh Shankar , Financial Accounting –3rd Edition- SCITECH Publisher
3. Dalston L. Cecil and Jenitra L. Merwin, Financial Accounting, Learn Tech press, Trichy.

REFERENCE BOOKS

1. Jain S. P &Narang, Financial Accounting, 2014, Kalyani Publishers. New Delhi.
2. Gupta R.L. &V.K.Gupta, Advanced Accounting, Sultan Chand & Sons, New Delhi.
3. Shukla T.S.&Grewal, Advanced Accounting 18th Edition, S Chand New Delhi.
4. Tulsian P.C., Financial Accounting 2009, Forth Impression,.
5. S.Parthasarathy and A.Jaffarulla, Financial Accounting, Kalyani Publisher, 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 : 17UBBAC02	**THEORY**	**MARKS : 100**
SEMESTER : I	**CREDITS : 4**	**No. OF HOURS PER WEEK :5**

(Common to B.Com (A&F), B.Com (ISM), B.Com (BM), B.COM (MM))

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 (20 Hours)

Management: Importance – Definition – Is Management art or science –Functions of Management: POLC framework - Role and Functions of a Manager- Managerial skill – Levels of Management – Application of management in various functional areas – Production, Accounting and Finance, Marketing and Personnel Management.

UNIT II (15 Hours)

Evolution of Management: Classical school of thought: Henry Fayol ,Peter Drucker, Elton Mayo, Max Weber. Modern School of Thought: Systems Approach, Contingency approach, Kaizen's approach.

UNIT III (15 Hours)

Planning: Meaning - Objectives of planning - Importance of planning – Types of planning. Decision making: Nature and significance- Process of Decision making – Types of Decision making- Styles of decision making – analytical decision making, behavioral decision making, conceptual decision making – Decision making techniques – Decision trees, payback analysis and simulations.

UNIT IV (15 Hours)

Organizing – Meaning and definition of Organizing, Importance of Organizing, and Principles of Organizing: Work specialization, Authority, Chain of Command, Delegation and Span of Control. Types of Organizational Structure – Line Organizational Structure, Staff organizational structure, Divisional Organization structure, Product/Project organizational structure, Matrix Organizational Structure and Hybrid Organizational Structure.

UNIT V (10 Hours)

Co-ordination: What is co-ordination – Need for co-ordination, Types of co-ordination and essential requisites for excellent co-ordination. Controlling: Meaning and Importance –Function of controlling, Process of controlling and types of Control.

PRESCRIBED TEXTS:

1. Gupta C.B., Management Theory & Practice , Sultan Chand & Sons - New Delhi, 16th Edition.
2. Prasad L.M., Principles & Practice of Management , Sultan Chand & Sons - New Delhi, 8th Edition.

REFERENCE BOOKS

1. Tripathi P.C. & P.N Reddy, Principles of Managements, 5th Edition, Tata Mc.Graw Hill, New Delhi
2. Weihrich and Koontz, Management, 8th Edition, A Global Perspective
3. Premavathy N., Principles of Management, 8th Edition ,Sri Vishnu Publication, Chennai
4. Jayashankar J., 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 8 questions (each in 300 words)	13-20	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	21-26	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	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 1

BUSINESS COMMUNICATION

SUBJECT CODE: 17UBBAA01	THEORY	MARKS : 100
SEMESTER: I	CREDITS: 5	NO. OF HOURS PER WEEK: 5

(Common to B.Com (BM), B.Com (ISM), B.Com (A&F))

COURSE OBJECTIVES:

- To enable the students to acquire knowledge about the importance of communication in today's competitive business environment

UNIT I (15 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 (15 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 (15 Hours)

Personal 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. 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. sBovee, 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 8 questions (each in 300 words)	13-20	6	**30**
C	**Essay** Answer any 4 out of 6 questions (each in 600 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	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	

NME 1

ANALYTICAL AND LOGICAL REASONING

SUBJECT CODE : 17UNME01A	**THEORY**	**MARKS : 100 (50 IA + 50 ES)**
SEMESTER : I	**CREDITS : 2**	**No. OF HOURS PER WEEK : 2**

Common to B.Com (Hons), B.Com (BM), B.Com (A&F) 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 (6 Hours)

PRESCRIBED TEXTS

1. R.S.Agarwal - A Modern Approach to verbal and non-verbal reasoning – Revised edition– Publisher – S.Chand and Company Pvt. Ltd.

REFERENCE BOOKS

1. A.K. Gupta- Logical and Analytical Reasoning — Ramesh publishing house – 2016 Paper Back edition

Web References:

1. http://www.careerguide.co.in/search/label/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: 17UBBAC03	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 4**	**NO. OF HOURS PER WEEK : 5**

(Common to B.Com (A&F), B.Com (MM) and B.Com(BM))

COURSE OBJECTIVES:

- Inherit the knowledge about the legal methodology involved in business by the students

UNIT I (21Hours)

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 (15 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 – 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 (10 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 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	3	**30**
Section B	**Short Answer** Answer any 5 out of 8 questions (each in 300 words)	13-20	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	21-26	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	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	

CORE IV
MANAGEMENT ACCOUNTING

SUBJECT CODE : 17UBBAC04	**THEORY**	**MARKS : 100**
SEMESTER : II	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common to B.Com (ISM), B.Com(BM), B.Com(MM), 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 (20 Hours)

Ratio Analysis – Interpretation, benefits and limitations. Classification of ratios- Liquidity, Profitability, Turnover Ratios, and Construction of Balance sheet (simple problems only).

UNIT IV (20 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 (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 Budget – Production, Cash and Flexible Budget (simple problems only)

PRESCRIBED TEXTS:

1. Reddy T. S. and Hari Prasad Reddy,Management Accounting, 2014-MarghamPulication.
2. Maheswari SN, Management Accounting - Sultan Chand & Sons.

REFERENCE BOOKS

1. Pillai RSN &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:

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:

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 – II

MANAGERIAL ECONOMICS

SUBJECT CODE : 16UBBAA02	THEORY	MARKS : 100
SEMESTER : II	CREDITS : 5	No. OF HOURS PER WEEK : 6

COURSE OBJECTIVES:

- To enable the students with the knowledge of micro and macro economics.
- 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 – Monopolistic competition- Duopoly – Oligopoly.

PRESCRIBED TEXTS:

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, concepts andcases,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 8 questions (each in 300 words)	13-20	6	**40**
C	**Essay** Answer any 4 out of 6 questions (each in 600 words)	21-26	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	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	

NME II

BASICS OF BUSINESS INSURANCE

SUBJECT CODE : 16UNME02P	**THEORY**	**MARKS : 100**
SEMESTER : II	**CREDITS : 2**	**No. OF HOURS PER WEEK : 2**

Common to B.COM(BM)

COURSE OBJECTIVE:

- To introduce students to the field of insurance
- To emphasize the importance of insurance for business enterprises.

UNIT – I (6 Hours)

Introduction to Insurance – Type of Insurance – Principles of Insurance.

UNIT – II (6 Hours)

Salient features of IRDA Act – Administration of IRDA Act – Regulatory measures of IRDA

UNIT – III (6 Hours)

Life insurance products – Term, Whole life, Endowment.

UNIT – IV (6 Hours)

Introduction to general Insurance – fire, marine and motor insurance.

UNIT – V (6 Hours)

Government and insurance companies – LIC India- private players in Insurance in India.

PRESCRIBED TEXTS:

1. Premavathy Dr.N.– Elements of Insurance, Sri Vishnu Publications, Chennai.
2. Murthy Dr.A.– Elements of Insurance, Margham Publications, Chennai
3. Mishra M.N.– Insurance, Principles and practice, S.Chand & Co. Ltd., New Delhi

REFERENCE BOOKS

1. Tripathy Nalini Prava, Prabir Paal – Insurance Theory & Practice, Prentice Hall of India
2. Ganguly Anand– Insurance Management, New Age International Publishers.

Question Paper Pattern:

Section	Question Component	Numbers	Marks	Total
A	**ESSAY** Answer ANY 5out of 10 questions (each in 1200 words)	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	

CORE V

MARKETING MANAGEMENT

SUBJECT CODE : 16UBBAC05	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)) & B.com(BM)

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 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) Pt 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
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	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 : 18UBBAC06	**THEORY**	**MARKS : 100**
SEMESTER : III	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common to BBA, B.COM(ISM), 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 TEXTS:

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 50words)	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 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
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		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 : 16UBBAC07	**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 (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, 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. 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.**tutorials**point.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	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	

CORE – VIII
ENTREPRENEURIAL DEVELOPMENT

SUBJECT CODE : 16UBBAC08	**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 promote ED.
- 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 Organisation – 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, 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 TEXT:

1. Suresh Jayashree, Entrepreneurial development, Margham Publication.
2. Gupta Dr. C.B. & Dr. S.S. Khanka, Entrepreneurship and Small Business, Himalaya Publishing House

REFERENCE BOOKS:

1. Srinivasan N.P, Entrepreneurial Development, Vikas Publishing House Pvt. Ltd.
2. Saravanavel, Entrepreneurial Development, Margham Publications
3. Vasant Desai, Project management, Sultan & Chand sons, Delhi.
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
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	

ALLIED: III

BUSINESS STATISTICS AND O.R.-I

SUBJECT CODE: 16UMATA18	**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 (18 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 (18 Hours)

Measures of Dispersion: Range, Quartile Deviation, Mean Deviation, Standard Deviation – Measures of Skewness.

UNIT – III (18 Hours)

Correlation – Karl Pearson's Coefficient of Correlation – Spearman's Rank Correlation – Regression Lines and Coefficients.

UNIT – IV (18 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 Texts:**

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
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**
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		2
Section C	Unit – 1		1
	Unit – 2		1
	Unit – 3		1
	Unit – 4		1
	Unit - 5		1

CORE – IX
INTERNATIONAL ECONOMICS

SUBJECT CODE : 16UBBAC09	THEORY	MARKS : 100
SEMESTER : IV	CREDITS : 4	No. OF HOURS PER WEEK : 6

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 TEXT:

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
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	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	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE – X

MANAGEMENT INFORMATION SYSTEM

SUBJECT CODE : 16UBBAC10	**THEORY**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

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 (20 Hours)

System Analysis and design - SDLC - Role of System Analyst - Functional Information system - Personnel, production, material, marketing.

UNIT-V (10 Hours)

Decision Support Systems - Definition. Group Decision Support Systems - Business Process Outsourcing - Definition and function

PRESCRIBED TEXT:

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	**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	2	
	Unit – 5	3	
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	

CORE XI

FINANCIAL SERVICES

SUBJECT CODE: 16UBBAC11	**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 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 (15 Hours)

Mutual Funds: Meaning – Types: Based on Ownership, Operation, Objectives and Location – Advantages and Disadvantages of mutual fund – Institutions Involved – UTI.

PRESCRIBED TEXTS:

1. Khan M.Y.,Financial Services,8rd Edition , 2016,Tata McGraw Hill Publications.
2. Santhanam B., Financial Services, Margham Publications.
3. Kumar Dinesh K.S., Financial services, 2014, Shri Sai Publishers' Distributors.

REFERENCE BOOKS:

1. Mishra Dr.M.N., Law of Insurance,2014, Sultan Chand Publications.
2. Machiraju H.r., Indian Financial System, 4th Edition, 2010, Vikas Publications.
3. Basu S.K.., A Review of current Banking Theory and Practice,2nd Edition, MacMillan Publications, London.

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	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 – XII
BUSINESS TAXATION

SUBJECT CODE: 18UBBAC12	**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 for computation procedure 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 TEXTS:

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 : 18UMATA20	**THEORY& PROBLEMS**	**MARKS : 100**
SEMESTER: IV	**CREDITS: 5**	**NO. OF HOURS PER WEEK : 6**

(Common To Bba, Bcom (Ism), Bcom (Bm), Bcom (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 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 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: Minimization, Maximization 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 TEXTS:

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	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**
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 : 16UBBAC13	**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 (18 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 (18 Hours)

Political Environment - Government and Business relationship in India – Corporate Governance.

UNIT – III (16 Hours)

Social environment - Cultural heritage - Social attitudes - Castes and communities - Joint family systems -linguistic and religious groups - Types of social organization

UNIT- IV (20 Hours)

Economic Environment - Economic systems and their impact of business - Fiscal deficit - Plan investment -Five Year Planning.

UNIT – V (18 Hours)

Financial Environment - Financial system - Commercial bank Financial Institutions - RBI Stock Exchange - Non Banking Financial Companies NBFCs

PRESCRIBED TEXTS:

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	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	

CORE XIV

ORGANISATIONAL BEHAVIOUR

SUBJECT CODE : 16UBBAC14	**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 (15 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-Organizational Effectiveness: Importance

PRESCRIBED TEXTS:

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 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	3	
	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 : 16UBBAC15	**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 (23 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 (23 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 (18 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 (21 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 (20 Hours)

Presenting results and writing the report – The Written Research Report .

PRESCRIBED TEXTS:

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	2	
	Unit – 4	3	
	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 – XVI

ADVERTISING MANAGEMENT AND SALES PROMOTION

SUBJECT CODE : 18UBBAC16	**THEORY:**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**No. OF HOURS PER WEEK : 6**

(Common to 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 (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.

PRESCRIBED TEXTS:

1. Jefkins, F., Advertising, 4th Edition, Pearson, 2002.
2. Wells, W.D., Burnett, J. and Moriarty, S., Advertising: Principles and Practices, 7th Edition, Pearson, 2007.

REFERENCE 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.
4. Wells, Moriarity & Burnett: Advertising Priniciples & Practices, Prentice Hall.

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	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	

ELECTIVE – I
EVENT MANAGEMENT

SUBJECT CODE : 17UBBAE01	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 5**	**No. OF HOURS PER WEEK : 6**

COURSE OBJECTIVES:

- To impart the knowledge about event management to the students.

UNIT – I (20 Hours)

Event Management - Requirement of Event Manager, Types of Events, Roles & Responsibilities of Event Managers, Scope of the Event Management, Approach towards Events.

UNIT – II (20 Hours)

Analyzing the events, Preparing a Planning Schedule, Overall Planning tips, Checklists, Organizing Tasks, Assigning Responsibility, Clarifying Roles and Communicating, Decision-makers, Technical Staff.

UNIT – III (18 Hours)

Developing Record - Keeping systems, Establishing Policies & Procedures, Event Budgeting, Income & Cost Analysis, Budget Review & feasibility.

UNIT – IV (12 Hours)

Event Administration - Locating clients, Developing content Guidelines, writing for PR, Promotion, Marketing Mix & Strategy, Communication & Customer Service.

UNIT – V (20 Hours)

Event Administration - Fees & Honorariums, Expense Reimbursement, Health & Safety, Incidents & Crisis, Catering, Transportation, Waste & Noise Control ,Crowd Management.

PRESCRIBED TEXTS:

1. Kishore Devesh, Ganga Sagar Singh, Event Management: A Blooming Industry andan Eventful Career, 1st Edition, Haranand Publications Pvt. Ltd,
2. Goyal Swarup K.,Event Management, 1st Edition, Adhyayan Publisher – 2009.

REFERENCE BOOK:

1. Savita Mohan, Event Management & Public Relations– 3rd Edition, Enkay Publishing House.

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	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	

CORE XVII
OPERATIONS MANAGEMENT

SUBJECT CODE : 16UBBAC17	**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 **(**20 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 (20 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 (20 Hours)

Methods Analysis and Work Measurement: Methods Study Procedures – The Purpose of 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 – Service Encounter – Service Facility Location – Service Processes and Service Delivery.

PRESCRIBED TEXTS:

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.

REFERENCE 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. 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.

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	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 – XVIII

HUMAN RESOURCE MANAGEMENT

SUBJECT CODE : 18UBBAC18	THEORY	MARKS : 100
SEMESTER : VI	CREDITS : 4	No. OF HOURS PER WEEK : 6

(Common to BBA, B.COM(ISM), B.COM (BM),B.COM(MM))

COURSE OBJECTIVES:

- To understand the nature of human resources and its significance to the organization.
- To familiarise 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 (20 Hours)

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 (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 (15 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 (20 Hours)

Labour Relations – 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 dispute 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.
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	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	

CORE – XIX
SERVICES MARKETING

SUBJECT CODE : 16UBBAC19	**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 (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.

PRESCRIBED TEXTS:

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**
			TOTAL MARKS	**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	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
CUSTOMER RELATIONSHIP MANAGEMENT

SUBJECT CODE : 16UBBAE02	**THEORY**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 5**	**No. OF HOURS PER WEEK : 6**

(Common to BBA, B.COM (BM))

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 TEXTS:

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
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 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	2	
	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

ELECTIVE –III
PROJECT WORK

SUBJECT CODE : 16UBBAE03	**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)

VELACHERY, CHENNAI – 600 042.

(Re-Accredited 'A' grade by NACC)

(Affiliated to the University of Madras)

MASTER OF ARTS

DEPARTMENT OF ECONOMICS

(Semester Pattern with Choice Based Credit System)

(For the candidates admitted for the academic year 2018-19 and onwards)

VISION

- To provide quality education to all, especially from the less privileged background.
- To build a community of individuals who are responsible citizens.
- To motivate the students to work towards a harmonious, just and equitable social order and
- To equip them to face challenges with courage and commitment.

MISSION

- To impart knowledge this is empowering, value-based and holistic in nature.
- To sensitize the students to environmental issues thus motivating them to be conscious of environment.
- To create a vibrant academic atmosphere which focuses on teaching, learning, research and outreach programmes.

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 2018-20 Batch

Semester	Part	Course Component	Subject Name	Credits	Hours	Internal	External	Total
I	III	Core – I	Micro Economics – I	4	6	50	50	100
	III	Core – II	Indian Economic Development - I	4	6	50	50	100
	III	Core – III	Research Methodology	4	6	50	50	100
	III	Elective – I	Energy Economics	3	6	50	50	100
	III	Elective – II	Mathematics for Economists - I	3	6	50	50	100
	IV	PIV PG Skill	Essentials of Language and Communication Skill	2			100	100
Total Credits -20, Total Hours/ week-30								
II	III	Core – IV	Micro Economics - II	4	6	50	50	100
	III	Core – V	Indian Economic Development - II	4	6	50	50	100
	III	Core – VI	Statistics for Economists	4	6	50	50	100
	III	Elective –III	Mathematics for Economists - II	3	6	50	50	100
	III	Elective -IV	Environmental Economics	3	6	50	50	100
	IV	PIV Practical PG	Computing Skill	2			100	100
Total Credits -20, Total Hours/ week-30								
III	III	Core – VII	Macro Economics - I	4	6	50	50	100
	III	Core – VIII	Public Economics - I	4	6	50	50	100
	III	Core – IX	International Economics - I	4	6	50	50	100
	III	Elective – V	Economics of Development	3	6	50	50	100
	III	Elective -VI	Health Economics	3	6	50	50	100
	IV	Soft Skill Internship	Summer Internship	2		50	50	100
	IV	PIV PG Skill	Managerial Skills	2			100	100
Total Credits -22, Total Hours/ week-30								
IV	III	Core – X	Macro Economics - II	4	5	50	50	100
	III	Core – XI	Public Economics - II	4	5	50	50	100
	III	Core – XII	International Economics - II	4	5	50	50	100
	III	Core – XIII	Monetary Economics	4	5	50	50	100
	III	Core-XIV	Financial Economics	4	3	50	50	100
	III	Core -XV	Gender Economics	4	3	50	50	100
	III	Elective – VII	Computer Application for Economics	3	4	50	50	100

	I V	PIV PG Skill	Spoken and Presentation Skills	2			100	100
		Total Credits -29, Total Hours/ week-30						
		Grand Total Credits -91, Total Hours/ week-120						

SEMESTER-I

CORE-I - MICRO ECONOMICS – I

Subject Code: 16PECOC01	Theory	Marks: 100
Semester: I	Credits 4	Total Hours : 90

Course Objective

This paper enables the students to understand the basics of micro economics and to solve the problems of micro economics and their related issues.

Unit I: Advances in Demand Theory

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

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

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

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

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.

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.

Question Paper Pattern

Section	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
B	Short Answers Answer any 5 out of 8 Questions	13-20	8	40
C	Essay Type Answers Answer any 4 out of 5 Questions	21-25	10	40
		Total		100

CORE- II - INDIAN ECONOMIC DEVELOPMENT AND POLICY – I

Subject Code: 16PECOC02	Theory	Marks: 100
Semester: I	Credits 4	Total Hours : 90

Course Objective

This paper enables the students to understand the basics of economic development and policy of India and to solve the problems of economic policy and their issues.

Unit I: Resource Development in India

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

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

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

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

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.

Recommended Text:

1. 1 Dutt and Sundaram(2007) :Indian Economy, S.Chand & Company
2. 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	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles	1-12	2	20

	Answer any 10 Questions			
B	Short Answers Answer any 5 out of 8 Questions	13-20	8	40
C	Essay Type Answers Answer any 4 out of 5 Questions	21-25	10	40
		Total		100

Core-III. RESEARCH METHODOLOGY

Subject Code: 16PECOC03	Theory	Marks: 100
Semester: I	Credits 4	Total Hours : 90

Course Objective

This paper enables the students to understand the basics of research methods and to solve the problems of methodology and research issues.

UNIT I: Introduction to Research Methodology

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

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

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

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

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	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
B	Short Answers Answer any 5 out of 8 Questions	13-20	8	40
C	Essay Type Answers Answer any 4 out of 5 Questions	21-25	10	40
		Total		100

ELECTIVE – I: ENERGY ECONOMCIS

Subject Code: 17PECOE01	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

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

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

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

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

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.

Reference 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).

Question Paper Pattern

Section	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
B	Short Answers Answer any 5 out of 8 Questions	13-20	8	40
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		Total		100

ELECTIVE – II: MATHEMATICS FOR ECONOMISTS – I

Subject Code: 16PECOE02	Theory	Marks: 100
Semester: I	Credits 3	Total Hours : 90

Course Objective

This paper enables the students to understand the basics of mathematical economics and to solve the problems of mathematics in economics and related issues.

UNIT I: Set Theory and Economics

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

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

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

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

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.

Question Paper Pattern

Section	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
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		Total		100

SEMESTER-II

CORE –IV: MICRO ECONOMICS – II

Subject Code: 16PECOC04	Theory	Marks: 100
Semester: II	Credits 4	Total Hours : 90

Course Objective

This paper enables the students to understand the basics of micro economics and to solve the problems of micro economics and their related issues.

Unit I: Modern Theories of the Firm

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

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

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

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

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.

Question Paper Pattern

Section	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
B	Short Answers Answer any 5 out of 8 Questions	13-20	8	40
C	Essay Type Answers Answer any 4 out of 5 Questions	21-25	10	40
		Total		100

CORE-V: INDIAN ECONOMIC DEVELOPMENT AND POLICY - II

Subject Code: 16PECOC05	Theory	Marks: 100
Semester: II	Credits 4	Total Hours : 90

Course Objective

This paper enables the students to understand the economic development and policy in India and to solve the problems of economic development and policy and their related issues.

Unit I: Agriculture

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

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

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

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:

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

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A	Definitions Principles Answer any 10 Questions	1-12	2	20
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		Total		100

Core-VI. STATISTICS FOR ECONOMISTS

Subject Code: 16PECOC06	Theory	Marks: 100
Semester: II	Credits 4	Total Hours : 90

Course Objective

This paper enables the students to understand the basics of statistical methods and to solve the problems of statistics and their related issues.

UNIT I: Introduction to Statistics in Economics

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

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

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

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: Time Series Analysis and Index Numbers

Introduction to Time series: components of time series - estimation of trend (moving averages, least square method for linear and exponential trend) - measuring cyclical and seasonal variation - **Introduction to index numbers**: weighted and unweighted index numbers (price and quantity index numbers) - consumer price index number - concept of deflation and real wages (income).

Recommended Text:

1. A.M. Mood, F.A. Graybill and D.C. Boes (1973): Introduction to theory of Statistics, 3rd ed.McGraw Hill.
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. A.L. Nagar and R.K. Das :Basicstatistics,OxfordniversityPress, New Delhi.
3. M.R. Spiegal and L.J. Stephens (1999) : Theory and Problems of Statistics, Tata McGraw Hill Co, Ltd.

4. R.Veerachamy : Quantitative Techniques for Economists, New Age International P. Ltd.
5. R.J. Wonnacott and T.H. Wonnacott (1985): Introductory Statistics, 4th (Ed.) John wiley, New York.

Question Paper Pattern

Section	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
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		Total		100

ELECTIVE – III: MATHEMATICS FOR ECONOMISTS - II

Subject Code: 16PECOE03	Theory	Marks: 100
Semester: II	Credits 3	Total Hours : 90

Course Objective

This paper enables the students to understand the basics of mathematics in economics and to solve the problems of mathematics and their related issues.

UNIT I : Calculus of multivariable functions

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

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

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

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

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. :Mathematis 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.

Question Paper Pattern

Section	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
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C	Essay Type Answers Answer any 4 out of 5 Questions	21-25	10	40
		Total		100

EXTRA DISCIPLINARY – I - ENVIRONMENTAL ECONOMICS

Subject Code: 16PECOE04	Theory	Marks: 100
Semester: II	Credits 3	Total Hours : 90

Course Objective

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

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

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

The Environmental Costs of Economic Growth – Limits to Growth – Sustainable Development – Brundtland Commission - Sustainable Industrialization – Pollution abatement and Control.

Unit – IV: Cost Benefit Analysis

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

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. Kolstad, Charles, Environmental Economics, Oxford University Press, New Delhi – 2001.
2. Sankar, U, Environmental Economics, Oxford University Press, New Delhi, 2001.
3. Sengupta, Ramprasad, Ecology and Economics, Oxford University Press, New Delhi, 2001.
4. Bhattacharya, Rabindra, N. Environmental Economics: An Indian Perspective, Oxford

University Press, New Delhi, 2001.

Question Paper Pattern

Section	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
B	Short Answers Answer any 5 out of 8 Questions	13-20	8	40
C	Essay Type Answers Answer any 4 out of 5 Questions	21-25	10	40
		Total		100

SEMESTER-III

CORE-VII - MACRO ECONOMICS - I

Subject Code: 16PECOC07	Theory	Marks: 100
Semester: III	Credits 4	Total Hours : 90

Course Objective

This paper enables the students to understand the basics of macroeconomics and to solve the problems of macro economy and their related issues.

Unit I: Key Macro Economic Variables

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

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

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

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

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.

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	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
B	Short Answers Answer any 5 out of 8 Questions	13-20	8	40
C	Essay Type Answers Answer any 4 out of 5 Questions	21-25	10	40
		Total		100

CORE-VIII - PUBLIC FINANCE -I

Subject Code: 16PECOC08	Theory	Marks: 100
Semester: III	Credits 4	Total Hours : 90

Course Objectives

This paper enables the students to understand the basics of public finance and to solve the problems of public finance and their related issues.

Unit I: Public Finance: Introduction

Public Finance and Public Economics - Government in Mixed Economy – Public and Private Sectors – Cooperation or Competition – Role of Public Enterprises in India – Pricing Policies of Public Enterprises – Administered prices – Peak load pricing – Marginal cost pricing.

Unit II: Welfare Economics

Welfare foundation of public economics – Pareto optimality – Arrow's social welfare function – Majority Rule – Intensity of Preference – Transaction cost and non-market decision making - Market failures- Theory of Second best.

Unit III: Public Good and Taxation

Public goods and externalities, merit goods, Samuelson theory, free rider problem, Lindahl solution, Coasian theory, theory of clubs, median voter theorem, theory of rent seeking- Taxation :Theories of Taxation — Concept of Excess Burden of Taxes – Classical and Modern views – direct Vs. Indirect taxes, efficiency and equity, dead weight loss (income tax, commodity tax)

Unit IV: Taxation and Public Debt

Taxation and labour supply, taxation and savings, risk-taking and wealth, general equilibrium (Herberger) models of tax incidence, theory of optimal taxation- Deficit Financing- Concept of Burden of Public debt – Compensatory aspect of debt policy – debt management

Unit V: Budgeting

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.

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	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
B	Short Answers Answer any 5 out of 8 Questions	13-20	8	40
C	Essay Type Answers Answer any 4 out of 5 Questions	21-25	10	40
		Total		100

CORE - IX INTERNATIONAL ECONOMICS – I

Subject Code: 16PECOC09	Theory	Marks: 100
Semester: III	Credits 4	Total Hours : 90

Course Objective

This paper enables the students to understand the basics of international economics and to solve the problems of international trade and policy and their related issues

Unit I: International Economics: Introduction

Nature and scope of International Economics: Pure theory of International Trade Theories of Absolute cost Advantage, Comparative cost Advantage theory and J.S.Mill's reciprocal theory. Neo Classical theory of Haberler, Opportunity cost Advantage theory. Basic concepts – Community indifference curves and Offer curves. Modern theory of International Trade – Heckscher - Ohlin contribution – factor price equalization theorem-factor prices and factor reversals – obstacles to factor price equalization.

Unit II: Measurement of Gains

Terms of Trade – different concepts of Terms of trade – Determinants of Terms of trade – static and dynamic gains from trade – Samuelson on gains from trade – Immiserising growth – Technical progress and trade – Hicksian graphical analysis – neutral, capital saving and labour saving technologies and its impact on terms of trade.

Unit III : Theory of Interventions

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.

Unit IV: Foreign Capital

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 V: Foreign Exchange Market

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

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.

Question Paper Pattern

Section	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
B	Short Answers Answer any 5 out of 8 Questions	13-20	8	40
C	Essay Type Answers Answer any 4 out of 5 Questions	21-25	10	40
		Total		100

ELECTIVE – IV - ECONOMICS OF DEVELOPMENT

Subject Code: 16PECOE05	Theory	Marks: 100
Semester: III	Credits 3	Total Hours : 90

Course Objective

This paper enables the students to understand the basics of development economics and to solve the problems of development economics and their related issues.

Unit I

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

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

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

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

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.

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.

Question Paper Pattern

Section	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
B	Short Answers Answer any 5 out of 8 Questions	13-20	8	40
C	Essay Type Answers Answer any 4 out of 5 Questions	21-25	10	40
		Total		100

ELECTIVE – VI: HEALTH ECONOMICS

Subject Code: 16PECOE06	Theory	Marks: 100
Semester: IV	Credits 3	Total Hours : 90

Course Objective

This paper enables the students to understand the basics of health economics and to solve the problems of health economics and their related issues.

Unit – I: Introduction

Demand for Health and Health Care Welfare economics of medical care, production of health, demand for health and health care, equity, efficiency and the need, link between development and health, investing in health for economic development, public-private partnership and the role of state

Unit – II: Health Production Function

Nature of production function, different types of production function and their applications, national and international perspective, distributional inequities in opportunity and commercialization of medical and paramedical education, cost escalation in the health care system, easy access and availability to appropriate technology, need for regulation and control.

Unit – III: Health Care Incentives and Financing

Goals of health care provision and financing, competitive health insurance and risk adjustment, demand and supply of health insurance, asymmetric information and agency, market insurance, self-insurance and protection, employment based insurance, health insurance in India

Unit – IV: Measuring and Valuing Health Outcomes

Measurement of health state utilities, QALYs and its alternatives- different approaches of valuing health, multi-attribute utility instruments and their development

Unit – V: Health Care in India

Various health indicators and its recent trend, health care expenditures, target of health care and achievements, different options for financing healthcare, taxation, user fees, health insurance, role of urban and rural local bodies, role of non-governmental organizations, economic impact of HIV/AIDS in India and gender issues

Reference Books:

1. Folland, S., A.C. Goodman and M. Stano, Economics of Health and Health Care, fifth edition, Pearson Prentice Hall, 2006
2. Culyer, A. J. and J.P. Newhouse (eds.), Handbook of Health Economics, Volumes 1A & B, North-Holland, 2000
3. Zweifel, P., Health Economics, Oxford University Press, 1997
4. CII-Mckinsey Report, Healthcare in India: The Road Ahead, 2004.

Question Paper Pattern

Section	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
B	Short Answers Answer any 5 out of 8 Questions	13-20	8	40
C	Essay Type Answers Answer any 4 out of 5 Questions	21-25	10	40
		Total		100

SEMESTER-IV

CORE-X: MACRO ECONOMICS – II

Subject Code: 16PECOC10	Theory	Marks: 100
Semester: IV	Credits 4	Total Hours : 75

Course Objective

This paper enables the students to understand the basics of macro economics and to solve the problems of macro economy and their related issues.

Unit I: The IS –LM Model

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

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

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

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

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.

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	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
B	Short Answers Answer any 5 out of 8 Questions	13-20	8	40
C	Essay Type Answers Answer any 4 out of 5 Questions	21-25	10	40
		Total		100

CORE – XI: PUBLIC FINANCE –II

Subject Code: 16PECOC11	Theory	Marks: 100
Semester: IV	Credits 4	Total Hours : 75

Course Objective

This paper enables the students to understand the basics of public finance and to solve the problems of public finance and their related issues.

Unit I: Public Policy

Demand revealing schemes for public goods – Contribution of Clarks, Groves and Leyard, Tiebout model, theory of club goods, stabilization policy – Keynesian case for stabilization policy: Uncertainty and expectations, Failure of inter – temporal markets.

UNIT II: PUBLIC EXPENDITURE

Public Expenditure – Wagner's Law – Wiseman – Peacock Hypothesis – Structure and Growth of Public Expenditure – Evaluation of Public expenditure – Cost Benefit Analysis – Shadow Prices – Discount Rate – Reforms in Public Expenditure –Performance Budgeting – Programme Budgeting - Zero Base Budgeting – Appraisal of Public Expenditure Policy in India.

Unit III: Fiscal Federalism

Fiscal federalism: 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 Fiscal Federalism

Indian federalism- Tax assignments to Centre and States-–Particular Taxes – Personal income Tax – Corporation Income Tax – Capital Gains Tax –Union Excise Duties - MANVAT, MODVAT –VAT –Service tax; Tax Evasion –State Taxes- Appraisal of Tax Policies of India-Goods; tax reforms in India-Goods and services tax.

Unit V: Fiscal Policy

Objectives – Fiscal and monetary policies – Fiscal policy for stabilization – Automatic Vs Discretionary stabilization – Alternative measures of Resource mobilization and their impact on growth, distribution and prices.

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.

Question Paper Pattern

Section	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
B	Short Answers Answer any 5 out of 8 Questions	13-20	8	40
C	Essay Type Answers Answer any 4 out of 5 Questions	21-25	10	40
		Total		100

CORE - XII: INTERNATIONAL ECONOMICS – II

Subject Code: 16PECOC12	Theory	Marks: 100
Semester: IV	Credits 4	Total Hours : 75

Course Objective

This paper enables the students to understand the basics of international economics and to solve the problems of international trade and policy and their related issues.

Unit I: Balance of Payment

Balance of Payment and National Income – foreign trade multiplier and National Income – Repercussions of Balance of payment disequilibrium and stability problem – BOP and exchange rate determination – Purchasing Power Parity Theory – fixed versus flexible exchange rate system – developments in international monetary system. Balance of Payment and disequilibrium - Balance of Payment disequilibrium and corrective measures – Automatic mechanisms under fixed and flexible exchange rates – Recent developments in exchange rate management.

Unit II: Balance of Payment (Continued)

Devaluation: elasticity approach, income absorption approach –monetary approach – exchange controls – means of achieving internal and external equilibrium – Fiscal and monetary mix.

Unit III: The Theory of Regional Blocks

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:

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

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	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
B	Short Answers Answer any 5 out of 8 Questions	13-20	8	40
C	Essay Type Answers Answer any 4 out of 5 Questions	21-25	10	40
		Total		100

CORE –XIII: MONETARY ECONOMICS

Subject Code: 16PECOC13	Theory	Marks: 100
Semester: IV	Credits 4	Total Hours : 75

Course Objective

This paper enables the students to understand the basics of monetary economics and to solve the problems of monetary economic theory and their related issues.

Unit I

Money in Macro Economy: The Classical Approach; The Keynesian Approach: Post – Keynesian Developments – Empirical Evidence.

Unit II

The Demand for Money: The Classical Approach: The Keynesian Approach: Post – Keynesian Developments – Empirical Evidence.

Unit III

The Supply of Money: The Classical version; The New View of James Tobin – Theories of Interests – Monetary Policy.

Unit IV

Monetary System in India - Financial Intermediaries: Implications for the Theory and Policy of Money.

Unit V

International Monetary System: Problems and Prospects.

Recommended Text:

1. Vaish. M.C. (1995) : Monetary Theory, Ratan Prakashan Mandir
2. Sundaram. K.P.M. (2000) : Money, Banking and international Trade, Sultan and Chand, New Delhi.

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. Graham Bird : The International Monetary System and the Less Developed Countries.
4. R.B.I.: Working of the Monetary System in India; Report of Sukumoy Chakravarthy Committee, 1985.
5. Aschiem, J. and Hsich, Ching Yao: Macro Economics, Income and Monetary Theory, Charles Merrrill & Co, Ohio.
6. Friedman, M: The Role of Monetary Policy, A.E.R., March 1968.

7. Johnson, H.G.: Essays in Monetary Economics, Alien and Unwin, London.
8. Report of the Committee on the Financial System 1991 – Narasimhan Committee.

Question Paper Pattern

Section	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
B	Short Answers Answer any 5 out of 8 Questions	13-20	8	40
C	Essay Type Answers Answer any 4 out of 5 Questions	21-25	10	40
		Total		100

CORE – XIV
FINANCIAL ECONOMICS

Subject Code: 16PECOC14	Theory	Marks: 100
Semester: IV	Credits 4	Total Hours : 45

Course Objective

This paper enables the students to understand the basics of financial economics and to solve the problems of financial institutions and their related issues.

Unit I

Money market – **B**anks - regulation of working capital finance.

Unit II

Capital market – structure – characteristics – primary, secondary markets – market intermediaries, stock brokers, under writers – depository's credit rating agencies.

Unit III

Stock market system – trading, listing, regulation of stack market operations – market efficiency – NSE- OTC. Online trading system – SEBI Guidelines for capital issues – pricing – insider trading – investor protection.

Unit IV

Derivative markets – options and futures – trading system – pricing derivatives – risk hedging through derivatives – derivative market in India – its regulations.

Unit V

An over view of financial markets – legal and regulatory frame work – financial sector reforms – SEBI –SCRA- various segments of financial markets - Venture Capital Financing, Mutual Funds – finance information system(FIS).

Recommended Text

1. Bhole : Financial Institutions and Markets, TMH.
2. M.Y. Khan, (2001) : Financial Services, TMH.

Reference Books:

1. Fabozzi, (2002): Foundations of Financial Markets and Institutions, Pearson Education, New Delhi.
2. James C. Van Horne, (2002) : Financial Management and Policy, Prentice Hall of India Pvt. Ltd. New Delhi.
3. Kuchhal S.C. : Financial management : An Analytical and Conceptual Approach – Chaitanya publishing House, Allahabad.
4. P.V. KulKarni : Financial management, Himalaya Publishing House.
5. Panday, I.M.: Financial Management, Vikas Publishing House Pvt. Ltd.,
6. Prasanna Chandra: Financial Management: Theory and Practice – Tata McGraw Hill Publishing Co. Ltd., New Delhi.

Question Paper Pattern

Section	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
B	Short Answers Answer any 5 out of 8 Questions	13-20	8	40
C	Essay Type Answers Answer any 4 out of 5 Questions	21-25	10	40
		Total		100

CORE: XV
GENDER ECONOMICS*

Subject Code: 16PECOC15	Theory	Marks: 100
Semester: IV	Credits 4	Total Hours : 45

Course Objective
This paper enables the students to understand the basics of gender economics and to solve the problems of gender and their related issues.

Unit - I: Introduction
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
Marx – 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
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
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

Question Paper Pattern

Section	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
B	Short Answers Answer any 5 out of 8 Questions	13-20	8	40
C	Essay Type Answers Answer any 4 out of 5 Questions	21-25	10	40
		Total		100

ELECTIVE-V: COMPUTER APPLICATION IN ECONOMIC ANALYSIS

COMPUTER APPLICATION IN ECONOMIC ANALYSIS

Subject Code: 16PECOE07	Theory	Marks: 100
Semester: IV	Credits 3	Total Hours : 60

Course Objective

This paper enables the students to understand the basics of computer application in economics and to solve the application in economics and their related issues.

Unit – I

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

MS Office – MS Word – MS Excel – MS Powerpoint – MS Outlook – MS Access

Unit – III

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

Introduction – Internet – Intranet – Security issues and solutions – Antivirus programmes – E-mail – Chat – Secured mails.

Unit - V

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

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.

Question Paper Pattern

Section	Questions Components	Number of Questions	Marks	Total
A	Definitions Principles Answer any 10 Questions	1-12	2	20
B	Short Answers Answer any 5 out of 8 Questions	13-20	8	40
C	Essay Type Answers Answer any 4 out of 5 Questions	21-25	10	40
		Total		100

GURU NANAK COLLEGE (AUTONOMOUS)

Velachery, Chennai – 600042

Reaccredited at "A" Grade by NAAC

A Unit of Guru Nanak Educational Society ®

DEPARTMENT OF MBA (MASTER OF BUSINESS ADMINISTRATION)

SYLLABUS FOR THE BATCH OF STUDENTS ADMITTED DURING THE ACADEMIC YEAR 2018-19

GURU NANAK COLLEGE (AUTONOMOUS)

VELACHERY ROAD, CHENNAI –600042

(Re-Accredited 'A' grade by NAAC)

MASTER OF BUSINESS ADMINISTRATION

DEPARTMENT OF MBA

(SEMESTER SYSTEM WITH CREDITS)

Regulations & Syllabus

MASTERS DEGREE PROGRAMME IN BUSINESS ADMINISTRATION (MBA)

SEMESTER SYSTEM WITH CREDITS

(Effective from the Academic year 2018-19)

RULES AND REGULATIONS

1. 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 with a choice of a variety of Job-oriented courses, Elective courses and courses involving Soft- skills. Students are permitted to choose any course of their interest during the study period and earn extra credits and certificates in addition to the regular hardcore (compulsory) subjects.

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 as well as empowers them with the flexibility of learning at their convenience.

2. ELIGIBILITY FOR ADMISSION

Candidates for admission to the first year of the UG programme shall be required to 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 any UG degree from a recognized university.

3. DURATION OF THECOURSE

The UG course is of three year duration with six semesters and the PG course is of two year duration with four semesters. The odd semester include 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.

4. COURSE OFSTUDY

The main subject of study for Master‟s Degree shall consist of the following:

CORECOURSES

PART – III consisting of (a) Main subjects, (b) Elective subjects related to the main subject of study, Internship and project work.

PART–IV

1. Soft Skills. (I , II, III &IV Semesters**)**

All the students shall enroll for **NSS / NCC / NSO (Sports & Games) Rotract / Youth red cross 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 before **31st March in a year.** If a student LACKS **40 HOURS ATTENDANCE** in the first year, he / she shall have to compensate the same during the subsequent years. Literacy and population, educational field work shall be compulsory components in the above extension service activities.

5.Course Structure:

Sem	Part	Course component	Subject Name	Credits	Hours	CIA	ESE	Total
I	III	Core Paper-1	Management principles	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 Systems in 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	Contemporary Awareness	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	Managerial Skills	2	2	40	60	100

1. 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 INTERNALASSESSMENT

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	95%

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, port folio 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 the HOD.

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 OF 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 requirements 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.

Studentswhohave**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.

Studentswhohavelessthan**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 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 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 within7 days from the date of publication of results.

Malpractice cases, if any, will not be permitted to appear for Supplementary Examination

The details of the ESE are as follows:

External Component			
Assessment type	**Comprehensive**	**Maximum mark**	**% of Weightage**
External Exam	3 hours examination	100	50
	Grand total(CIA+ESE)		**100**

2. 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.

3. VALUATION

Valuation of the answer scripts are undertaken at the central valuation camp lead by the ControllerofExaminationortheCampOfficerappointedbytheControllerofExaminations. Single valuation of answer scripts by external examiners is adopted for both UG and PG courses.

4. PUBLICATION OFRESULTS

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 ANSWERSCRIPTS

- 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.
- 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„.

5. 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)

Range of Marks		Grade Points		Letter Grade		Description	
PG &UG		PG &UG		PG &UG		PG &UG	
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	
PG	UG	PG	UG	PG	UG	PG	UG
00-49	40-49	0.0	4.0-4.9	U	C	Re-appear	Satisfactory
	00-39		0.0		U		Re-appear
ABSENT		0.0		AAA		ABSENT	
B.Com(Hons)		B.Com(Hons)		B.Com(Hons)		B.Com(Hons)	
00-59		0.0		U		Reappear	

Classification of Grades

CGPA		GRADE		CLASSIFICATION OF FINALRESULT	
PG&UG		PG&UG		PG&UG	
9.5-10.0		O+		First Class –Exemplary*	
9.0andabovebutbelow9.5		O		First class-outstanding*	
8.5andabovebutbelow9.0		D++		First Class with Distinction*	
8.0andabovebutbelow8.5		D+			
7.5andabovebutbelow8.0		D			
7.0andabovebutbelow7.5		A++		First Class	
6.5andabovebutbelow7.0		A+			
6.0andabovebutbelow6.5		A			
5.5andabovebutbelow6.0		B+		Second Class	
5.0andabovebutbelow5.5		B			
PG	UG	PG	UG	PG	UG
0.0andabovebutbelow5.0	4.5andabovebutbelow5.0	U	C+	Re –appear	Third Class
	4.0andabovebutbelow4.5		C		
	0.0andabovebutbelow4.0		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] = $\sum_i C_i G_i / \sum_i C_i$

$$\text{GPA} = \frac{\text{Sum of the multiplication of grade points by the credits of the courses}}{\text{Sum of the credits of the courses (passed) in a semester/year}}$$

For the entire programme:

CUMULATIVE GRADE POINT AVERAGE [CGPA] = $\sum_n \sum_i C_{ni} G_i / \sum_n \sum_i C_{ni}$

$$\text{CGPA} = \frac{\text{Sum of the multiplication of grade points by the credits of the entire programme}}{\text{Sum of the credits of the courses of the entire programme}}$$

(CGPA is calculated only if the candidate has passed in all the courses in the entire programme)

C_I = Credits earned for course *i* in any semester /year.
G_I = Grade Point obtained for course *i* in any semester /year. *n* refers to the semester/year in which such courses were credited.
C_i = Credits earned for course i in any semester.
G_n = Grade Points obtained for course i in any semester.
n refers to the semester in which such courses were credited.

Passing Minimum

For all U.G.Programme except B.Com(Hons)passing minimum of each subject is 40% in CIA, 40% in E.S.E and 40% in aggregate i.e., CIA +ESE

- For B.Com(Hons)

a) No passing minimum for internal b) For ESE, passing minimum is 50% for languages, NME, value education, EVS and 60% for core subjects/internship/project and viva voce c) In aggregate the passing minimum (Ext + Int) is 50% for languages, NME, value education, EVS and 60% for core subjects/internship/project and viva-voce.

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

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6. REQUIREMENT FOR PROCEEDING TO SUBSEQUENTSEMESTER

(a) Candidates shall register their names for the first semester examination after admission in the UG courses.

(b) 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

12. ISSUE OFCERTIFICATES

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 2months.

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 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 requests for verification of educational qualifications of students under autonomous mode of this college and students who opt for higher studies / employment and who requires 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 COE. The relevant certificate will be issued within 15 working days from the office of the Principal.

13. 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 admin 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 WITHOUTPRACTICAL

QUESTION ALLOTMENT	**MAXIMUM 100 MARKS PASSING MINIMUM 40MARKS THREE HOURS DURATION**
QUESTION 1-12 Answer any10 questions	**PART-A (10X3=30MARKS) ANSWERANY10QUESTIONS EACH QUESTION CARRIES 3 MARKS**
QUESTION 13-20 Answer any FIVE out of8	**PART-B (5X6=30) ANSWER ANY FIVE QUESTIONS EACH QUESTION CARRIES 6 MARKS**
QUESTION 21 TO 26	**PART-C (4X 10=40 MARKS) ANSWER ANY FOUR QUESTIONS EACH QUESTION CARRIES 10 MARKS**

Semester	Part	Course component	Subject Name	Credits	Hours in a week
I	III	Core Paper-1	Management principles	4	5
	III	Core Paper-2	Statistics and Quantitative methods for Business	4	5
	III	Core Paper-3	Organizational behavior	4	5
	III	Core Paper-4	Accounting for Managers	4	5
	III	Core Paper-5	Managerial Economics	4	5
	III	Elective - Interdisciplinary	Innovation and Entrepreneurship	3	3
	IV	Soft skills -I	Language and communication skills	2	2
			TOTAL	**25**	**30**
II	III	Core Paper-1	Legal Systems in Business	4	2
	III	Core Paper-2	Applied operations Research	4	4
	III	Core Paper-3	Human Resource Management	4	4
	III	Core Paper-4	Marketing management	4	4
	III	Core Paper-5	Operations Management	4	4
	III	Core Paper-6	Financial Management	4	4
	III	Elective - Interdisciplinary	Business Research Methods	3	3
	IV	Soft skills -II	Spoken and Presentation Skills	2	2
			TOTAL	**29**	**30**
III	III	Core Paper-1	Strategic Management	4	4
	III	Core Paper-2	Management information system	4	4
	III	Elective -1		3	3
	III	Elective -2		3	3
	III	Elective -3		3	3
	IV	Elective -4		3	3
		Soft skills -III	Contemporary Awareness	2	2
		Internship *		2	
			TOTAL	**24**	**30**
IV	III	Elective-5		3	3
	III	Elective-6		3	3
	III	Core Paper-1	Project work and viva voce **	8	
	IV	Soft skills -IV	Managerial Skills	2	2
			TOTAL	16	8
			GRAND TOTAL	**94**	**98**

***Internship:**

Students have to work in any business organization for a period of 30 days and to submit a written report of their performance in the organization

Students should choose Six Subjects from the list of electives in consultation with the Head of the Institution.

** **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).

SEMESTER I

CORE
PAPER TITLE: Management principles

SUBJECT CODE :	THEORY	100 MARKS

SEMESTER: I **CREDITS: 4** **No. OF HOURS PER WEEK: 5**

COURSE OBJECTIVES:

- 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.

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
2. approach, Thompson South Western,11th edition, 2008.
3. Heinz Weihrich, Mark V Cannice and Harold Koontz, Management- A global entrepreneurial perspective, Tata McGraw Hill, 12th edition, 2008.
4. 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 8 questions	13-20	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	21-26	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	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	1	
	Unit – 3	2	
	Unit – 4	1	
	Unit - 5	1	

CORE

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 **15 Hours**

Introduction: 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 **15 Hours**

Probability: 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 **15 Hours**

Hypothesis testing: 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 **15 Hours**

Correlation, Regression & Time Series Analysis: Correlation analysis, estimation of regression line, Spearman‟s Rank Correlation and Method of Least square in Time Series Analysis.

UNIT V **15 Hours**

Decision theory: 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-and-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

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** 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	21-26	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	1	1
	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	

CORE
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. Cengage learning. 2nd edition. 2012
3. Ivancevich, Konopaske & Maheson, Oranisational Behaviour & Management, 7th edition, Tata McGraw Hill, 2008.
4. Udai Pareek, Understanding Organisational Behaviour, 3rd Edition, Oxford Higher Education, 2011.
5. 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 – 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	2	
	Unit – 3	1	
	Unit – 4	1	
	Unit - 5	1	

CORE
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

Question Paper Pattern :

Section	Question Component	Numbers	Marks	Total
Section A	**Definition/Principle** Answer any 10 out of 12 Questions	1-12	3	**30**
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Distribution of Questions :

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		Theory	Problems
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	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	1	1
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	Unit – 2	1	1
	Unit – 3	1	1
	Unit – 4	2	
	Unit – 5		1
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	Unit – 2	1	
	Unit – 3		1
	Unit – 4		1
	Unit - 5	1	

CORE
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.

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 – 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	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:

- To develop and strengthen entrepreneurial quality and motivation in students.
- 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 ours**

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

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	Unit – 5	2	
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	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	

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 McGrawHill, Australia

SEMESTER II

CORE
PAPER TITLE: LEGAL SYSTEMS IN 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 – 5	2	
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	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	

CORE
PAPER TITLE: APPLIED OPERATIONS RESEARCH

SUBJECT CODE :	THEORY	100 MARKS

SEMESTER: II **CREDITS: 4** **No. OF HOURS PER WEEK: 5**

COURSE OBJECTIVES:

- To learn the concepts of operations research applied in business decision making.

UNIT – I 15 Hours INTRODUCTION: 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 15 Hours TRANSPORTATION PROBLEM: 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 **15 Hours**
PERT / CPM: Network Scheduling by PERT / CPM – Network and Basic Components – Rules of Network Construction – CPM Analysis – PERT – Distinction between PERT and CPM.

UNIT – IV **15 Hours**
QUEUING THEORY: 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 **15 Hours**
GAME THEORY: 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/

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	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
PAPER TITLE: HUMAN RESOURCE MANAGEMENT

SUBJECT CODE :	THEORY	100 MARKS

SEMESTER: II **CREDITS: 4** **No. OF HOURS PER WEEK: 5**

COURSE OBJECTIVES:

- 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

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	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
Section C	Unit – 1	1	
	Unit – 2	2	
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	Unit – 4	1	
	Unit - 5	1	

CORE
PAPER TITLE: MARKETING MANAGEMENT

SUBJECT CODE :	THEORY	100 MARKS

SEMESTER: II **CREDITS: 4** **No. OF HOURS PER WEEK: 5**

COURSE OBJECTIVES:

- To understand the changing business environment
- To identify the indicators of management thoughts and practices
- 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 - 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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	Unit – 3	2	
	Unit – 4	2	
	Unit – 5	1	
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	Unit – 4	1	
	Unit - 5	1	

CORE
OPERATIONS MANAGEMENT

SUBJECT CODE :	THEORY	100 MARKS

SEMESTER: II **CREDITS: 4** **NO. OF HOURS PER WEEK: 5**

COURSE OBJECTIVES:

- 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 **15 Hours**

INTRODUCTION: 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 **15 Hours**

FACILITY LAYOUT: 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 **15 Hours**

PRODUCTION AND INVENTORY CONTROL: 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 **15 Hours**

PRODUCTION PLANNING AND CONTROL AND MAINTENANCE: Lean Manufacturing - Agile Manufacturing- Quality Assurance- Quality Control - Six sigma. Need for Maintenance- Types of Maintenance-Value analysis and use of Robots

UNIT – V **15 Hours**

WAREHOUSE MANAGEMENT: 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, 8th

Websites:

http://www.materialsmanagement.info/stores/store-management.htm
http://www.leanproduction.com/
http://www.economicsdiscussion.net/production/meaning-factors-and-nature-of-production-function/1555

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	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
PAPER TITLE: FINANCIAL MANAGEMENT

SUBJECT CODE :	THEORY	100 MARKS

SEMESTER: II **CREDITS: 4** **No. OF HOURS PER WEEK: 5**

COURSE OBJECTIVES:

- 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 **15 Hours**

FOUNDATIONS OF FINANCE: 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 **15 Hours**

FINANCING DECISION: 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/

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 8 questions	13-20	6	**30**
Section C	**Essay** Answer any 4 out of 6 questions	21-26	10	**40**

Distribution of Questions :

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		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	1
	Unit – 3	1	1
	Unit – 4	1	
	Unit – 5	1	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 **9 Hours**

Introduction: 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 **9 Hours**

Research design and measurement: 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 **9 Hours**

Methods of data collection: 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 **9 Hours**

Data processing and analysis: 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 **9 Hours**

Report writing: 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 – 3	2	
	Unit – 4	3	
	Unit – 5	2	
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	Unit – 2	2	
	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	

SOFTSKILLS
PAPER TITLE: Spoken and Presentation Skills

SUBJECT CODE :	PRACTICAL	100 MARKS

SEMESTER: II **CREDITS:2** **No. OF HOURS PER WEEK: 2**

COURSE OBJECTIVES:

- To familiarize learners with the mechanics of presentation.
- 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.BusinessCommunication. 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:

- 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**
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	Unit – 4	3	
	Unit – 5	2	
Section B	Unit – 1	1	
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	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
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
2. Gordon Davis, Management Information System : Conceptual Foundations, Structure and Development, Tata McGraw Hill, 21st Reprint 2008.
3. Haag, Cummings and Mc Cubbrey, Management Information Systems for the Information Age, McGraw Hill, 2005. 9th edition, 2013.
4. 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	
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ELECTIVES
HUMAN RESOURCE MANAGEMENT ELECTIVE
PAPER TITLE: INDUSTRIAL RELATIONS AND LABOUR WELFARE

SUBJECT CODE :	THEORY	100 MARKS
SEMESTER: III	CREDITS: 3	No. OF HOURS PER WEEK: 3

COURSE OBJECTIVES:

- 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 – 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	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:

- 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 – 5	1	
Section C	Unit – 1	1	
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	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:

- 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 OBJECTIVES:

- To learn how an organization can be designed and developed to deal with the challenges from environment, technology, and its own processes.

UNIT I HUMAN RESOURCE DEVELOPMENT **9 Hours**

Meaning – Strategic framework for HRM and HRD – Vision, Mission and Values – Importance – Challenges to Organisations – HRD Functions - Roles of HRD Professionals - HRD Needs Assessment - HRD practices – Measures of HRD performance – Links to HR, Strategy and Business Goals – HRD Program Implementation and Evaluation – Recent trends – Strategic Capability , Bench Marking and HRD Audit.

UNIT II E-HRM **9 Hours**

e- Employee profile– e- selection and recruitment - Virtual learning and Orientation – e – training and development – e- Performance management and Compensation design – Development and Implementation of HRIS – Designing HR portals – Issues in employee privacy – Employee surveys online.

UNIT III CROSS CULTURAL HRM **9 Hours**

Domestic Vs International HRM - Cultural Dynamics - Culture Assessment - Cross Cultural Education and Training Programs – Leadership and Strategic HR Issues in International Assignments - Current challenges in Outsourcing, Cross border Mergers and Acquisitions - Repatriation etc - Building Multicultural Organisation - International Compensation.

UNIT IV CAREER & COMPETENCY DEVELOPMENT **9 Hours**

Career Concepts – Roles – Career stages – Career planning and Process – Career development Models– Career Motivation and Enrichment –Managing Career plateaus- Designing Effective Career Development Systems – Competencies and Career Management – Competency Mapping Models – Equity and Competency based Compensation.

UNIT V EMPLOYEE COACHING & COUNSELING **9 Hours**

Need for Coaching – Role of HR in coaching – Coaching and Performance – Skills for Effective Coaching – Coaching Effectiveness– Need for Counseling – Role of HR in Counseling - Components of Counseling Programs – Counseling Effectiveness – Employee Health and Welfare Programs – Work Stress – Sources - Consequences – Stress Management Techniques.- Eastern and Western Practices - Self Management and Emtional Intelligence.

Total: 45 Hours

PRESCRIBED BOOKS :

1. Randy L. Desimone, Jon M. Werner – David M. Mathis, Human Resource Development, Cengage Learning, 2007.
2. Paul Boselie. Strategic Human Resource Management. Tata McGraw Hill. 2011

REFERENCE BOOKS :

1. Jeffrey A Mello, Strategic Human Resource Management, Cengage Learning, Southwestern 2007.
2. Robert L. Mathis and John H. Jackson, Human Resource Management, Cengage Learning, 2007.
3. Monir Tayeb. International Human Resource Management. Oxford. 2007

WEBSITES :

1. http://hrd.sagepub.com/
2. http://www.tandfonline.com/toc/rhrd20/current#.VNh_GCyz_4Y

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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	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

ELECTIVE
PAPER TITLE: MANAGERIAL BEHAVIOR AND EFFECTIVENESS

.

SUBJECT CODE :	THEORY	100 MARKS
SEMESTER: III	CREDITS: 3	No. OF HOURS PER WEEK: 3

COURSE OBJECTIVES:

- 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 – 2	2	
	Unit – 3	2	
	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:

- 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

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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 FINANCIAL SERVICES MANAGEMENT

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 go 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: DIVERSIFICATION AND PERFORMANCE EVALUATION **9 Hours**

Diversification of banks into securities market, underwriting, Mutual funds and Insurance business, Risks associated therewith. Performance analysis of banks – background factors, ratio analysis and CAMELS.

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 Hours

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 – 5	2	
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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 take over 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 – 5	1	1
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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 Forfeiting – 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 – 4	2	
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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

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 – 3	2	
	Unit – 4	1	
	Unit – 5	1	
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	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

SOFTSKILLS
PAPER TITLE: Contemporary Awareness

SUBJECT CODE :	**PRACTICAL**	**100 MARKS**
SEMESTER: III	**CREDITS: 2**	**No. OF HOURS PER WEEK: 2**

COURSE OBJECTIVES:

- To enhance the knowledge of the students on current environmental issues and to keep them updated on the day to day happenings.

UNIT I: **6 Hours**

Recent Developments in science and Technology including development in

Space, Telecommunication and computers.

UNIT II: **6 Hours**

Environmental issues, Human resources and related issues Etc., Role of national Institutions.

UNIT III: **6 Hours**

International Affairs and Institutions/Organisations related to it.

UNIT IV: **6 Hours**

Indian Politics and Economy

UNIT V: **6 Hours**

Geographical facts about India and the world

Total: 30 Hours

REFERENCE BOOKS :

1. The Pearson Objective – General Knowledge, Pearson Publication
2. Current Affairs , Jagran Josh, Josh Publications, 2014

WEBSITES :

1. http://top7business.com/?Top-7-Tips-to-Improve-Your-Telecommunication-Skills&id=207
2. http://www.epw.in/

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

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

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

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 and Answer any 3 from Q.No. 21 to 25	20-25	10	**40**

Distribution of Questions :

Sections	Units	No. of Questions	
		Theory	Problems
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	Unit – 2	3	
	Unit – 3	2	
	Unit – 4	3	
	Unit – 5	2	
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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: 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 – 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: 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

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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: 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/
   http://onlinelibrary.wiley.com/journal/10.1002/%28ISSN%291479-1838

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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: 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: ORGANISATION FRAMEWORK OF THE FIELD SALES FORCE 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: INFORMATION AND PLANNING 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: SALES FORECASTING 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: STAFFING 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: DISTRIBUTION 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 De Carlo, 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

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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: ADVERTISING **9 Hours**

Advertising: Advertising, objectives, task and process, market segmentation and target audience – Message and copy development.

UNIT II: MEDIA **9 Hours**

Media: Mass Media - Selection, Planning and Scheduling – Web Advertising – Integrated programme and budget planning.

UNIT III: IMPLEMENTATION **9 Hours**

Implemenation: Implementing the programme coordination and control – Advertising agencies – Organization and operation.

UNIT IV: SALES PROMOTION **9 Hours**

Sales Promotion: Why and When Sales promotion activities, Consumer and sales channel oriented – planning, budgeting and implementing and controlling campaigns.

UNIT V: CONTROL **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.

5. Percy, L. and Rosenbaum-Elliot, R., Strategic Advertising Management, 4thEdition, Oxford University Press, 2012.
6. Pricken, M., Creative Advertising: Ideas and Techniques from the World‟s Best Campaigns, 2ndEdition, Thomas and Hudson, 2008.
7. 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 – 5	1	
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	Unit – 2	1	
	Unit – 3	1	
	Unit – 4	2	
	Unit - 5	1	

PAPER TITLE: SOFTSKILLS- MANAGERIAL SKILLS

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 3**	**No. OF HOURS PER WEEK: 3**

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: 30HOURS

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

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 forExternal) for a Maximum of 50 Marks (8 Credits).

GURU NANAK COLLEGE (Autonomous)

VELACHERY ROAD, CHENNAI – 600042

(Re-Accredited 'A' Grade by NAAC)

MASTER OF COMPUTER APPLICATIONS (MCA)

(SEMESTER SYSTEM WITH CREDITS)

Regulations
&
Syllabus

With Effect From 2018 - 21

(Batch : 2016-19 – From III Semester Onwards)
(Batch : 2017-20 – From I Semester Onwards)

DEGREE OF MASTER OF COMPUTER APPLICATIONS (M.C.A.)

SEMESTER SYSTEM WITH CREDITS

(With Effect From 2017-18)

RULES AND REGULATIONS

1. 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 with a choice of a variety of Job-oriented courses, Elective courses and courses involving Soft-skills. Students are permitted to choose any course of their interest during the study period and earn extra credits and certificates in addition to the regular hardcore (compulsory) subjects.

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 as well as empowers them with the flexibility of learning at their convenience.

2. ELIGIBILITY FOR ADMISSION

Candidate who has passed the under-mentioned degree examinations of this University or an examination of other institution recognized by this University as equivalent thereto provided they have undergone the course under 10+2+3 or 11+1+3 or 11+2+2 pattern or under the Open University System, shall be eligible for admission to the M.C.A. Degree Course.

(a) B.C.A/B.E.S/B.Sc. in Computer Science/Mathematics/Physics/ Statistics / Applied Sciences OR

(b) B.Com / Bachelor of Bank Management/B.B.A/B.L.M/B.A Corporate Secretary-
ship / B.A. Economics/ any other Bachelor's Degree in any discipline with Business Mathematics and Statistics or Mathematics/Statistics in Main/Allied level OR

(c) B.Sc. Chemistry with Mathematics and Physics as allied subjects OR

(d) B.E/B.Tech./M.B.A OR

(e) A Bachelor's Degree in any discipline with Mathematics as one of the subjects at the Higher Secondary level (i.e. in +2 level of the 10+2 pattern)

3. DURATION OF THE COURSE

The Course duration shall be three years consisting of six semesters. In order to be eligible for the award of the degree the candidate shall successfully complete the course in a maximum period of five years reckoned from the date of enrolment for the first semester of the course.

Provision for Lateral Admission

(i) Candidates with PGDCS of this University or any other University as equivalent thereto, provided he/she satisfies the eligibility condition as above, shall be admitted to the Second year of the M.C.A. Degree Course.

(i) Students who have completed Bachelor's Degree of Minimum 3 years duration in B.C.A./ B.Sc. (Computer Science) with mathematics as a course at 10+2 level or at graduate level shall alone be eligible for admission to Second year M.C.A. Course (Lateral Entry) up to a maximum of 20% of sanctioned intake which will be supernumerary of the approved intake. The sanction of supernumerary seats shall be considered based on the additional facility available in the respective college.

4. COURSE STRUCTURE

Semester	Subject	Subject Title	Credits	Hrs	CIA	ESE	Total
I	Core-1	Problem Solving and Programming in C	4	5	50	50	100
	Core-2	Digital Computer Fundamentals	4	5	50	50	100
	Core-3	Open Source Technologies	4	5	50	50	100
	Core-4	Practical - I : Programming in C	2	4	50	50	100
	Core-5	Practical - II : Open Source Technology Lab	2	4	50	50	100
	Non-Major Elective	Mathematics and Statistical Methods for Computer Science	5	6	50	50	100
	Soft Skill-1	Language and Communication Skill	2	1	50	50	100
II	Core-6	C++ and Data Structures	4	5	50	50	100
	Core-7	Advanced Internet Technologies	4	5	50	50	100
	Core-8	Operating Systems	4	5	50	50	100
	Core-9	Practical - III : C++ and Data Structures Lab	2	4	50	50	100
	Core-10	Practical - IV : Advanced Internet Technologies Lab	2	4	50	50	100
	Extra-Disciplinary	Accounting and Financial Management	4	6	50	50	100
	Soft Skill-2	Presentation Skill	2	1	50	50	100
III	Core-11	Java Programming	4	5	50	50	100
	Core-12	Computer Communication and Networking	3	4	50	50	100
	Core-13	Web Development using PHP and MySQL	3	4	50	50	100
	Core-14	Software Engineering and Project Management	3	4	50	50	100
	Core-15	Computer Graphics	3	4	50	50	100
	Core-16	Practical - V : Programming In Java Lab	2	4	50	50	100
	Core-17	Practical - VI : PHP and MySQL Lab	2	4	50	50	100
	Soft Skill-3	Managerial Skill	2	1	50	50	100
IV	Core – 18	Advanced Java Programming (J2EE)	4	4	50	50	100
	Core – 19	Python Programming	4	5	50	50	100
	Core – 20	Advanced Database Management System	4	4	50	50	100
	Core – 21	Software Testing and Quality Assurance	4	4	50	50	100
	Elective -1	Elective - I	3	4	50	50	100
	Core – 22	Practical - VII : J2EE Lab	2	4	50	50	100
	Core – 23	Practical - VIII : Python Programming Lab	2	4	50	50	100
	Soft Skill-4	Quantitative Aptitude	2	1	50	50	100
V	Core – 24	.NET Technologies	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 : .NET 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	5	50	50	100
	Project	Project and Viva-Voce	18	25	20	60+20	100

5. 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	95%

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, port folio 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 the HOD.

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 OF 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 secures 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 requirements 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 Studiesconcerned.

MAIN PROJECT

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 not later than 31st May/31st December. If he/she fails to submit the Project Work/Dissertation within the stipulated date for a particular semester, he/she may be permitted with the approval of the Head of the Department to submit the Project Work/Dissertation report during the succeeding semesters, within the maximum period of **FIVE** years from the date of admission to the first semester. Project/Dissertation evaluation and Viva-Voce shall be conducted by one external examiner and one internal examiner who shall normally be the project guide.

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 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 detail of the ESE is as follows:

External Component			
Assessment type	**Comprehensive**	**Maximum Mark**	**% 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- lineor along with the regular ESE.

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.

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 answerscript.
- Revaluation /obtaining photocopy of answer scripts is permissible <u>only for the current semester papers and not for any arrear paper.</u>

- For re-valuation, the answer papers will be valued by two external examiners separately and the average mark of the valuations will be taken intoaccount.
- The revaluation results will be forwarded to the Principal within 15 working days.
- 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.

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 thesemesters.

Conversion of Marks to Grade Points and Letter Grade (Performance in a paper/course)

<table>
<tr><th colspan="2">Range of Marks</th><th colspan="2">Grade Points</th><th colspan="2">Letter Grade</th><th colspan="2">Description</th></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">50-59</td><td colspan="2">5.0-5.9</td><td colspan="2">B</td><td colspan="2">Average</td></tr>
<tr><td>PG</td><td>UG</td><td>PG</td><td>UG</td><td>PG</td><td>UG</td><td>PG</td><td>UG</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.Com (Hons)</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

<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">PG & UG</td><td colspan="2">PG & UG</td><td colspan="2">PG & UG</td></tr>
<tr><td colspan="2">9.5-10.0</td><td colspan="2">O+</td><td colspan="2">First Class – Exemplary*</td></tr>
<tr><td colspan="2">9.0 and above but below 9.5</td><td colspan="2">O</td><td colspan="2">First class-outstanding*</td></tr>
<tr><td colspan="2">8.5 and above but below 9.0</td><td colspan="2">D++</td><td colspan="2">First Class with Distinction*</td></tr>
<tr><td colspan="2">8.0 and above but below 8.5</td><td colspan="2">D+</td><td colspan="2"></td></tr>
<tr><td colspan="2">7.5 and above but below 8.0</td><td colspan="2">D</td><td colspan="2"></td></tr>
<tr><td colspan="2">7.0 and above but below 7.5</td><td colspan="2">A++</td><td colspan="2">First Class</td></tr>
<tr><td colspan="2">6.5 and above but below 7.0</td><td colspan="2">A+</td><td colspan="2"></td></tr>
<tr><td colspan="2">6.0 and above but below 6.5</td><td colspan="2">A</td><td colspan="2"></td></tr>
<tr><td colspan="2">5.5 and above but below 6.0</td><td colspan="2">B+</td><td colspan="2">Second Class</td></tr>
<tr><td colspan="2">5.0 and above but below 5.5</td><td colspan="2">B</td><td colspan="2"></td></tr>
<tr><th>PG</th><th>UG</th><th>PG</th><th>UG</th><th>PG</th><th>UG</th></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>U</td><td>C+</td><td rowspan="3">Re-appear</td><td rowspan="2">Third Class</td></tr>
<tr><td>4.0 and above but below 4.5</td><td></td><td>C</td></tr>
<tr><td>0.0 and above but below 4.0</td><td></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, Elective, Project and Internship courses) alone are eligible.**

Grading For a Semester/Year

GRADE POINT AVERAGE [GP] = $\sum_i C_i G_i / \sum_i C_i$

$$GPA = \frac{\text{Sum of the multiplication of grade points by the credits of the courses}}{\text{Sum of the credits of the courses (passed) in a semester/year}}$$

For the entire Programme

CUMULATIVE GRADE POINT AVERAGE [CGPA] = $\sum_n \sum_i C_{ni} G_i / \sum_n \sum_i C_{ni}$

$$CGPA = \frac{\text{Sum of the multiplication of grade points by the credits of the entire programme}}{\text{Sum of the credits of the courses of the entire programme}}$$

(CGPA is calculated only if the candidate has passed in all the courses in the entire programme)

C_1 = Credits earned for course *i* in any semester / year.
G_1 = Grade Point obtained for course *i* in any semester / year.
n refers to the semester/year in which such courses were credited.
C_i = Credits earned for course i in any semester.
G_n = 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

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6. REQUIREMENT FOR PROCEEDING TO SUBSEQUENT SEMESTER

- Candidates shall register their names for the first semester examination after admission in the UG courses.
- 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

7. ISSUE OF CERTIFICATES

a. Mark Sheet

Mark sheets will be issued every semester to all students who have taken the examination.

b. 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.

c. 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.

d. 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.

e. 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.

f. Issue of Duplicate Mark Sheet

In case of loss of mark sheet / certificate, a duplicate may 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.

g. Duplicate Provisional Certificate / Degree Certificate:

Students have to apply directly to the University of Madras for duplicate provisional certificate and degree certificate.

h. Verification of Qualification

The agencies who requests for verification of educational qualifications of students under autonomous mode of this college and students who opt for higher studies / employment and who requires 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.

8. CONVOCATION AND NOTICE

a. 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 admin office.

b. 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 PRACTICAL

QUESTION ALLOTMENT	**MAXIMUM 100 MARKS** **PASSING MINIMUM 50 MARKS** **THREE HOURS DURATION**
QUESTION 1-10 **Answer ALL questions**	**PART- A (10x2=20 MARKS)** **ANSWER ALL QUESTIONS** **EACH QUESTION CARRIES 2 MARK**
QUESTION 11-17 **Answer any FIVE questions**	**PART- B (5x7=35 MARKS)** **ANSWER ANY FIVE QUESTIONS** **EACH QUESTION CARRIES 7 MARKS**
QUESTION 18-22 **Answer any THREE questions**	**PART- C (3x15=45 MARKS)** **ANSWER ANY THREE QUESTIONS** **EACH QUESTION CARRIES 15 MARKS**

GURU NANAK COLLEGE (AUTONOMOUS), CHENNAI – 600 042

With Effect From 19-1-2017

(Batch : 2016-19 – From III Semester Onwards)

(Batch : 2017-20 – From I Semester Onwards)

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS (MCA)

SEMESTER – I			
Subject	**Subject Title**	**Credits**	**No. of Hours**
Core-1	Problem Solving and Programming in C	4	5
Core-2	Digital Computer Fundamentals	4	5
Core-3	Open Source Technologies	4	5
Core-4	Practical - I : Programming in C	2	4
Core-5	Practical - II : Open Source Technology Lab	2	4
Non-Major Elective	Mathematics and Statistical Methods for Computer Science	5	6
Soft Skill-1	Language and Communication Skill	2	1
	Total	**23**	**30**

SEMESTER – II			
Subject	**Subject Title**	**Credits**	**No. of Hours**
Core-6	C++ and Data Structures	4	5
Core-7	Advanced Internet Technologies	4	5
Core-8	Operating Systems	4	5
Core-9	Practical - III : C++ and Data Structures Lab	2	4
Core-10	Practical - IV : Advanced Internet Technologies Lab	2	4
Extra-Disciplinary	Accounting and Financial Management	4	6
Soft Skill-2	Presentation Skill	2	1
	Total	**22**	**30**

SEMESTER – III			
Subject	**Subject Title**	**Credits**	**No. of Hours**
Core-11	Java Programming	4	5
Core-12	Computer Communication and Networking	3	4
Core-13	Web Development using PHP and MySQL	3	4
Core-14	Software Engineering and Project Management	3	4
Core-15	Computer Graphics	3	4
Core-16	Practical - V : Programming In Java Lab	2	4
Core-17	Practical - VI : PHP and MySQL Lab	2	4
Soft Skill-3	Managerial Skill	2	1
	Total	**22**	**30**

SEMESTER – IV			
Subject	**Subject Title**	**Credits**	**No. of Hours**
Core – 18	Advanced Java Programming (J2EE)	4	4
Core – 19	Python Programming	4	5
Core – 20	Advanced Database Management System	4	4
Core – 21	Software Testing and Quality Assurance	4	4
Elective -1	Elective - I	3	4
Core – 22	Practical - VII : J2EE Lab	2	4
Core – 23	Practical - VIII : Python Programming Lab	2	4
Soft Skill-4	Quantitative Aptitude	2	1
	Total	**25**	**30**

Elective – I	Cloud Computing
	Mobile Computing
	Parallel Computing
	Distributed Computing

SEMESTER – V			
Subject	**Subject Title**	**Credits**	**No. of Hours**
Core – 24	.NET Technologies	4	5
Elective-2	Elective - II	4	5
Elective-3	Elective - III	3	5
Elective-4	Elective - IV	3	5
Core – 25	Practical - IX : .NET Lab	2	4
Core - 26	Practical - X : Mini Project	2	5
Soft Skill-5	Group Discussion	2	1
Internship	During Summer Vacation of IV Sem 6 to 8 Weeks	3	-
	Total	**23**	**30**

Elective - II	Data Mining and Warehousing
	Big Data Analytics
	Wireless Communication
	Latest Technology - I
Elective - III	MATLAB Programming
	Object Oriented Analysis and Design
	Design and Analysis of Algorithm
	Latest Technology - II
Elective - IV	Information Security
	Enterprise Resource Planning
	e-Commerce
	Human Resource Management

SEMESTER – VI			
Subject	**Subject Title**	**Credits**	**No. of Hours**
Soft Skill-6	Content Writing	2	5
Project	Project and Viva-Voce	18	25
	Total	**20**	**30**

OVERALL	**Credits**	**No. of Hours**
	135	**180**

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 IN C

SUBJECT CODE : 17PMCAC01	THEORY	MARKS : 100
SEMESTER : I	CREDITS : 4	Total No of Hours : 75

COURSE OBJECTIVES:

- To introduce basic programming concepts and fundamentals of C programming.
- At the end of this course students would be comfortable in C programming.

UNIT-I : **(15 Hours)**

Introduction – The Problem Solving aspect- Top down design- Algorithm- Flow Chart-System software, application software, compiler, interpreter, Loader, Linker, utility program, programming languages.

UNIT-II : **(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-III : **(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-IV : **(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-V : **(15 Hours)**

Pointers - pointer operators - arrays and pointers - Dynamic memory allocation - File Management in C - Files and Streams - File handling functions - Command Line Arguments.

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.

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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	**Essay** Answer any 3 out of 5 questions (Each in 1200 words)	18-22	15	45

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		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– II

DIGITAL COMPUTER FUNDAMENTALS

SUBJECT CODE : 17PMCAC02	**THEORY**	**MARKS : 100**
SEMESTER : I	**CREDITS : 4**	**Total No of Hours : 75**

COURSE OBJECTIVES:

- Digital electronics enables the students to learn about the number system, different gates and flip flops.
- Computer organization helps the students to learn different architecture and Processors that are used in the computers.

UNIT-I: **(15 Hours)**

Number System – Converting numbers from one base to another – Complements – Binary Codes – Integrated Circuits – Boolean algebra – Properties of Boolean algebra – Boolean functions – Canonical and Standard forms – Logical Operations – Logic gates – Karnaugh Map up to 4 variables – Don't Care Condition – Sum of Products and Products of Sum simplification – Tabulation Method.

UNIT-II : **(15 Hours)**

Adder – Subtractor – Code Converter – Analyzing a combinational Circuit – Multilevel NAND and NOR circuits – Properties of XOR and equivalence functions – Binary Parallel Adder – Decimal Adder – Magnitude Comparator – Decoders – Multiplexers – ROM – PLA.

UNIT-III : **(15 Hours)**

Flip Flops – Triggering of flip-flops – Analyzing a sequential circuit – State reduction – excitation tables – Design of sequential circuits – Counters – Design with state equation – Registers – Shift Registers – Ripple and synchronous Counters.

UNIT-IV: **(15 Hours)**

Memory Unit – Processor Organization - Bus Organization – Scratch Pad memory – ALU – Design of ALU – Status Register – Effects of Output carry – Design of Shifter – Processor Unit – Microprogramming – Design of specific Arithmetic Circuits

UNIT-V: **(15 Hours)**

Accumulator – Design of Accumulator – Computer Design – System of Configuration – Instruction and Data formats – Instruction sets – Timing and Control – Execution of Instruction – Design of Computer – Hardwired control – PLA Control and Microprogram control.

Recommended Texts:

1. M. Morris Mano, 2011, Digital Logic and Computer Design, Thirteenth Impression, Pearson Education, Delhi

Reference Books:

1. M. M. Mano and C.R.Kime, 2001, Logic and Computer Design Fundamentals, 2nd Edition, Pearson Education, Delhi.
2. Givone, 2002, Digital Principles Design, Tata McGraw Hill, New Delhi.
3. C.H.Roth,Jr,2005,Fundamentals of Logic Design, 5th Edition, Thomson Learning.

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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	1	
	Unit - 5	1	
Section C	Unit - 1	1	
	Unit - 2	1	
	Unit - 3	1	
	Unit - 4	1	
	Unit - 5	1	

CORE - III
OPEN SOURCE TECHNOLOGIES

SUBJECT CODE : 17PMCAC03	**THEORY**	**MARKS : 100**
SEMESTER : I	**CREDITS : 4**	**Total No of Hours : 75**

COURSE OBJECTIVES:

- To understand basic idea of Open source licensing aspects and basic Linux commands.
- After completion students are able to work in the open source technologies – Linux Platform.

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 edition(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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CORE - IV

PRACTICAL - I : PROGRAMMING IN C

SUBJECT CODE 17PMCAC04P	**PRACTICAL**	**MARKS : 100**
SEMESTER : I	**CREDITS : 2**	**Total No of Hours : 60**

COURSE OBJECTIVES:

- Students are given practical training in C programming.
- After completion students are able to write C program for application under the windows environment.

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 - V

PRACTICAL - II : OPEN SOURCE TECHNOLOGY LAB

SUBJECT CODE :17PMCAC05P	**PRACTICAL**	**MARKS : 100**
SEMESTER : I	**CREDITS : 2**	**Total No of Hours : 60**

COURSE OBJECTIVES:

- To understand the basic idea of open source technologies and basic UNIX commands.
- After completion students are able to work in UNIX platform

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.

NON MAJOR ELECTIVE

MATHEMATICS AND STATISTICAL METHODS FOR COMPUTER SCIENCE

SUBJECT CODE : 17PMCAE01	**THEORY**	**MARKS : 100**
SEMESTER : I	**CREDITS : 5**	**Total No of Hours : 90**

COURSE OBJECTIVES:

- To understand the basic mathematical concepts and Numerical methods for computing related applications. Also it introduces the basic Statistical Methods for computing related applications.
- After completion students are able to work in complex mathematical and statistical real time problems.

UNIT-I: **(18 Hours)**

Mathematical Logic: Statement Calculus – Connectives – normal forms – Predicate Calculus – Theory of inference for statement Calculus – Predicate Calculus including theory of inference.

UNIT-II: **(18 Hours)**

Set Theory: Basic concepts of set theory – relations and ordering – functions –recursion.
Algebraic Structures: Semigroups – monoids– groups and subgroups.

UNIT-III: **(18 Hours)**

Probability : Basic concepts - Baye's formula - Random Variables (Discrete and Continuous) and Distribution functions - Expectation and variance - moment generation function.
Distributions: Conditional and Marginal Distributions - Binomial, Poisson and Normal Distribution.

UNIT-IV: **(18 Hours)**

Correlation and Regression: Correlation Coefficient- Rank Correlation-Linear Regression. Sampling : Basic Concepts - Methods of sampling - Sampling Distribution and standard error - Tests of Hypotheses - Critical Region - two types of Errors.

UNIT-V: **(18 Hours)**

Level of significance - Large sample tests for mean and proportion - Exact tests based on Normal, t, F and Chi-square distributions.

PRESCRIBED BOOKS :

1. J.P. Tremblay and R. Manohar, 2007, "Discrete Mathematical Structures with Applications to Computer Science", Tata McGraw-Hill, New Delhi
2. Mood, A.M., Graybill, F. and Boes, 1974, "Introduction to Mathematical Statistics", Tata McGraw-Hill.
3. Trivedi, K.S, 1994, Probability and Statistics with Reliability, Queuing and Computer Science Applications. Prentice Hall India, New Delhi.
4. P.R.Vittal and V.Malini, Statistical and Numerical Methods, Margham Publications, Chennai.

REFERENCE BOOKS :

1. J. Truss, 1999, Discrete Mathematics for Computer Scientists, 2nd Edn., Addison Wesley, Boston.

2. Kolman, Busby and Ross, 2005, Discrete mathematical structures, 5th edition, PHI, NewDelhi.

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SOFT SKILL – 1

LANGUAGE AND COMMUNICATION SKILL

SUBJECT CODE : 16PGSLS01B	**SOFT SKILL**	**MARKS : 100**
SEMESTER : I	**CREDITS : 2**	**Total No of Hours : 15**

COURSE OBJECTIVES:

- Students are trained in basic communication skills and this helps them to have command over the language.
- After these training students are able to communicate well and this will help them to grow in corporate.

UNIT-I : **(3 Hours)**

Twinning Functions of Listening and Speaking.

UNIT-II: **(3 Hours)**

Twinning Functions of Reading and Writing.

UNIT-III : **(3 Hours)**

Individual Communication.

UNIT-IV: **(3 Hours)**

Intermediary Communication.

UNIT-V: **(3 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 - VI
C++ AND DATA STRUCTURES

SUBJECT CODE : 16PMCAC06	**THEORY**	**MARKS : 100**
SEMESTER : II	**CREDITS : 4**	**Total No of Hours : 75**

COURSE OBJECTIVES:

- To understand C++ programming concepts and data structures for computing related applications.
- At the end of this training student will be able to write C++ programs using data structures concepts.

UNIT-I : **(15 Hours)**

Introduction to OOP – Overview of C++ - Classes – Structures – Union –Arrays-Functions-function overloading –Friend Functions- – Inline functions- Scope Resolution Operator- Dynamic memory Allocation- Static Members.

UNIT-II : **(15 Hours)**

Class- Objects- Constructor - Overloading Constructors –Destructor – Operator Overloading – Member Operator Function- Friend Operator Function, Exception Handling.

UNIT-III : **(15 Hours)**

Inheritance – Types of Inheritance – Protected members – Virtual base Class – Polymorphism – Virtual functions – Pure virtual functions, Streams- File I/O.

UNIT-IV : **(15 Hours)**

Abstract data types - asymptotic notations – complexity analysis – Arrays- operations on arrays- Linked lists: Singly linked list- circular linked lists - doubly linked lists – stacks -queues - circular queues – Evaluation of expressions.

UNIT-V : **(15 Hours)**

Trees – Binary Trees – Binary Tree Traversals – Binary Tree Representations – Binary Search Trees- Representation of Graphs – Graph Implementation – Graph Traversals- Minimum Cost Spanning Trees.

PRESCRIBED BOOKS :

1. H. Schildt, 2003, C++ The Complete Reference, 4th Edition, Tata McGraw-Hill, New Delhi
2. E.Horowitz, S. Sahni and Mehta, 1999, Fundamentals of Data Structures in C++, Galgotia, New Delhi

REFERENCE BOOKS :

1. Johnston, 2002, C++ programming today, PHI, New Delhi.
2. A. N Kanthane, 2005, Object Oriented Programming with ANSI & Turbo C++, Pearson Education, New Delhi.
3. G. L. Heileman, 1996, Data Structures, Algorithms and Object Oriented Programming, Tata McGraw-Hill, New Delhi.

4. A.V.Aho, J.D. Ullman, J.E. Hopcraft, 1983, Data Structures and Algorithms, Addison Wesley, Boston.

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CORE - VII
ADVANCED INTERNET TECHNOLOGIES

SUBJECT CODE : 16PMCAC07	**THEORY**	**MARKS : 100**
SEMESTER : II	**CREDITS : 4**	**No. OF HOURS PER WEEK : 5**

COURSE OBJECTIVES:

- Students are trained to develop web page, manage them and maintenance. They learn the concepts of developing advanced HTML pages with the help of frames, scripting languages, and evolving technologies.
- At the end of the session students are capable of working in web Technologies like HTML, CSS.

UNIT-I : **(15 Hours)**

Getting started with HTML5 and CSS3 - An overview of HTML and CSS on Web, Meeting the structure and component of HTML, Creating and viewing a webpage.HTML document and Structure – using Text and List – Tip Top tables in HTML, working with forms in HTML, getting with text in HTML, Working with IMAGES, managing media in HTML.

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)**

Internet basics – internet, intranet overview , internet reference models – Domain name systems - internet services – connectivity – Email protocols – Email working, operations – Email Etiquettes – security – Email providers – website type – website development – phishing.

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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	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

OPERATING SYSTEMS

SUBJECT CODE : 16PMCAC08	**THEORY**	**MARKS : 100**
SEMESTER : II	**CREDITS : 4**	**Total No of Hours : 75**

COURSE OBJECTIVES:

- Operating systems enables the students to study the basic concepts of memory management, storage management and the file systems.
- At the end of session students will have depth of 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, Interprocess 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	
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	Unit - 2	1	
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	Unit - 4	1	
	Unit - 5	1	

CORE – IX

PRACTICAL - III : C++ AND DATA STRUCTURES LAB

SUBJECT CODE :16PMCAC09P	**PRACTICAL**	**MARKS : 100**
SEMESTER : II	**CREDITS : 2**	**Total No of Hours : 60**

COURSE OBJECTIVES:

- This practical session helps the students to learn data structures concepts using C++.
- At the end of this session students are able to write programs in C++ code for data structures.

C++

1. Implementation of Class and Object
2. Implementation of function overloading.
3. Implementation of Constructor overloading.
4. Add two private data members using friend function.
5. Implementation of Inheritance.
6. Program for File Operations.

Data Structures

7. Implementation of Arrays(Single and Multidimensional)
8. Implementation of Stack
9. Implementation of Queue
10. Evaluation of Expressions- ITP (Infix to Prefix).
11. Implementation of Singly Linked List
12. Binary Tree Traversals using recursion.

CORE -X

PRACTICAL - IV : ADVANCED INTERNET TECHNOLOGIES LAB

SUBJECT CODE : 16PMCAC10P	**PRACTICAL**	**MARKS : 100**
SEMESTER : II	**CREDITS : 2**	**Total No of Hours : 60**

COURSE OBJECTIVES:

- This practical session aims to impart the students with concepts of internet programming like HTML5, CSS3 and different aspects of web technology.
- At the end of this practical session students are able to develop dynamic web applications.

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.

EXTRA DISCIPLINARY

ACCOUNTING AND FINANCIAL MANAGEMENT

SUBJECT CODE : 17PMCAE02	**THEORY**	**MARKS : 100**
SEMESTER : II	**CREDITS : 4**	**Total No of Hours : 90**

COURSE OBJECTIVES:

- The objective of this paper is to teach them basic concepts of accounting and financial management.
- After completion, student should be able work and analyze financial statements of a business process.

UNIT-I : (18 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: (18 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 : (18 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: (18 Hours)

Budget/Forecasting: preparation of and Characteristics of functional budgets, Production, sales, Purchases, cash and flexible budgets.

UNIT-V : (18 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 (Recent edition)
2. Khan and Jain "Financial Management" Tata McGraw Hill (Recent Edition).

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SOFT SKILL - II

PRESENTATION SKILL

SUBJECT CODE : 16PGSLS02D	**SOFT SKILL**	**MARKS : 100**
SEMESTER : II	**CREDITS : 2**	**Total No of Hours : 15**

COURSE OBJECTIVES:

- Students are inculcated the significance of Soft-skills both for personal and professional Success.
- After completion students will have positive attitude and they become confident in effective verbal and non-verbal Communication.
-

UNIT-I : (3 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 : (3 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 : (3 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: (3 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: (3 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 - XI

JAVA PROGRAMMING

SUBJECT CODE : 16PMCAC11	**THEORY**	**MARKS : 100**
SEMESTER : III	**CREDITS : 4**	**Total No of Hours : 75**

COURSE OBJECTIVES:

- To understand basic aspects of Java technologies including designing the forms using java swings and the connectivity that needs to be established with the data base.
- At the end of this session students are able to write programs in Java.

UNIT-I : **(15 Hours)**

Introduction to Java - Features of Java - Object Oriented Concepts - Lexical Issues - Data Types -Variables - Arrays - Operators - Control Statements. Classes - Objects - Constructors - Overloading method - Access Control - Static and fixed methods – Nested Classes-Inner Classes - String Class.

UNIT-II: **(15 Hours)**

Inheritance -Overriding methods - Using super-Abstract class- Packages - Access Protection - Importing Packages - Interfaces - Exception Handling - Throw and Throws – Multithreaded Programming-Thread Model- Thread Priorities- Synchronization - Messaging -Runnable Interface - Inter thread Communication - Deadlock - Suspending, Resuming and stopping threads using Multithreading.

UNIT-III : **(15 Hours)**

I/O Streams – Byte and character streams – Reading Console Input - Writing Console Output- String Handling- String Buffer- Simple Type Wrappers- Java Utilities.

UNIT-IV: **(15 Hours)**

Applets – Event Handling – Working with Windows, Graphics and Text using AWT Classes – AWT Controls – Layout Managers – Menus – User Interface Components with Swings: Controls, Menus, Dialog Boxes

UNIT-V: **(15 Hours)**

JDBC Overview – JDBC implementation – Connection class – Statements - Catching Database Results, handling database Queries. Networks basics -InetAddress class – URL class.

PRESCRIBED BOOKS :

1. Patrick Naughton and Herbertz Schidt, “Java –2 The Complete Reference”, Fifth edition
2. Head First Java –Bert bates, Kathy sierra, Publishers: O’Reilly Media

REFERENCE BOOKS :

1. Ivor Horton “Beginning Java”, Wrox publication.
2. Antonio Goncalves “Beginning Java EE 6 with GlassFish2, 2nd Edition”, Apress publication

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	Unit - 4	1	
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CORE - XII

COMPUTER COMMUNICATION AND NETWORKING

SUBJECT CODE : 16PMCAC12	THEORY	MARKS : 100
SEMESTER : III	CREDITS : 3	Total No of Hours : 60

COURSE OBJECTIVES:

- To understand the basic aspects of Networking and different protocols that are used in establishing Network communication.
- At the end of the session students will be able independently build infrastructures using systems.

UNIT-I: **(12 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: **(12 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: **(12 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: **(12 Hours)**

LAN Protocols: Ethernet - Token Ring - Token Bus - FDDI - Addressing and Frame format – Bridges - LAN Security: Types of threats - Levels of security Case Study: Novell Netware - Wireless LAN: need - components - Receiving Devices - advantages &disadvantages.

UNIT-V: **(12 Hours)**

TCP/IP Networking : TCE/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. Data Communication and Networking, Behruz A. Ferouzon, Tata McGraw, 2004.

REFERENCE BOOKS :

1. Computer Networks - III edition - Andrew S. Tanenbaum - Pearson Edun. 1998.
2. Data and Computer Communication – William Stallings, Pearson Education, 5th Edition, September 2000.
3. Data and Computer Communication – William Stallings, Pearson Education, 5th Edition, September 2000

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 - 3	2	
	Unit - 4	2	
	Unit - 5	2	
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CORE - XIII

WEB DEVELOPMENT USING PHP AND MYSQL

SUBJECT CODE : 16PMCAC13	**THEORY**	**MARKS : 100**
SEMESTER : III	**CREDITS : 3**	**Total No of Hours : 60**

COURSE OBJECTIVES:

- To introduce the basic concepts of PHP, JQuery and MY SQL database.
- At the end of the session should be able to write PHP programs and My Sql database and deploy them in servers.

UNIT-I: **(12 Hours)**

Brief Introduction to Apache, MySQL, PHP, and Open Source -Overview of PHP Structure and Syntax-How PHP Fits with HTML -The Rules of PHP Syntax-Integrating HTML with PHP-Overview of Constants -Overview of Variables-Passing Information with Forms-: Introduction to PHP and MySQL: Evaluation of Php -Basic Syntax -Defining variable and constant.

UNIT-II: **(12 Hours)**

Php Data type -Operator and Expression-Decision Making-Loops-Php Functions - built in functions(print(), include(), header(), phpinfo()), PHP server Variables, working with date and time , performing mathematical operations , working with string functions . System Variable (GET, POST, Cookies & Session, Forums).

UNIT-III: **(12 Hours)**

Working with PHP and Arrays of Data: foreach Using Tables to Display Data. Multidimensional Arrays,, File Handling.

UNIT-IV: **(12 Hours)**

Form Elements-FORM Element:INPUT Element-Processing the Form-One Form, Multiple Processing-Radio INPUT Element-Multiple Submit Buttons. Adding Links to the Table.

UNIT-V: **(12 Hours)**

MySQL Server Start and Stop, Defining a Database- Creating Tables and Fields in MYSQL, Adding new Records- Viewing individual rows- Delete- Edit and Search data-Handling and Avoiding Errors.

PRESCRIBED BOOKS :

1. Timothy Boronczyk, Elizabeth Naramore, Jason Gerner “Beginning PHP6, Apache, MySQL web Development”, Wrox Publication.
2. Kevin Yank “Build your own Database Driven Website using PHP and MySQL”

REFERENCE BOOKS :

1. Vikram Vasvani “How to do everything with Php & MySQL”, Mc-Graw Hill.

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CORE - XIV

SOFTWARE ENGINEERING AND PROJECT MANAGEMENT

SUBJECT CODE : 16PMCAC14	**THEORY**	**MARKS : 100**
SEMESTER : III	**CREDITS : 3**	**Total No of Hours : 60**

COURSE OBJECTIVES:

- Software engineering concepts helps the students to understand and handle software projects.
- At the end students are able to work in software development and maintenance project.

UNIT-I: **(12 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. Software Process customization and improvement, CMM, Product and Process Metrics.

UNIT-II: **(12 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, Use case Modeling, System and Software Requirement Specifications, Requirement Validation, Traceability.

UNIT-III: **(12 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, SA/SD Component Based Design, Design Metrics.

UNIT-IV: **(12 Hours)**

Software Analysis and Testing : Software Static and Dynamic analysis, Code inspections, Software Testing Fundamentals, Software Test Process, Testing Levels, Test Criteria, Test Case Design, Test Oracles, Test Techniques, Black-Box Testing, White-Box Unit Testing and Unit Testing Frameworks, Integration Testing, System Testing and other Specialized Testing, Test Plan, Test Metrics.

UNIT-V: **(12 Hours)**

Software Maintenance & Software Project Measurement : Need and Types of Maintenance, Software Configuration Management (SCM), Software Change Management, Version Control, Change control and Reporting, Program Comprehension Techniques, Re-engineering, Reverse Engineering, Tool Support. Project Management Concepts, Feasibility Analysis, Project and Process Planning, Resources Allocations, Software efforts, Schedule, and Cost estimations, Project Scheduling and Tracking, Risk Assessment and Mitigation, Software Quality Assurance (SQA), Project Plan, Project Metrics.

PRESCRIBED BOOKS :

1. Sommerville,"Software Enginerring",Pearson Education.
2. Richard H.Thayer,"Software Enginerring & Project Managements",Willey India

3. Roger S. Pressman, “Software Engineering – A practitioner’s Approach”, Sixth Edition, McGraw-Hill International Edition, 2005.

REFERENCE BOOKS :

1. Pankaj Jalote ,”An Integrated Approach to Software Engineering”, Narosa Pub, 2005
2. Rajib Mall, “Fundamentals of Software Engineering” Second Edition, PHI Learning .

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CORE - XV

COMPUTER GRAPHICS

SUBJECT CODE : 16PMCAC15	**THEORY**	**MARKS : 100**
SEMESTER : III	**CREDITS : 3**	**Total No of Hours : 60**

COURSE OBJECTIVES:

- This paper introduces the basic concepts of Computer Graphics which shall be useful for virtual modeling and enables the students to have knowledge in multimedia using graphics.
- At the end the session students are able to work in multimedia technologies.

UNIT-I: (12 Hours)

Introduction to computer graphics : Brief Survey of Computer Graphics – Graphics Systems: Video Display Devices – Types – Raster-Scan Systems and Random-Scan Systems.

UNIT-II: (12 Hours)

Output primitives and their attributes line-Drawing (DDA and Bresenham's) Algorithms – Circle-Generating (Midpoint) Algorithm – Ellipse-Generating (Midpoint) Algorithms- Area-Filling (Boundary-Fill and Flood-Fill) Algorithms.

UNIT-III: (12 Hours)

Line Attributes - Color and Grayscale Levels – Character Attributes – Inquiry Functions. Two-dimensional transformations and viewing : Basic Transformations - Matrix Representations and Homogeneous Coordinates – Composite Transformations – Other Transformations –Reflection-shear-Window-to- Viewport Coordinate Transformation – Clipping Algorithms: Cohen-Sutherland Line Clipping -Polygon Clipping.

UNIT-IV: (12 Hours)

Interactive Input Methods: Logical Classification of Input Devices – Interactive Picture-Construction Techniques-Three-dimensional concepts and viewing: Three-Dimensional Display Methods: Parallel and Perspective Projections – Depth Cueing - Visible Line and Surface Identification.

UNIT-V: (12 Hours)

Three-Dimensional Transformations: Basic, Other and Composite Transformations- Viewing Pipeline and Coordinates- Transformation from World to Viewing Coordinates- Hidden Surface and Hidden Line Elimination Methods: Back-Face Detection , Depth-Buffer(Z Buffer).

PRESCRIBED BOOKS :

1. D. Hearn and M.P.Baker, 2007, Computer Graphics, 2nd Edition, Pearson Education, Prentice Hall, 19th Reprint.

REFERENCE BOOKS :

1. S. Harrington, Computer Graphics , 2nd Edition , McGraw-Hill Book Co. ,1994.

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CORE - XVI

PRACTICAL - V : PROGRAMMING IN JAVA LAB

SUBJECT CODE : 16PMCAC16P	**PRACTICAL**	**MARKS : 100**
SEMESTER : III	**CREDITS : 2**	**Total No of Hours : 60**

COURSE OBJECTIVES:

- Students are trained to develop basic Java programs using different concepts of java.
- At the end of the session students are capable of developing Java programs

APPLICATION

1. Program to find the average and sum of the N numbers Using Command line argument.
2. Program to Test the Prime number.
3. Determining the order of numbers generated randomly using Random Class.
4. Usage of Calendar Class and manipulation.
5. String Manipulation using Char Array.
6. Database Creation for storing e-mail addresses and manipulation.
7. Usage of Vector Classes.
8. Implementing Thread based applications & Exception Handling.

APPLETS

9. Program to draw a picture using line, Rectangle, oval, text of graphics method.
10. Program to implement Font and Color class.
11. Working with Dialogs and Menus using Frames.
12. Working with Panel and Layout in Swing.
13. Program to create JFrame that display the student information.
14. MultiUser chat Application using Socket Class.

APPLICATION FOR EVENTS HANDLING

15. Application Using JDBC Connectivity

CORE - XVII

PRACTICAL - VI : PHP AND MYSQL LAB

SUBJECT CODE : 16PMCAC17P	**PRACTICAL**	**MARKS : 100**
SEMESTER : III	**CREDITS : 2**	**Total No of Hours : 60**

COURSE OBJECTIVES:

- Students are trained in PHP, designing web pages using PHP the connectivity that needs to be established with the data base is done through My SQL.
- At the end of session students should be able to write and deploy a PHP program in Server.

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 Querystring (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

SOFT SKILL – III
MANAGERIAL SKILL

SUBJECT CODE : 16PGSLS03E	**SOFT SKILL**	**MARKS : 100**
SEMESTER : III	**CREDITS : 2**	**Total No of Hours : 15**

COURSE OBJECTIVES:

- To help students to understand the mechanism of stress particularly negative emotions such as anxiety, anger and depression for effective management.
- To give inputs on some of the important interpersonal skills such as 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

ADVANCED JAVA PROGRAMMING (J2EE)

SUBJECT CODE : 16PMCAC18	**THEORY**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 4**	**Total No of Hours : 60**

COURSE OBJECTIVES:

- Students are imparted the knowledge of developing enterprise application in advanced java platform.
- At the end of the session they should be able to develop J2EE applications and deploy them in web servers and application servers.

UNIT-I : **(12 Hours)**

Servlet overview – the Java web server – your first servlet – servlet chaining – server side includes-Session management – security – HTML forms – using JDBC in servlets – applet to servlet communication

UNIT-II : **(12 Hours)**

JSP –Introduction JSP-Examining MVC and JSP -JSP scripting elements & directives-Working with variables scopes-Error Pages - using Java Beans in JSP Working with Java Mail-Understanding Protocols in Java mail-Components-Java mail API-Integrating into J2EE-Understanding Java Messaging Services-Transactions.

UNIT-III: **(12 Hours)**

RMI – Overview – Developing applications with RMI: Declaring & Implementing remote interfaces-stubs & skeletons, Registering remote objects, writing RMI clients –Pushing data from RMI Servlet – RMI over Inter-ORB Protocol.

UNIT-IV: **(12 Hours)**

EJB overview – Environment – creating application – stateless, stateful beans , message driven beans – persistence – annotations – call back, timer service – JNDI binding – query language – access database – exception handling.

UNIT- V : **(12 Hours)**

Spring framework – Architecture – environment setup – simple programs – IOC containers – Bean definition, scope and life cycle - dependency injections- injecting inner beans, injecting collection - Hibernate overview – architecture – configuration – session – persistence class – mapping files – O/R mapping – Annotation, query language.

PRESCRIBED BOOKS :

1. Introducing spring frame work – Felipee guttee, A press
2. Begging hibernate – Jelf Linwood, Second edition , A press

REFERENCE BOOKS :

1. J2ee 1.4 Bible, Wiley publications.

QUESTION PAPER PATTERN

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CORE– XIX

PYTHON PROGRAMMING

SUBJECT CODE : 16PMCAC20	**THEORY**	**MARKS : 100**
SEMESTER :IV	**CREDITS : 4**	**Total No of Hours : 75**

COURSE OBJECTIVES:

- To introduce the students to Python Application Development and Deployment
- To impart skills for developing desktop and windows applications using Python.

UNIT-I: **(15 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 : **(15 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 : **(15 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 - New Iterables in Python 3.X - Other Iteration Topics - Functions and Generators

UNIT-IV : **(15 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 : **(15 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 – Meta classes.

PRESCRIBED BOOKS :

1. Mark Lutz , "Learning Python, Powerful Object-Oriented Programming", 5th Edition O'Reilly Media.

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	Unit - 5	1	

CORE - XX

ADVANCED DATABASE MANAGEMENT SYSTEMS

SUBJECT CODE : 17PMCAC22	**THEORY**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 4**	**Total No of Hours : 60**

COURSE OBJECTIVES:

- Advanced database management systems enable the students to have clear understanding of SQL queries, storage aspects of the Database in oracle and SQL MS Server.
- At the end of the session students are able to work in databases and write SQL queries.

UNIT-I : **(12 Hours)**

Introduction : Definition of Data, Data base and DBMS – Need for database –Advantages of database Systems - File based database systems – Disadvantages –Record based database systems - Data base characteristics -Database terms : Concurrency, Consistency, Data Availability, Reliability, Transparency Data Integrity.

UNIT-II : **(12 Hours)**

Relational data structure: Relation – Domains & Attributes – Keys – Extensions – Intensions – Data structures – Tables – Data Integrity – Manipulation views – managing data concurrency in a multi–user system - Data Security – Data Availability.

UNIT-III : **(12 Hours)**

Table Columns, Rows, Primary Key, Secondary Key, Foreign key- E-R model: Entities and attributes – Relationships – One to one –One to many - Many to one – Many to Many relationships – Normalizing the model. Normalization: Introduction - 1NF - 2NF – 3NF.

UNIT-IV : **(12 Hours)**

Database Administration : DBA Tasks – DBA Tools – User Privileges - Data Definition Language: Statements - Data Manipulation Language – statements - Retrieval operations - SQL Commands : Selecting Columns from a table, Selecting Rows from a table – Update Operations.

UNIT-V : **(12 Hours)**

Simple query – where clause – group by – order by clauses -sub queries – correlated sub-queries. Constraints: Alter table – table-level constraints. Join – types – simple – Equi-join, Non-equi- join, self join, creating a view, querying a view of more than one table. Commit, rollback, save point- PL / SQL Basics - tables and records manipulations – control statements – Triggers - Cursor - exceptions – subprograms.

PRESCRIBED BOOKS :

1. Database Management System - Post, Gerald V ,Tata McGraw-Hill, 2004
2. Database Management System - Date ,C.J., Galgotia Publications
3. Fundamentals of Database System - Elmasri, R.A.,Navathe, Shyam B. Narosa Publishing House.
4. An introduction to Database Systems - Bipin C Desai Galgotia Publications Ltd., 2005

REFERENCE BOOKS :

1. Database Management Systems - Raghu Ramakrishnan Mc Graw Hill Publishing Company Limited, 2004.

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CORE – XXI

SOFTWARE TESTING AND QUALITY ASSURANCE

SUBJECT CODE : 16PMCAC23	THEORY	MARKS : 100
SEMESTER : IV	CREDITS : 4	Total No of Hours : 60

COURSE OBJECTIVES:

- To understand different types of testing that includes manual and Tool based testing and the quality aspects that needs to be followed in the software development process.
- At the end of the session students should be able to carry out effective testing and maintain the quality Assurance processes.

UNIT-I : **(12 Hours)**

Software Verification & Validation Activities : Verification & Validation Concepts - Verification & Validation Planning - Software inspections - Software Testing Fundamentals : Definition & Objectives - Types of software bugs - Bug life cycle - Testing lifecycle - Test Plan - Test Cases Definition, Test Case Designing.

UNIT-II : **(12 Hours)**

Black Box & White Box Testing : Functional Testing (Black Box) Equivalence partitioning, BVA - Syntax testing - Structural Testing (White Box) -Coverage testing : Statement coverage, Branch & decision coverage, Path coverage - Domain Testing - Black box vs. White Box.

UNIT-III **(12 Hours)**

Different types of Testing : Unit Testing - Integration Testing - System Testing–Performance, Load, Stress, Security, Recoverability - Regression Testing - Acceptance Testing-Alpha testing & Beta testing - Manual vs. Automatic testing.

UNIT-IV : **(12 Hours)**

Reviews :Introduction - Review types: Informal Review, Technical or peer review, Walkthrough and Review Meeting - Review Reporting & Record keeping, Review guidelines - Data flow analysis.

UNIT-V : **(12 Hours)**

Software Quality Assurance Fundamentals : Definitions of Quality – SQA Planning & Standards - SQA Activities – Building blocks of SQA – Quality factors – Software Quality Metrics Case Study : WINRUNNER, SILK TEST.

PRESCRIBED BOOKS :

1. Software Engineering R. Pressmen – TMH, 7th Edition.
2. Software Engineering Sommerville, Pearson, 8th Edition.
3. Software Testing in Real World Edward Kit, Pearson Pub.
4. Software Testing Techniques Boris Beizer, dreamTech pub, 2nd Edition.

REFERENCE BOOKS :

1. Software Testing Techniques Boris Beizer, dreamTech pub, 2nd Edition.

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ELECTIVE - I

CLOUD COMPUTING

SUBJECT CODE : 16PMCAE03	**THEORY**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 3**	**Total No of Hours : 60**

COURSE OBJECTIVES:

- To understand the basics knowledge of Cloud Computing that gives an insight into various aspects of Cloud Computing.
- At the end of the session students should be able to work different technologies in cloud environment.

UNIT-I : **(12 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 : **(12 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 : **(12 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 : **(12 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 : **(12 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.

PRESCRIBED BOOKS :

1. Michael Miller, Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online, Que Publishing, August 2008.
2. Kumar Saurabh, “Cloud Computing –Insights into New Era Infrastructure”, Wiley Indian Edition, 2011.

3. Haley Beard, Cloud Computing Best Practices for Managing and Measuring Processes for On-demand Computing, Applications and Data Centers in the Cloud with SLAs, Emereo Pty Limited, July 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	
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 - I

MOBILE COMPUTING

SUBJECT CODE : 16PMCAE16	**THEORY**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 3**	**Total No of Hours : 60**

COURSE OBJECTIVES:

- To understand the technology that allows transmission of data via computer without having connected to fixed physical link.
- At the end of the session students should have knowledge in mobile technologies

UNIT-I : **(12 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 : **(12 Hours)**

Telecommunication Systems – GSM – Architecture – Sessions – Protocols – Hand Over and Security – UMTS and IMT – 2000 – Satellite Systems.

UNIT-III : **(12 Hours)**

Wireless Lan - IEEE S02.11 – Hiper LAN – Bluetooth – Security and Link Management.

UNIT-IV :

Mobile network layer - Mobile IP – Goals – Packet Delivery – Strategies – Registration – Tunneling and Reverse Tunneling – Adhoc Networks – Routing Strategies.

UNIT-V : **(12 Hours)**

Mobile transport layer - Congestion Control – Implication of TCP Improvement – Mobility – Indirect – Snooping – Mobile – Transaction oriented TCP - TCP over wireless – Performance.

PRESCRIBED BOOKS :

1. J. Schiller, 2003, Mobile Communications,2nd edition, 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. Martyn Mallick, 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.

Website and e-Learning Source

1. http://csbdu.in/pdf/mobile%20communication.pdf

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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 - I

PARALLEL COMPUTING

SUBJECT CODE : 16PMCAE17	**THEORY**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 3**	**Total No of Hours : 60**

COURSE OBJECTIVES:

- To understand the architecture in which several processors execute an application simultaneously.
- At the end of the session students should have knowledge in parallel Computing.

UNIT-I : **(12 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 : **(12 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 : **(12 Hours)**

Introduction to Interconnection Networks - Network Properties- Design issues of Interconnection Network- Various Interconnection Networks-Concept of Permutation Network - Performance Metrics.

UNIT-IV : **(12 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- Synchronisation Principles- MultiTasking Environment.

UNIT-V : **(12 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.

PRESCRIBED BOOKS :

1. Rajaraman V. and Siva Ram Murthy C. *Parallel Computers - Architecture and Programming*, Second Edition, Prentice Hall of India, 2002.
2. Selim G.Akl *Parallel 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, Pavel Tvrdik, Frantisck Plasil, *Parallel Computers: Theory and Practice*, IEEE

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	Unit - 2	1	
	Unit - 3	1	
	Unit - 4	1	
	Unit - 5	1	

ELECTIVE - 1

DISTRIBUTED COMPUTING

SUBJECT CODE : 16PMCAE18	**THEORY**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 3**	**Total No of Hours : 60**

COURSE OBJECTIVES:

- To understand how the computation problems can be solved using computers in remote locations.
- At the end of the session students should have knowledge in distributed computing technologies

UNIT-I : **(12 Hours)**

Fundamentals : Evolution of Distributed Computing Systems, System models, issues in design of Distributed Systems, Distributed computing environment, web based distributed model, computer networks related to distributed systems and web based protocols. Message Passing : Inter process Communication, Desirable Features of Good Message-Passing Systems, Issues in IPC by Message, Synchronization, Buffering, Multi datagram Messages, Encoding and Decoding of Message Data, Process Addressing, Failure Handling, Group Communication.

UNIT-II : **(12 Hours)**

Remote Procedure Calls : The RPC Model, Transparency of RPC, Implementing RPC Mechanism, Stub Generation, RPC Messages, Marshaling Arguments and Results, Server Management, Communication Protocols for RPCs, Complicated RPCs, Client-Server Binding, Exception Handling, Security, Some Special Types of RPCs, Lightweight RPC, Optimization for Better Performance.

UNIT-III : **(12 Hours)**

Distributed Shared Memory: Design and Implementation issues of DSM, Granularity, Structure of Shared memory Space, Consistency Models, replacement Strategy, Thrashing, Other Approaches to DSM, Advantages of DSM.Synchronization : Clock Synchronization, Event Ordering, Mutual Exclusion, Election Algorithms.

UNIT-IV : **(12 Hours)**

Resource and Process Management - Desirable Features of a good global scheduling algorithm, Task assignment approach, Load Balancing approach, Load Sharing Approach, Process Migration, Threads, Processor allocation, Real time distributed Systems.

UNIT-V : **(12 Hours)**

Distributed File Systems-Desirable Features of a good Distributed File Systems, FileModels, File Accessing Models, File-shearing Semantics, Filecaching Schemes, File Replication, Fault Tolerance, Design Principles, Sun's network file system, Andrews file system, comparison of NFS and AFS.Naming- Desirable Features of a Good Naming System, Fundamental Terminologies and Concepts, Systems-Oriented Names, Name caches, Naming & security, DCE directory services.

PRESCRIBED BOOKS :

1. Distributed OS by Pradeep K. Sinha (PHI)
2. Tanenbaum S.: Distributed Operating Systems, Pearson Education
3. Tanenbaum S. Maarten V.S.: Distributed Systems Principles and Paradigms, (Pearson Education).

REFERENCE BOOKS :

1. George Coulouris, Jean Dollimore. Tim Kindberg: Distributed Systems concepts and design.

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	Unit - 3	1	
	Unit - 4	1	
	Unit - 5	1	
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	Unit - 3	1	
	Unit - 4	1	
	Unit - 5	1	

CORE - XXII

PRACTICAL - VII : J2EE LAB

SUBJECT CODE : 17PMCAC19P	**PRACTICAL**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 2**	**Total No of Hours : 60**

COURSE OBJECTIVES:

- Students are imparted the practical knowledge of developing enterprise application in advanced java platform.
- At the end of the session they should be able to develop and deploy J2EE applications using web servers and application servers.

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.

CORE - XXIII

PRACTICAL -VIII : PYTHON PROGRAMMING LAB

SUBJECT CODE : 16PMCAC21P	**PRACTICAL**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 2**	**Total No of Hours : 60**

COURSE OBJECTIVES:

- Students are given practical training in Python programming.
- After completion students are able to create Python application.

EXERCISES:

1. Write a Python program to get the Python version you are using and print the date and time details.
2. Write a Python program which accepts the user's first and last name and print them in reverse order with a space between them.
3. Write a Python program which accepts a sequence of comma-separated numbers from user and generate a list and a tuple with those numbers.
4. Write a Python program to display the examination schedule.
5. Write a Python program to print the calendar of a given month and year.
6. Write a python program to demonstrate the use of list.
7. Write a python program to demonstrate the use of Dictionaries.
8. Write a python program to demonstrate the use of Tuples.
9. Write a python program to demonstrate the use of Sets.
10. Data Structure concepts using Python.
11. Python file input and output operations.

SOFT SKILL - IV

QUANTITATIVE APTITUDE

SUBJECT CODE : 16PGSLS04I	**SOFT SKILL**	**MARKS : 100**
SEMESTER : IV	**CREDITS : 2**	**Total No of Hours : 15**

COURSE OBJECTIVES:

- Students are trained in Aptitude which include numerical problems .
- At the end of the session they should be able to clear aptitude test.

UNIT- I : **(3 Hours)**

Numbers, HCF, LCM, Decimal Fractions, Simplification, Square Roots, Cube roots, Averages.

UNIT- II : **(3 Hours)**

Problems in numbers and ages, Surds, Indices, Percentages, Profit and Loss, Ratio and Proportion, Partnership, Chain Rule.

UNIT- III : **(3 Hours)**

Time and Work, Pipes and Distances. Time and distance, Problems on Trains.

UNIT- IV : **(3 Hours)**

Boats and Streams, Alligation, Simple Interest, Compound Interest, Logarithms, Area, Volume and Surface Area.

UNIT- V: **(3 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 PAPER – XXIV

PAPER TITLE : .NET TECHNOLOGIES

SUBJECT CODE : 16PMCAC24	THEORY	MARKS : 100
SEMESTER : V	CREDITS : 4	Total No of Hours : 75

COURSE OBJECTIVES:

- To introduce the students to .NET Framework and Visual Studio IDE for Application Development and Deployment
- To impart skills for developing desktop and windows applications using VB.NET
- To train the students on deploying ADO.NET connectivity for windows and web applications

UNIT-I: (15 Hours)

Introduction to .NET Technologies : Introduction to Internet and Web Technologies-HTML Basics - Scripts- Client-side Vs Server- side Scripts - Sample Programs – Advantages and Disadvantages of Client-side and Server-side Scripts - Client-side Technologies Overview - Server-side Technologies Overview History of the Platform of .NET - .NET Framework Components Overview with Focus on CLR, CTS.

UNIT-II : (15 Hours)

VB.NET Building Blocks : Introduction VB.NET – VB Vs VB.NET – VB.NET -Integrated Development Environment – Creating a short-cut to Start VB.NET - Maneuvering the Toolbar – Auto-hide, Docking and Undocking, Placing and Resizing the Windows – Working with Forms – Properties Window and Solution Explorer - Setting the Startup Object - Writing and Event Procedure – Execution - Basic Keywords – Data Types – VB.NET statements – Conditionals - If Else – Select Case – Switch and Choose – Operators - Loops – Do – For Next – For Each Next – While – Arrays.

UNIT-III : (15 Hours)

Application Development in VB.NET :

Windows Forms – Working with Controls – Timer, Picture-box, Group-box, Combo-box, Horizontal and Vertical Scrollbar, Numeric-up-down, Track-bar, and Progress-bar – Menus Dialog-boxes – Pop-Menus - Developing MDI – Multithreaded Programming – Code Modularization – Subroutines and Functions VB.NET Built-in Functions – Mathematical Functions, Strings, Date and Time, Data Type Inspection, Data Type Conversion, Financial and Miscellaneous Functions

UNIT-IV : (15 Hours)

OOPs deployment in VB.NET : Classes, Objects, Methods – Methods Overloading – Events - Delegates – Inheritance – Interfaces – Encapsulation – Polymorphism – Classes Vs Components – Advanced Techniques – Drawing, and Printing – Debugging – Exception Handling – Introduction to Web Application Development using VB.

UNIT-V :

ADO.NET Connectivity : Introduction to ADO.NET – ADO Vs ADO.NET – Connected ADO.NET Architecture – Disconnected ADO.NET Architecture – Data Reader - Data Adapter – ADO.NET Classes – ADO.NET - Namespaces – Interfacing VB.NET Applications with ADO.NET

PRESCRIBED BOOKS :

1. Shirish Chavan, "Visual Basic.NET", Edition 2009, Pearson Education.
2. Matt J. Crouch , "ASP.NET and VB.NET Web Programming", Edition 2012, Pearson Education.
3. Michael Otey and Denielle Otey, "ADO.NET Complete Reference", Tata Macraw Hill Publication.

REFERENCE BOOKS :

1. Kogent Learning Solutions, ".NET Framework 4.0 in Simple Steps", Edition 2011, Dreamtech Press.
2. Steven Holzner, "Visual Basic.NET Programming – Black Book", Edition 2005, Paraglyph Press
3. Fred Barwell , "Professional VB.NET" 2nd Edition, Wrox Publication.

QUESTION PAPER PATTERN

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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 : 16PMCAE07	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**Total No of Hours : 75**

COURSE OBJECTIVES:

- To understand the concepts of Data mining, ways of Data handling mechanism.
- At the end of the session students should be able to work in environment where huge volumes of data are used.

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 Apriori 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.

QUESTION PAPER PATTERN

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	Unit - 4	1	
	Unit - 5	1	
Section C	Unit - 1	1	
	Unit - 2	1	
	Unit - 3	1	
	Unit - 4	1	
	Unit - 5	1	

ELECTIVE – II

BIG DATA ANALYTICS

SUBJECT CODE :16PMCAE04	THEORY	MARKS : 100
SEMESTER : V	CREDITS : 4	Total No of Hours : 75

COURSE OBJECTIVES:

- To understand the concepts of Big Data Analytics, usage of R for implementing machine learning algorithms
- At the end of the session students should be able to work 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 rmongo 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	
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ELECTIVE - II

WIRELESS COMMUNICATION

SUBJECT CODE : 16PMCAE08	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**Total No of Hours : 75**

COURSE OBJECTIVES:

- To understand basics of Wireless Communications and various means of the communication systems involved in wireless communication.
- At the end of the session students should have depth knowledge in wireless applications.

UNIT-I : **(15 Hours)**

Services And Technical Challenges - Types of Services, Requirements for the services, Multipath propagation, Spectrum Limitations, Noise and Interference limited systems, Principles of Cellular networks, Multiple Access Schemes.

UNIT-II : **(15 Hours)**

Wireless Propagation Channels - Propagation Mechanisms (Qualitative treatment), Propagation effects with mobile radio, Channel Classification, Link calculations, Narrowband and Wideband models.

UNIT-III : **(15 Hours)**

Wireless Transceivers - Structure of a wireless communication link, Modulation and demodulation – Quadrature Phase Shift Keying, /4-Differential Quadrature Phase Shift Keying, Offset-Quadrature Phase Shift Keying, Binary Frequency Shift Keying, Minimum Shift Keying, Gaussian Minimum Shift Keying, Power spectrum and Error performance in fading channels.

UNIT-IV : **(15 Hours)**

Signal Processing In Wireless Systems – Principle of diversity, Macro diversity, Signal Combining Techniques, Transmit diversity, Equalizers – linear and decision feedback equalizers, Review of channel coding and speech coding techniques.

UNIT-V : **(15 Hours)**

Advanced Transceiver Schemes - Spread Spectrum Systems- Cellular Code Division Multiple Access Systems- Principle, Power control, Effects of multipath propagation on Code Division Multiple Access, Orthogonal Frequency Division Multiplexing – Principle, Cyclic Prefix, Transceiver implementation, Second Generation(GSM, IS–95) and Third Generation Wireless Networks and Standards.

PRESCRIBED BOOKS :

1. Andreas.F. Molisch, “Wireless Communications”, John Wiley – India, 2006.
2. Simon Haykin & Michael Moher, “Modern Wireless Communications”, Pearson Education, 2007

REFERENCE BOOKS :

1. Rappaport. T.S., “Wireless communications”, Pearson Education, 2003.
2. Gordon L. Stuber, “Principles of Mobile Communication”, Springer International Ltd., 2001.

3. Andrea Goldsmith, Wireless Communications, Cambridge University Press, 2007.

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	Unit - 5	1	

ELECTIVE – II

DATA SCIENCE & BIG DATA ANALYTICS
(LATEST TECHNOLOGY - I)

SUBJECT CODE : 16PMCAE09	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**Total No of Hours : 75**

COURSE OBJECTIVES:

- To understand the concepts of Big Data Analytics, usage of R for implementing machine learning algorithms
- At the end of the session students should be able to work with data analytics tools.

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 vs Data science- current Analytical Architecture-Drivers of Big data- emerging Big data eco system 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.

Unit III : **(15 Hours)**

Introduction to r-Attributes and data types in R: Numeric, Character and Logical data types, vectors, arrays and Matrices, Data frames, List, Factors, contingency Tables-R Graphical User Interfaces.

Unit IV : **(15 Hours)**

Data Import and Export-descriptive statistics: Mean, Median, Mode- Exploratory data analysis: visualization before analysis, Dirty data, visualizing a single Variable, Examining multiple variables.

Unit V: **(15 Hours)**

Statistical methods for evaluation: Hypothesis testing, difference of Means: Student's T test-ANOVA-Overview of clustering-K Means-Linear regression-Logistic regression.

PRESCRIBED BOOKS :

1. Data Science & Big data analytics: Discovering, Analyzing, Visualizing and presenting Data , Published by John wiley & sons, Inc., 2015 Edition.

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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ELECTIVE - III
MATLAB PROGRAMMING

SUBJECT CODE : 16PMCAE10	**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 the session students should be able to work in MATLABprojects.

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 Mat lab 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.

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	Unit - 4	1	
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ELECTIVE - III

OBJECT ORIENTED ANALYSIS AND DESIGN

SUBJECT CODE : 16PMCAE05	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 3**	**Total No of Hours : 75**

COURSE OBJECTIVES:

- To understand the object oriented analysis and UML concepts
- At the end of the session students should be able to design using UML in IDE environment.

UNIT-I : **(15 Hours)**

System Development - Object Basics - Development Life Cycle - Methodologies - Patterns - Frameworks - Unified Approach – UML.

UNIT-II : **(15 Hours)**

Use-Case Models - Object Analysis - Object relations - Attributes - Methods – Class and Object responsibilities - Case Studies.

UNIT-III : **(15 Hours)**

Design Processes - Design Axioms - Class Design - Object Storage - Object Interoperability - Case Studies.

UNIT-IV : **(15 Hours)**

User Interface Design - View layer Classes - Micro-Level Processes - View Layer Interface - Case Studies.

UNIT-V : **(15 Hours)**

Quality Assurance Tests - Testing Strategies - Object orientation on testing - Test Cases - test Plans -Continuous testing - Debugging Principles - System Usability - Measuring User Satisfaction - Case Studies – STAR UML.

PRESCRIBED BOOKS :

1. Ali Bahrami, Reprint 2009, Object Oriented Systems Development, Tata McGraw Hill International Edition.

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.

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ELECTIVE - III

DESIGN AND ANALYSIS OF ALGORITHM

SUBJECT CODE : 16PMCAE11	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 4**	**Total No of Hours : 75**

COURSE OBJECTIVES:

- To introduce basic concepts of design and analysis for selected problems.
- At the end of this course students would be comfortable in developing 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)**

Divide and conquer contd - merge sort - Quicksort, Selection, Strassen's matrix multiplication – Greedy Method: General Method –knapsack problem - Tree vertex splitting

UNIT-III : **(15 Hours)**

Job sequencing with dead lines – 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.

WEBSITE, E-LEARNING RESOURCES

1. http://www.cise.ufl.edu/~raj/BOOK.html

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ELECTIVE - III

(LATEST TECHNOLOGY - II)

SUBJECT CODE : 16PMCAE12	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 3**	**Total No of Hours : 75**

COURSE OBJECTIVES:

- To introduce the latest technology during that academic year.

ELECTIVE - 4

INFORMATION SECURITY

SUBJECT CODE : 16PMCAE06	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 3**	**Total No of Hours : 75**

COURSE OBJECTIVES:

- Understand different areas where data is processes and the security aspects of the data.
- After completion one can work in fields where huge volume of data is to be handled.

UNIT-I : **(15 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: **(15 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 : **(15 Hours)**

Database Security: Security requirements- Reliability and integrity- Sensitive data- Interface- Multilevel database- Proposals for multilevel security.

UNIT-IV : **(15 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 : **(15 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.

PRESCRIBED BOOKS:

1. C.P.Pfleeger, and S.L.Pfleeger, Security in Computing, Pearson Education,4th Edition, 2003
2. Matt Bishop, Computer Security: Art and Science, Pearson Education, 2003.

REFERENCE BOOKS :

1. Stallings**,** Cryptography & N/w Security: Principles and practice, 4th Edition, 2006.
2. Kaufman, Perlman, Spincer, Network Security, Prentice Hall, 2nd Edition, 2003
3. Eric Maiwald, Network Security : A Beginners Guide, TMH, 1999
4. Macro Pistoia, Java Network Security, Pearson Education, 2nd Edition, 1999
5. Whitman, Mattord, Principles of Information Security, Thomson, 2nd Edition, 2005

Website and e-Learning Source

1. http://www.cs.gsu.edu/~cscyqz/courses/ai/aiLectures.html
2. http://www.eecs.qmul.ac.uk/~mmh/AINotes/

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ELECTIVE - IV

ENTERPRISE RESOURCE PLANNING

SUBJECT CODE : 16PMCAE13	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 3**	**Total No of Hours : 75**

COURSE OBJECTIVES:

- To understand the basics of Enterprise Resource planning, managing ERP project, supply chain management, planning and essentials of customer relationship management
- At the end of the session students should 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 - 2	1	
	Unit - 3	1	
	Unit - 4	1	
	Unit - 5	1	

ELECTIVE - 4

E-COMMERCE

SUBJECT CODE : 16PMCAE14	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 3**	**Total No of Hours : 75**

COURSE OBJECTIVES:

- Understand the basic aspects of Ecommerce.
- After completions students can develop their own Ecommerce 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.

Recommended Text:

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, Seventh Reprint 2003, Web commerce Technology Handbook, Tata McGraw Hill, New Delhi.

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ELECTIVE - IV

HUMAN RESOURCE MANAGEMENT

SUBJECT CODE : 16PMCAE15	**THEORY**	**MARKS : 100**
SEMESTER : V	**CREDITS : 3**	**Total No of Hours : 75**

COURSE OBJECTIVES:

- To understand the perspectives and basic concepts of Human Resource management. It also introduces essential concepts about training and executive development, sustaining employee interest, Control process and Performance Evaluation.
- At the end of the session students should be able to clear with 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 programmes – 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.

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CORE – XXV

PRACTICAL – IX : .NET LAB

SUBJECT CODE : 16PMCAC25P	**PRACTICAL**	**MARKS : 100**
SEMESTER : V	**CREDITS : 2**	**Total No of Hours : 60**

COURSE OBJECTIVES:

- Students are given practical training in .NET programming.
- After completion students are able to write .NET program for application under the windows environment.

1. Demonstrate the conditional statements in VB.NET using a console application
2. Demonstrate the looping statements in VB.NET using a console application
3. Develop an application that demonstrates the windows controls
4. Develop a windows application with Menus and Dialog Boxes
5. Demonstrate Multithreaded Programming
6. Demonstrate subroutines and functions
7. Develop an application for deploying various built-in functions in VB.NET
8. Develop an MDI application for Employee Pay-roll transactions
9. Construct a console application to demonstrate the OOP Concepts
10. Demonstrate Events, Delegates, and Interfaces
11. Develop a Windows applications with database connectivity for core-banking transactions
12. Develop a web application for dynamic Login Processing

CORE – XXVI

PRACTICAL – X : MINI PROJECT

SUBJECT CODE : 16PMCAC26P	**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 the session students should be confident of working in projects.

SOFT SKILL - V

GROUP DISCUSSION

SUBJECT CODE : 16PGSLS06J	**SOFT SKILL**	**MARKS : 100**
SEMESTER : V	**CREDITS : 2**	**Total No of Hours : 15**

COURSE OBJECTIVES:

- To impart the skills of solving problems quickly, efficiently and to give practice of facing Aptitude Test conducted by IT industry confidently.

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 : 16PINT401	**INTERNSHIP**	**MARKS : 100**
SEMESTER : V	**CREDITS : 3**	**DURATION: 6 to 8 Weeks (During Summer Vacation IV Sem)**

COURSE OBJECTIVES:

- Students are advised to go a corporate environment to understand the working aspects and important features.
- At the end of the session students should be aware of the practices that are followed in the corporate environment.

Summer Training 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 - VI

CONTENT WRITING

SUBJECT CODE : 16PGSLS07K	**SOFT SKILL**	**MARKS : 100**
SEMESTER : VI	**CREDITS : 2**	**Total No of Hours : 75**

COURSE OBJECTIVES:

- Content writing enables the students to write documents in the software project and preparing the report of work done. Content Writing gives a brief summary of unique ideas used to solve the given problem.

UNIT-I : **(5 Hours)**

Introduction, Problem Analysis .

UNIT-II : **(5 Hours)**

Design, Filter Module

UNIT-III : **(5 Hours)**

Stemming Module, Parser Module

UNIT-IV : **(5 Hours)**

Testing Documentation

UNIT-V : **(5 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 : 16PMCAC27	**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.

DEPARTMENT OF CHEMISTRY

PG - SYLLABUS

(*Effective for the batch of candidates admitted in 2016-2018 and thereafter*)

GURU NANAK COLLEGE
(AUTONOMOUS)

(Reaccredited at 'A' by NAAC)

VELACHERY,
CHENNAI – 42

GURU NANAK COLLEGE (AUTONOMOUS),
VELACHERY, CHENNAI-42

1479

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3.	Core Theory - 2	Chemical kinetics	06
4.	Core Theory - 3	Coordination Chemistry	08
5.	Core Theory - 4	Analytical Chemistry	10
6.	Core Theory -5	Quantum chemistry and Group theory	13
7.	Core Theory -6	Organometallics and Bioinorganic chemistry	15
8.	Core- Theory 7	Chemistry of Aromatic compounds and Concerted reactions.	17
9.	Core practical-1	Organic chemistry practical-1	20
10.	Core practical-2	Inorganic Chemistry practical-1	22
11.	Core practical-3	Physical chemistry practical-1	23
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13.	Core Theory -8	Spectroscopy- I	26
14.	Core Theory -9	Synthetic Methodology	28
15.	Core Theory -10	Thermodynamics and Electrochemistry	30
16.	Elective –II	Solid state and Nano Chemistry	32
17.	Core Theory -11	Photochemistry	34
18.	Core Theory -12	Spectroscopy - II	36
19.	Core practical-4	Electro Analytical practical	38
20.	Elective practical-1	Analytical Chemistry Practical	39

M.Sc., DEGREE COURSE IN CHEMISTRY

FIRST SEMESTER

Sl. 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	I	*	5	*	*
6	Core practical-2	Inorganic Chemistry practical -I	I	*	4	*	*
7	Core practical-3	Physical chemistry practical-I	I	*	4	*	*
8		Soft skill	I	2		50	50

SECOND SEMESTER

Sl. 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-1	II	4	5	50	50
13	Core practical-2	Inorganic Chemistry practical-1	II	4	4	50	50
14	Core practical-3	Physical chemistry practical-1	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

Sl.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

SI. 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

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.

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-disymmetry 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-asymmetric synthesis-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 (upto10 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 & trans tertiary

butyl cyclohexanols by Cr (V1) – stereochemistry of the reaction between nitrous acid and α-amino cyclohexanols.

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: Chemical Kinetics-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: Chemical Kinetics-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: Chemical Kinetics-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: Chemical kinetics –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: Chemical kinetics –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, McGrawHill, 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 distortions.

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 and T tests. Calibrations – General idea of calibration, calibration of glasswares, balance, instruments and other equipments. Uncertainty in chemical analysis: theory, significance, sources of uncertainty and model calculations 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, ICP-OES, Flame emission spectrometry, Nephlometry and Turbidimetry; Application of these techniques in water and food analysis. Viscosity measurement, moisture analyzer (KFR method) and C, H, N analysis (instrumental methods).

Sampling of solid, liquid and gases – handling, collection, transport, storage - primary sample, laboratory sample, analytical sample.

Physico-chemical analysis of medicines (formulated), petrochemicals (fuels), ores, cement, fertilizers, alloys, organic compounds, packed foods, water and air. [Note: Any one representative example in each category and testing of important parameters only]

UNIT - III: Separation Techniques (10 hrs)

Chromatographic techniques: General aspects, classification, principle, instrumentation (if applicable) and applications of column, ion-exchange, electrophoresis, TLC, HPTLC, paper Chromatography, GC & HPLC (with different detectors) and GPC. Special emphasis on GC-MS, GC-MS/MS, LC-MS, LC-MS/MS. Role of separation techniques in R & D and quality control laboratories.

UNIT - IV: Electroanalytical Methods (15 hrs)

Polarography – Theory, Instrumentation, type of currents (includes kinetic & catalytic currents), advantageous of DME, half wave potential. Qualitative and quantitative applications to analysis of inorganic, organic 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 systems. 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. Ion selective electrodes - theory and applications of potentiometry, conductometry and coulometric titrations.

UNIT - V: Thermal, Radio-analytical Methods and Computers in Chemistry (10 hrs)

Principle, instrumentation and applications of TGA, DTA and DSC. Radio analytical methods - Principle, instrumentations and applications of neutron activation and isotopic dilution analysis. Radiometric titrations, determination of age of fossils, radiometric methods in diagnosis of diseases.

Applications of computers in chemistry: Applications of software - Chemdraw, computational chemistry and molecular simulations.

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. YeshajahuPomeranz, 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.
18. K.V.Raman, Computers in Chemistry, Tata McGraw-Hill Education Pvt. Ltd, tenth reprint 2008.

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 theorm-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 HillBook 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 and Study of Carbonyl compounds (10 hrs)

Valence electron count (16/18 electron rules); structure and bonding in mono and polynuclear metal carbonyls; substituted metal carbonyls and related compounds; synthesis and reactivity of metal carbonyls; Back bonding and synergic effect - π acids, vibrational spectra of metal carbonyls; dinitrogen and dioxygen as ligands in organometallic compounds.

UNIT – II: Reactions of organometallic complexes (15 hrs)

Types of M-C bonds; synthesis and reactivity of metal alkyls, carbenes, alkenes, alkynes, and arene complexes; synthesis, structure and bonding of metallocenes and bent metallocenes; isolobalanalogy. Association, Substitution, Addition, oxidative addition, reductive elimination, insertion and deinsertion, electrophilic and nucleophilic attack on ligands carboxylation and decarboxylation and fluxional isomerism.

UNIT – III: Industrial Application of Organometallic Compounds (15 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. Organometallics as protecting and activating groups in organic synthesis. Transmetallation and cyclization reaction of organometallics. Bioorganometallic chemistry and surface organometallic chemistry.

UNIT – IV: Introduction of Bio-inorganic chemistry (10 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.

Metalloenzymes-Zinc enzymes -carboxypeptidase and Carbonic anhydrase, Vitamin B_{12}, Catalase, Peroxidase, Superoxide dismutase and Copper proteins. Application of Co-ordination compounds in medicinal applications. – Cisplatin – antirheumatoid - gold compound –anti diabetic - anti cancer agents – role of metal ion diagnosis and treatment.

UNIT – V: Transport Proteins **(10 hrs)**

Oxygen Carriers – Hemoglobin, myoglobin – structure – function - Oxygenation and stereochemistry – Bohr effect, Non – Heme oxygen carriers – Hemerythrin and Hemocyanin. 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, Moffet, Oppenauer and Swern oxidation of alcohol –oxidative cleavage of Glycols and their related compounds, Oxidative cleavage of Ketones, Aldehydes and Alcohols, Ozonolysis - oxidation of methylene to carbonyl, oxidation of aryl methanes – allylic oxidation of olefins. Reductions: catalytic hydrogenation – Hydrides – Nucleophilic and Electrophilic - MPV reduction- Selectivity in reduction of 4-t-butyl cyclohexanone using selectrides- Synthetic importance of Clemensen 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 (mono nuclear & poly nuclear aromatic hydrocarbons)-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. Electrophilic substitution of furan, pyrrole, thiophene, pyridine, pyridine N-oxide, quinoline and isoquinoline.

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)**

Classification –Orbital symmetry - Woodward Hoffmann rule – FMO analysis of electrocyclic, cycloaddition and sigmatropic reactions –hydrogen shift and carbon shift reactions. Correlation diagram method for cycloaddition reactions ($\pi 2s + \pi 2s$) and ($\pi 4s + \pi 2s$) and electrocylic reactions of butadiene-cyclobutene system and interconversion of hexatriene to cyclohexadiene- Cope and Claisen reactions – 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. Jagdambasingh and Jaya Singh, Photochemistry and Pericyclic reaction, New Age International (P) Limited publisher, third edition, 2014.
6. P.S. Kalsi, Organnic 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 – I

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 – I

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-I

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 methylacetate.
11. Determination of temperature coefficient and energy of activation for the acid catalyzed hydrolysis of methylacetate.

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.Ragavan, Practiacl 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 III	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 not required) – 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 Testosterone, 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 cocain, 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 alkaloid 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 of 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 (OhJay) electron spectroscopy. Determination of Dipole moment, NQR spectroscopy – Theory of NQR – instrumentation – Nuclear quadrupole coupling constants – Applications.

REFERENCE BOOKS:

1. R. S. Drago, Physical Methods for Chemistry, Thomson learning, 1977.
2. Drago R.S, Physical Methods in Chemist, 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. & 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 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, trimethylsillyl 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, Fischer-Indole synthesis, Diels-Alder reaction, Mc-Murry olefination, Prins reaction, Ritter reaction, Mitsonobu reaction, Sharpless asymmetric epoxidation,

UNIT - VI: Synthesis of Target Molecules **(10 hrs)**

Retero synthetic analysis 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 – zeolites in synthesis.

REFERENCE BOOKS:

1. William Caruthers and Coldham, Moderen 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, McGrawHill, (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- Plancks radiation law – electron in metals.

UNIT – IV: Electrochemistry of Solutions **(15 hrs)**

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.

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. Mechanism of electrode reaction- The Butler-Volmer equation for one step and multi step electron transfer reactions- 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 of corrosion-Techniques of inhibiting corrosion-Pourbaix diagram-Evans diagram-Electro deposition –principles and applications. Fuel cells: Construction and principles of operation 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 75	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, X-ray diffraction and Bragg's law, powder diffraction-refinement and structure solution of some compounds. 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 & imperfect crystals, lattice Defects -types of defects. Order & disorder phenomena, thermodynamics of Schottky and Frenkel defect formation, Determination of defects. Nonstiochiometric defect and incorporation of stiochometric excess defects (structural and thermodynamic aspects) Reactions of solid state and 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, paramagnetism – X. Langevin's theory & paramagnetic susceptibility of solids. Temperature independent paramagnetism - spin cross over phenomena. Simplification of Van Vleck equation and magnitude of magnetic moments. Determination of magnetic susceptibility by Gouy and Faraday method.

Domain theory – Hysterisis Loop – Applications. Properties of Spinels, Ilmenites, 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 & II superconductors, application Fullerenes as superconductors.

UNIT - IV: Nanomaterials-Synthesis, Characterization and Properties (10 hrs)

Carbon based nanomaterials, Metal based materials, dendrimers and composites. Classification of Nanomaterials based on dimentions. Properties of nano materials -Size dependent properties - Mechanical, Physical and Chemical properties. Quantum effects. Synthesis of nano materials - Bottom up and top down methods Characterization methods of nano materials – XRD - Debye Scherror method, Scanning electron microscopy (SEM) - morphpology, atomic Force microscopy (AFM), Transition Electron Microscopy (TEM) - Crystallite size and SAED pattern.

UNIT - V: Application of Nanomaterials (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 bi pyridine $[Ru(bpy)_3]$ complexes in solar energy conversion- photosynthesis.

UNIT – V: Applied Photochemistry **(15 hrs)**

The solar spectrum, antennas, 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 & 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. 13C-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.

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 Fe^{57}, 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.Ragavan, Practiacl 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 PRACTICAL – I: ANALYTICAL CHEMISTRY PRACTICAL

SEMESTER III&IV	SUBJECT CODE	PRACTICAL	MARKS 100	CREDITS 4	HOURS 60

OBJECTIVES:

To impart the techniques of analysis of ores and alloys; quantitative estimation of organic compounds and inorganic metal ions and spectral interpretations.

A. ESTIMATIONS (ANY FOUR):

1. Estimation of aniline
2. Estimation of phenol
3. Estimation of glucose (Bertrands Methods)
4. Saponification of fat or oil.
5. Iodine value of an oil.
6. Estimation of Ketone.

B. **SPECTRAL INTERPRETATION OF ORGANIC COMPOUNDS. UV, IR, PMR AND MASS SPECTRA OF 15 COMPOUNDS.**

1. 1, 3, 5-Trimethylbenzene
2. Pinacolone
3. prophyl amine
4. p-Methoxybenzyl alcohol
5. Benzyl bromide
6. Phenyl acetone
7. 2-Methoxyethyl acetate
8. Acetone
9. Isopropyl alcohol
10. Acetaldehyde diacetate
11. 2-N, N-Dimethylamino ethanol
12. Pyridine
13. 4-Picoline
14. 1, 3 dibromo-1, 1-dichloropropene
15. 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 ores, alloys and preparation the analysis inorganic complex compounds. (For Internal Assessments Only)

a) Analysis of Ores:

1. Determination of percentage of calcium and magnesium in dolomite.
2. Determination of percentage of MnO_2 in pyrolusite.

b) Analysis of Alloys:

1. Estimation of tin and lead in solder.
2. Estimation of copper and zinc in brass.
3. Estimation of chromium and nickel in stainless steel.

c) Analysis of Inorganic Complex Compounds:

1. Preparation of cis and trans potassium bis(oxalato)diaquochromate and analysis of each of these for chromium.

2. Preparation of potassium tris(oxalato) ferrate (III) and analysis for iron and oxalate.

d) Instrumental methods

1. Analysis of Ni and Cr in stainless steel alloy by spectrophotometry.
2. Estimation of calcium present in calcium lactate tablets by spectrophotometry.

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.

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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 SCIENCE IN MATHEMATICS
(M.Sc., MATHEMATICS)

Regulations and Syllabus

(For the Candidates admitted in 2018 - 2019 and thereafter)

1522

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 Applications	6	3	4	50	50	100
	Soft skill Paper-I	Essential of language , communication Skills	1	3	2	40	60	100
II	Core Paper-V	Algebra-II	6	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	6	3	4	50	50	100
	Elective paper -II	Programming in C++ and Numerical Methods	5	3	4	50	50	100
	Soft Skill Paper-II	Computing Skills	1	3	2	40	60	100
		Summer Internship	-	-	2	-	-	-
III	Core Paper-IX	Complex Analysis -I	6	3	4	50	50	100
	Core Paper-X	Topology	6	3	4	50	50	100
	Core Paper-XI	Operations Research	6	3	4	50	50	100
	Core Paper-XII	Mechanics	6	3	4	50	50	100
	Elective paper -III	Number theory and Cryptography	5	3	4	50	50	100
	Soft Skill Paper-III	Managerial Skills	1	3	2	40	60	100
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	Mathematical Statistics	6	3	4	50	50	100
	Elective paper -V	Stochastic Processes	5	3	4	50	50	100
	Soft Skill paper-IV	Spoken and Presentation Skills	1	3	2	40	60	100

SEMESTER - I

CORE I
PAPER TITLE: Algebra – I

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: I	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

UNIT-I: Another counting principle, Sylow theorems - Applications of Sylow theorems.
Recommended Chapter 2: Section 2.11 and 2.12 of I.N. Herstein (15 hrs)

UNIT-II: 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(15 hrs)

UNIT-III: 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 (15 hrs)

UNIT-IV: Jordan form - rational canonical form: companion matrix of f(x).
Recommended Chapter6: Sections 6.6 and 6.7 of I.N. Herstein (15 hrs)

UNIT-V: 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 (15 hrs)

PRESCRIBED BOOKS:

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. 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, NewDelhi.

CORE II
PAPER TITLE: Real Analysis –I

SUBJECT CODE :	**PRACTICAL**	**100 MARKS**
SEMESTER: I	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

UNIT-I : 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 (18 hrs)

UNIT-II : 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 (18 hrs)

1.

UNIT-III : 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- Lebesgue criterion for the existence of Riemann integrals.
Recommended Chapter - 7: 7.15 to 7.24, 7.26 of Tom M. Apostol (18 hrs)

UNIT-IV: 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 (18 hrs)

UNIT-V: 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 (18 hrs)

PRESCRIBED BOOKS:

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 :	**THEORY**	**100 MARKS**
SEMESTER: I	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

UNIT-I: 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 (18 hrs)

UNIT-II: 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 (18 hrs)

UNIT-III: Linear equation with variable coefficientsInitial value problems -Existence and uniqueness theorems – Solutions to solve a non- homogeneous equation – Wronskian and linear dependence– Reduction of the order of a homogeneous equation – Homogeneous equation with analytic coefficients-The Legendre equation.
Recommended Chapter: 3 Sections 1 to 8(omit section 9) of E. A. Coddington (18 hrs)

UNIT-IV: 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 (18 hrs)

UNIT-V: 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 (18 hrs)

PRESCRIBED BOOKS:

A. A. 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 andboundary 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 :	**THEORY**	**100 MARKS**
SEMESTER: I	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

UNIT-I : 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: (Section 1.1 – 1.7)of J. A. Bondy and U.S.R. Murty Omit Sections 1.8, 1.9 (18 hrs)

UNIT-II: Cut Vertex and Connectivity: Trees – Cut Edges and Bonds-Cut Vertices– Connectivity - Blocks.
Recommended Chapter 2:(Section 2.1 - 2.3) 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 (18 hrs)

UNIT-III: Euler Tours, Hamilton Cycles and Edge Colourings: Euler Tours, Hamilton Cycles, Edge Chromatic Number
Recommended Chapter 4: (Section 4.1 – 4.2) 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 (18 hrs)

UNIT-IV: 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) Chapter 8 (Section 8.1 – 8.2, 8.4) omitted section 8.3 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 (18 hrs)

UNIT-V: 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)omitted sections 9.4 &9.5of J.A.Bondy and U.S.R. Murty Omit Sections 9.4, 9.5, 9.7 & 9.8 (18 hrs)

PRESCRIBED BOOKS:

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. A. Gibbons, Algorithmic Graph Theory, Cambridge University Press, Cambridge, 1989.
4. R. J. Wilson and J. J. Watkins, Graphs : An Introductory Approach, John Wiley and Sons, New York, 1989.
5. R.J. Wilson, Introduction to Graph Theory, Pearson Education, 4th Edition, 2004, Indian Print.
6. S. A. Choudum, A First Course in Graph Theory, MacMillan India Ltd. 1987.

ELECTIVE I
PAPER TITLE: Fuzzy sets and Applications

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: I	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

UNIT-I : 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 I: Sec. 1 to 8 of A. Kaufman (18 hrs)

UNIT-II : 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 II: Sec. 10 to 18 of A. Kaufman (18 hrs)

UNIT-III: Fuzzy Relations: Fuzzy preorder relations, Similitude relations, Similitude sub relations in a fuzzy preorder, Anti symmetry, 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 II: Sec. 19 to 29 of A. Kaufman (18 hrs)

UNIT-IV: 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 III: Sec.31 to 40 (omit Sec. 37, 38, 41) of A. Kaufman (18 hrs)

UNIT-V: 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 IV: Sec.43 to 49 of A. Kaufman (18 hrs)

PRESCRIBED BOOKS:

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 :	**THEORY**	**100 MARKS**
SEMESTER: II	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

UNIT-I: 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 (18 hrs)

UNIT-II: 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 (18 hrs)

UNIT-III: 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 (18 hrs)

UNIT-IV: 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 (18hrs)

UNIT-V: 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 (18 hrs)

PRESCRIBED BOOKS:

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 :	**PRACTICAL**	**100 MARKS**
SEMESTER: II	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

UNIT-I : 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 (18 hrs)

UNIT-II : 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 (18 hrs)

UNIT-III : 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 (18 hrs)

UNIT-IV : 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 (18 hrs)

UNIT-V: 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 (18 hrs)

PRESCRIBED BOOKS:

G. de Barra, Measure Theory and Integration, New Age International, 2003
(for Units I and II)
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 :	**PRACTICAL**	**100 MARKS**
SEMESTER: II	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

UNIT-I: 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 Section: 1.1 to 1.3of k. SankaraRao (18 hrs)

UNIT-II: 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 Section: 2.1 to 2.3, 2.5 to 2.11of k.SankaraRao (18 hrs)

UNIT-III: 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 Section: 3.1 to 3.6 of k. SankaraRao (18 hrs)

UNIT-IV : 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-dimensional Wave Equations: Method of Eigenfunction.
Recommended Section: 4.1 to 4.7 of k. SankaraRao (18 hrs)

UNIT-V: 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 Section: 5.1.to 5.6. of k. SankaraRao (18 hrs)

PRESCRIBED BOOKS:

Introduction to Partial Differential Equation" by k. SankaraRao , Third Edition, PHI Learning Private Limited.

REFERENCE BOOKS:

1. R.C Mc.Owen, Partial Differential Equations, 2nd edition 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 Boundry Value Problems, McGraw Hill, New York, 1968.
4. T.Amarnath, Partial Differential Equations, Narosa publishing House.

CORE VIII

PAPER TITLE: Probability Theory

SUBJECT CODE :	PRACTICAL	100 MARKS
SEMESTER: II	CREDITS: 4	NO. OF HOURS PER WEEK: 6

UNIT-I : 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 (18 hrs)

UNIT-II : 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 (18 hrs)

UNIT-III: 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 (18 hrs)

UNIT-IV : 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 (18 hrs)

UNIT-V: 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 (18 hrs)

PRESCRIBED BOOKS:

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.RohatgiAn 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

ELECTIVE II

PAPER TITLE: Programming in C++ and Numerical Methods

SUBJECT CODE :	**PRACTICAL**	**100 MARKS**
SEMESTER: II	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

UNIT-I : Tokens, Expressions and Control Structures – Functions in C++
Recommended Chapters: 3 and 4 of (Balagurusamy) (15 hrs)

UNIT-II : Classes and Objects – Constructors and Destructors – Operator Overloading and Type conversions
Recommended Chapters : 5, 6 and 7of (Balagurusamy) (15 hrs)

UNIT-III : Inheritance – Pointers – Virtual Functions and Polymorphism
Recommended Chapters : 8 and 9 of (Balagurusamy) (15 hrs)

UNIT-IV : The solution of Nonlinear Equations f(x) = 0
Interpolation and Polynomial Approximation
Recommended Chapter 2: Sec. 2.1 to 2.7 of (John H.Mathews)
Recommended Chapter 4: 4.1 to 4.4 (omit Sec. 4.5 & 4.6)of(JohnH.Mathews) (15 hrs)

UNIT-V : Curve Fitting
Recommended Chapter 5: Sec. 5.1 to 5.3 (omit Sec. 5.4) of (John H.Mathews) Solution of Differential Equations
Recommended Chapter 9: Sec. 9.1 to 9.6 (omit 9.7 to 9.9) of (John H.Mathews) (15 hrs)

PRESCRIBED BOOKS:

1. Balagurusamy, Object Oriented Programming with C++, Tata McGraw Hill, New Delhi, 1999.
2. John H.Mathews, Numerical Methods for Mathematics, Science and Engineering (2ndEdn.), Prentice Hall, New Delhi, 2000

REFERENCE BOOKS:

1. Ravichandran, Programming with C++, Tata McGraw Hill, New Delhi, 1996
2. Conte and de Boor, Numerical Analysis, McGraw Hill, New York,1990

SEMESTER - III

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CORE IX
PAPER TITLE: Complex Analysis – I

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 6**

UNIT-I : 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 (18 hrs)

UNIT-II: 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 (18 hrs)

UNIT-III : 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(18 hrs)

UNIT-IV : 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 (18 hrs)

UNIT-V: 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 (18 hrs)

PRESCRIBED BOOKS:

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 :	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 6**

UNIT-I : 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 (18 hrs).

UNIT-II: 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 (18hrs)

UNIT-III: 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 (18hrs)

UNIT-IV: 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.(18hrs)

UNIT-V: 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 (18hrs)

PRESCRIBED BOOKS:

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 :	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 6**

UNIT-I: Integer Programming: Illustrative Applications- Integer programming algorithm – Branch and Bound algorithm – Cutting plane algorithm.
Recommended Chapter 9: sec. 9.1 and 9.2. (18 hrs)

UNIT-II: 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. (18 hrs)

UNIT-III: 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 (18 hrs)

UNIT-IV: 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. (18 hrs)

UNIT-V: 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. (18 hrs)

PRESCRIBED BOOKS:

Operations Research An Introduction by Hamdy A.TAHA, Ninth edition.

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 :	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 6**

UNIT-I : 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 (18 hrs)

UNIT-II: 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 (18 hrs)

UNIT-III : 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 (18 hrs)

UNIT – IV : 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 (18 hrs)

UNIT-V: 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 (18 hrs)

PRESCRIBED BOOKS:

B. 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 III

PAPER TITLE: Number Theory and Cryptography

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: III	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 5**

UNIT-I : Elementary Number Theory:
Time Estimates for doing arithmetic – divisibility and Euclidean algorithm – Congruences – Application to factoring.
Recommended Chapter 1: of Neal Koblitz. (15 hrs)

UNIT-II : Introduction to Classical Crypto systemsSome simple crypto systems – Enciphering matrices DES
Recommended Chapter 3: of Neal Koblitz. (15 hrs)

UNIT-III : Finite Fields, Quadratic Residues and Reciprocity
Recommended Chapter 2: of Neal Koblitz. (15 hrs)

UNIT-IV : 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. (15 hrs)

UNIT-V: 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. (15 hrs)

PRESCRIBED BOOKS:

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
4. N.Koblitz, Algebraic Aspects of Cryptography, Springer 1998

SEMESTER - IV

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CORE XIII
PAPER TITLE: COMPLEX ANALYSIS II

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 6**

UNIT-I : 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 (18 hrs)

UNIT-II: 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 (18 hrs)

UNIT-III : Elliptic functions : Simply periodic functions – Doubly periodic functions
Recommended Chapter 7 : Sections 1.1 to 1.3, Sections 2.1
to 2.4 of Lars V. Ahlfors (18 hrs)

UNIT-IV: 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 (18 hrs)

UNIT-V: 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 (18 hrs)

PRESCRIBED BOOKS:

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 :	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 6**

UNIT-I: 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 (18 hrs)

UNIT-II: 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. Pressle (18 hrs)

UNIT-III: 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 (18 hrs)

UNIT-IV: Geodesics :Geodesics, geodesic equations, geodesics as shortest paths, geodesic coordinates.
Recommended Chapter: 8 - 8.1, 8.2, 8.4, 8.5 of A. Pressley (18 hrs)

UNIT-V: Theorema Egregium of Gauss : Theorema Egregium, isometries of surfaces, Codazzi-Mainardi equations, compact surfaces of constant Gaussian curvature.
Recommended Chapter: 10 of A. Pressley (18 hrs)

PRESCRIBED BOOKS:

A. 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 Curves and Surfaces, Prentice-Hall, 1976.

CORE XV

PAPER TITLE: Functional Analysis

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 6**

UNIT-I: 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 (18 hrs)

UNIT-II: 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 (18 hrs)

UNIT-III : 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 (18 hrs)

UNIT-IV: 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 (18 hrs)

UNIT-V: 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 (18 hrs)

PRESCRIBED BOOKS:

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: Mathematical Statistics

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS:** 4	**NO. OF HOURS PER WEEK: 6**

UNIT-I : Sample Moments and their Functions: Notion of a sample and a statistic – Distribution functions of X, S^2 and (X , S^2) - χ^2 distribution – Student t-distribution – Fisher's Z-distribution – Snedecor's F- distribution – Distribution of sample mean from non-normal populations

Recommended Chapter 9 : Sections 9.1 to 9.8 of M. Fisz (18 hrs)

UNIT-II : Significance Test : Concept of a statistical test – Parametric tests for small samples and large samples -χ^2 test – Kolmogorov Theorem – Smirnov Theorem – Tests of Kolmogorov and Smirnov type – The Wald-Wolfovitz and Wilcoxon-Mann-Whitney tests – Independence Tests by contingency tables.
Recommended Chapter 10 : Sections 10.11 Chapter 11 : 12.1 to 12.7 of M. Fisz (18 hrs)

UNIT-III : Estimation : Preliminary notion – Consistency estimation – Unbiased estimates – Sufficiency – Efficiency – Asymptotically most efficient estimates – methods of finding estimates – confidence Interval.
Recommended Chapter 13: Sections 13.1 to 13.8 (Omit Section 13.9) ofM. Fisz (18 hrs)

UNIT-IV : Analysis of Variance : One way classification and two-way classification. Hypotheses Testing: Poser functions – OC function- Most Powerful test – Uniformly most powerful test – unbiased test.
Recommended Chapter 15 : Sections 15.1 and 15.2 (Omit Section 15.3), Chapter 16 : Sections 16.1 to 16.5 (Omit Section 16.6 and 16.7) of M. Fisz (18 hrs)

UNIT-V : Sequential Analysis : SPRT – Auxiliary Theorem – Wald's fundamental identity – OC function and SPRT – E(n) and Determination of A and B – Testing a hypothesis concerning p on 0-1 distribution and m in Normal distribution.
Recommended Chapter 17 : Sections 17.1 to 17.9 (Omit Section 17.10) of M. Fisz (18 hrs)

PRESCRIBED BOOKS:

M. Fisz ,Probability Theory and Mathematical Statistics, John Wiley and sons, New Your, 1963.

REFERENCE BOOKS

1. E.J.Dudewicz and S.N.Mishra ,Modern Mathematical Statistics, John Wiley and Sons, New York, 1988.
2. V.K.RohatgiAn Introduction to Probability Theory and Mathematical Statistics, Wiley Eastern New Delhi, 1988(3rdEdn)
3. G.G.Roussas, A First Course in Mathematical Statistics, Addison Wesley Publishing Company, 1973.
4. B.L.Van der Waerden, Mathematical Statistics, G.Allen& Unwin Ltd., London, 1968.

ELECTIVE V
PAPER TITLE: Stochastic Process

SUBJECT CODE :	**THEORY**	**100 MARKS**
SEMESTER: IV	**CREDITS: 4**	**NO. OF HOURS PER WEEK: 5**

UNIT-I: 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 (15 hrs)

UNIT-II: Classifications of states and chains – Determination of higher transition probabilities.
Recommended Chapter III: Sections 3.4 – 3.5 of J.MEDHI (15 hrs)

UNIT-III: Poisson process - Poisson process and related distributions.
Recommended Chapter IV: Sections 4.1 – 4.2 of J.MEDHI (15 hrs)

UNIT – IV: 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(15 hrs)

UNIT-V : 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 (15 hrs)

PRESCRIBED BOOKS:

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, Tata McGraw 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 ROAD, CHENNAI – 600042
Re-accredited 'A' grade by NAAC
(Affiliated to the University of Madras)

Master of Science
M.Sc. Zoology

(SEMESTER SYSTEM WITH CHOICE BASED CREDIT SYSTEM)

(For the candidates admitted in 2018-20 and thereafter)

I M.Sc. ZOOLOGY

SEMESTER - I

FUNCTIONAL MORPHOLOGY AND PHYLOGENY OF INVERTEBRATES

Core – Paper - I **Course Code -**
Teaching Hours: 75 hrs **Credits: 4**

Objective: To relate the morphological adaptations with phylogenetic study.

UNIT I **15 hrs**

Protozoa: Economic importance- Parasitic protozoa-Reproduction in Protozoa. Origin and Evolution of Metazoa-theories. Symmetry and its significance in animal organisation. Neuromotor system in ciliates.

Porifera: Reproduction in sponges- Economic importance of Sponges.

UNIT II **20 hrs**

Coelenterata: Structural Pecularities of Metridium. Polymorphism; Coral and Coral Reefs and their Theories. Origin of Bilateria; Origin and Types of Coelom; Origin of Metamerism.

Platyhelminthes: Parasitism in Platyhelminthes; Reproduction in Platyhelminthes.

UNIT III **10 hrs**

Annelida: Trocophore larva and its Significance – 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; Torsion in Gastropoda; Adaptive Radiation in Mollusca.

Echinodermata: Larval forms and their Evolutionary Significance.

UNIT V **20 hrs**

Minor Phyla: Rotifera, Gastrotricha ,Acanthocephala, Ectoprocta, Entoprocta, Phoronida, Brachiopoda, Chaetognatha. Invertebrate fossils. Trilobites and cephalopods. Regeneration in invertebrates- Sedentary invertebrates.

TEXT BOOK:

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 Publilcations.
7. Moore, R. C. Lalilcker, C.G. and Fisher, A. G. Invertebrate Fossils, Mc. Graw Hill Book Co., New York.

I M.Sc. ZOOLOGY
I - SEMESTER

TITLE OF THE PAPER: CELL AND MOLECULAR BIOLOGY

Core – Paper II **Course Code -**
Teaching Hours: 75 hrs **Credits: 4**

Objective: To impart knowledge of genome, cancer and signaling concepts in cell and molecular biology.

UNIT I **10 hrs**

Cell structure and Genome structure: Brief account of eukaryotic animal cell. Chromatin, Euchromatin, Heterochromatin, Chromosomes, Centromere, Telomere.

UNIT II **15hrs**

Cancer: Cancer cell- Characteristics, Differences between normal and cancer cell, Membrane and Biochemical changes in cancer cells, Nuclear and Chromosome changes, Carcinogenesis - Tumor viruses, Oncogenes, Tumor Suppressor Genes, Hormones in relation to cancer, Treatment of cancer at molecular level.

UNIT III **20 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 **20 hrs**

Information transfer: Genetic code and its characteristic features. Information transfer in prokaryotes and eukaryotes. Transcription – promoters, initiators and terminators. RNA processing – trimming of introns, splicing of exons, Ribozyme.

UNIT V **10 hrs**

Cell Signalling: Signalling 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 Graw Hill.
3. Lodish, Berk, Zipursky, Matsudaria and Baltimore, Molecular cell biology – IV edition. W.H.Freeman and Company.
4. Watson : Molecular Biology of the Gene

I M.Sc., ZOOLOGY
I - SEMESTER

TITLE OF THE PAPER: GENETICS – A MOLECULAR APPROACH

Core - Paper - III **Course Code -**

Teaching Hours: 75 hrs **Credits: 4**

Objective: To understand the modern concepts of gene, genome, mutation at the molecular level and its functions.

UNIT I **15 hrs**

Gene Structure and Function: Fine structure of the gene. The Cis-trans test, Phage T4, rII locus, gene-linear set of nucleotide pairs – Colinearity of gene. One gene – One enzyme hypothesis (Neurospora, Eye pigmentation in Drosophila) One gene – One polypeptide concept (Human haemoglobin). 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.

UNIT II **10 hrs**

Human Genetics: Cytogenetic mapping Karyotype, Preparation, Banding techniques and importance. Idiogram. Variations in human karyotypes (autosomal and sex chromosomal, structural and numerical). Genetic counseling. Principles and methods of pedigree analysis (autosomal dominant, autosomal recessive ,x- linked and mitochondrial).

UNIT III **15 hrs**

Molecular basis of mutations: Radiation induced mutation, chemically induced mutation, mutagens, mutable, mutator genes and mutation frequency - Transposons as mutational elements – Oligonucleotide - directed Mutagenesis – PCR – amplified oligonucleotide – directed mutagenesis. Biological repair mechanisms – Direct reversal of damaged DNA, Alkyltransferases and Photolyase. Excision repair, 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 **20 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 map.

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 Book Company.
2. Burns, G.W.- The Sciences of Genetics. Mac millan Publishing Co. New
3. Gardner: Principles of Genetics. 8TH Edition. John Wiley and sons
4. Ursula Goodenough: 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.

FISH BIOLOGY & FISHERIES

ELECTIVE –I **Credits: 4**

Course Code: **Teaching Hours: 80**

Objective: This subject gives the in depth knowledge about fishes and fish farming

UNIT I: INTRODUCTION OF FISH **16hrs**

Definition – salient features of the fishes-classification-Berg‟s classification-evolution and phylogeny of fishes-locomotion-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, GILL RESPIRATION & RESPIRATORY ORGANS **16hrs**

Food and feeding-food quality-alimentary canal-digestive glands-physiology of digestion-adaptive modifications in digestive tract of fishes-types of gills-structure of gill-specialized cells of gills of fishes-mechanism of gill respiration-air bladder and Weberian apparatus-function of air bladder-Weberian ossicles and their function.

UNIT III: REPRODUCTION & GROWTH STUDIES **16hrs**

Role of hormones in reproduction and induced breeding - maturity stages - morphological and histological observation of gonads – cryopreservation-growth-factors influencing growth -- length-weight relationship-condition factor- age determination

UNIT IV: FISH GENETICS AND IMMUNOLOGY **12hrs**

Sex determination in fish – monosex production - hormonal and chromosomal methods - hybridization techniques in aquaculture, androgenesis and gynogenesis- fish immune system.

UNIT V: CULTURE & CAPTURE FISHERY OF INDIA **20hrs**

Types of culture-fresh water-brackish water-mariculture-pond culture-extensive-semi-intensive & intensive-construction and maintenance of fish farm-composite fish culture of Indian major carps & exotic carps-hatchery techniques-integrated fish culture-paddy cum fish-paddy cum prawn-fresh water prawn culture.

Fishery zones of India and the type of fishery in these zones-fisheries of Oil-sardine, Indian mackerel, Bombay-duck and Hilsa-fishing crafts and gears-preservation and processing- by-products of fishery industry.

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., Londan.
9. Jhingran, C. G. (1981). Fish and Fisheries of India. Hindustan Publilcating Co., India.

I M.Sc., ZOOLOGY

II - SEMESTER

TITTLE OF THE PAPER : FUNCTIONAL MORPHOLOGY AND PHYLOGENY OF CHORDATES

Core – Paper - IV **Course Code –**
Teaching Hours: 75 hrs **Credits : 4**

Objectives: To enhance knowledge of the chordates and their evolutionary significance.

UNIT I **15 hrs**

Geological time scale – Fossil records in the various strata. Origin of Chordates- Theories. Broad classification of Chordates – Phylogenetic Affinities of Cephalochordata and Urochordata.

UNIT II **20hrs**

Evolutionary and structural pecularities of Cyclostomata and affinities – Petromyzon – Myxine. Elasmobranch evolution –Dipnoi structural pecuilarities, Discontinuous distribution and their affinities. Coelocanth fishes. Economic importance of fishes. Parental care in fishes.

UNIT III **10 hrs**

Amphibia- Origin and evolution. Adaptive radiation in Amphibia.
Reptilia - Origin and evolution of reptiles. Adaptive radiation of modern reptiles; Dinosaurs- reasons for extinction.Sphenodon.

UNIT IV **10 hrs**

Aves - Origin and evolution - Origin and distribution Ratitae.
Mammals – Origin and evolution - critical account of Prototheria, Metatheria and Eutheria. Adaptive radiation in mammals.

UNIT V **20hrs**

Comparative anatomy – Comparative study of Integumental derivatives , Jaw suspension – Fate of visceral arches. Respiratory organs, Vertebrate Kidney , Urinogenital organs, Brain, Heart and Aortic arches.

TEXT BOOK:

1. 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. Saunder‟s company
4. Young, J.A- Life of Vertebrates. Oxford press.
5. Waterman, A.J – Chordate structure and Function. Mac Millian and co.

I M.Sc., ZOOLOGY
II - SEMESTER

TITLE OF THE PAPER : BIOPHYSICS AND BIOSTATISTICS

Core – Paper - V **Course Code -**
Teaching Hours: 75 hrs **Credits: 4**

Objective: To highlight the statistical applications in biological sciences and to enhance the principles of physics in biology.

BIOPHYSICS

UNIT I **15 hrs**

Principles of light Microscopy and Electron Microscopy and their applications; Principles and methods of Histology and Histochemistry, Freeze-drying, Freezing Microtome and Cryostat.

UNIT II **15hrs**

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 Infra red Spectroscopy in Biological investigations.

UNIT III **15 hrs**

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.

BIOSTATISTICS

UNIT IV **12 hrs**

Sampling and sample 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, Frequency Curve

UNIT V **18 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. Definition-computation for different types of data (ungrouped data, discrete and continuous frequency distribution). Correlation- Definition and Types. Scatter diagram. Computations of Karl Pearsons 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).

I M.Sc., ZOOLOGY

II – SEMESTER

TITLE OF THE PAPER: MICROBIOLOGY

Core - Paper VI **Course Code -**

Teaching Hours: 75 hrs **Credits:4**

Objective: 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 **18 hrs**

History and Scope: Mile stones in microbiology - Microbial Taxonomy-Classification system- Phenetic – 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 **18 hrs**

Medical microbiology- Pathogenic Microbes Bacterial –Tuberculosis, Whooping cough and Tetanus, Viral- Measles, Hepatitis, and HIV, Fungal –Candid. Protozoan Diseases – Amoebiasis and Malaria. Cure, Control and Prevention.

UNIT III **12 hrs**

Microbial Ecology and Environmental Microbiology-Role of micro organisms in carbon, nitrogen and sulphur cycle. Population interaction – commensalisms, co –metabolism, epiphyte, synergism, mutualism, competition, predation, and parasitism.

UNIT IV **12 hrs**

Food and Dairy Microbiology- Microbes in food, Role of micro organisms in food production, dairy and non-dairy-Fermented food and Alcoholic beverages. Micro organisms and Food spoilage.

UNIT V **15 hrs**

Industrial Microbiology- Industrial uses of microbes- Fermentation products. Production of Pencillin, Ethanol, Vinegar, Vitamin B_{12}, Citric acid and Protease. Methods of Immobilisation: 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 Graw hill.

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

I M.Sc., ZOOLOGY

II – SEMESTER

Elective II - TITLE OF THE PAPER: AQUARIUM FISHES (IDP)

Elective

Course Code

Teaching Hours: 80 hrs **Credits : 4**

ELECTIVE : Offered to other Department Students

Objective: To provide basic information on common aquarium fishes of India and its export potential.

UNIT I **13hrs**

Introduction: Taxonomy and biology of some common Fresh water and Marine Ornamental Fishes.

UNIT II **18 hrs**

Food and Feeding Management: Live feed organisms (Daphnia, Tubifex, Cyclops, Brachionus, Chlorella., etc.) - Formulated feed (Freeze dried tubifex, liver, vegetable food, etc.) – Method of preparation of commercial feed and quality assessment of feed.

UNIT III **18 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 **18 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.

UNIT V **13 hrs**

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 of Aquafarming
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 Jack Hen.
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.

I M.Sc., ZOOLOGY
II - SEMESTER

TITLE OF THE PAPER : PRACTICAL I – INVERTEBRATA, CHORDATA AND FISHERY BIOLOGY

Core – Practical - I **Course Code -**
Teaching Hours: 60 hrs **Credits: 4**

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. Dissection and mounting of Digestive, Nervous and Reproductive Systems in
   1. Scorpion , 2. Gryllotalpa and 3. Grasshopper.
6. Dissection of the Nervous system in 1. Mytilus and 2. Sepia
7. Mounting of Pedicellariae and Aristotle lantern in Sea Urchin.

CHORDATA

1. Dissection of internal ear in Shark.
2. Dissection of aortic arches in Shark
3. Dissection and Display of Arterial and Venous System, in Teleost fish

DEMONSTRATION

4. Identification of important Prochordates, South Indian Fishes, Amphibians, Reptiles, Birds and Mammals.

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. Commercially important invertebrates: Crab, Lobsters, Pearl oyster, Edible Oyster, Mytilus, Sepia and Loligo – their economic importance.
4. Age determination – Scale method.
5. Observation of maturity stages of gonads and determination of Gonadosomatic index and fecundity.
6. Gut content analysis of some important fishes in relation to feeding habits.
7. Observation of Gears and Crafts.
8. Observation of fish parasites.
9. Observation of Larvivorous fishes and Aquarium fishes.
10. Observation of seaweed species – their economic importance.
11. Observation of Live feed organisms.

I M.Sc., ZOOLOGY

II - SEMESTER

TITLE OF THE PAPER : PRACTICAL II: CELL AND MOLECULAR BIOLOGY, BIOPHYSICS, BIOTECHNOLOGY, GENETICS, BIOSTATISTICS AND MICROBIOLOGY

Core – Practical - II **Course Code -**

Teaching Hours: 60 hrs **Credits : 4**

CELL AND MOLECULAR BIOLOGY

1. Cytological techniques

Micrometry: Microscopic caliberation and Measurements of cell size using ocular and stage micrometers.

2. Study of different types of cells

Blood cells –Differential count in man, fish**.**

1. Histochemical techniques

Demonstration: Fixation, Dehydration, Embedding, staining (vital staining) and Mounting.

Histochemical localisation of

a. DNA
b. Lipids
c. Proteins

BIOPHYSICS

Demonstration :

1. Spectrophotometry: Principle and application
2. Electrophoresis: Description and applications.

BIOTECHNOLOGY

Demonstration:

a. Isolation of genomic DNA.
b. Isolation of plasmid DNA from bacteria.
c. Agarose gel Electrophoresis of DNA.

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, Klinefelter‟s syndrome).

BIOSTATISTICS

1. Problems relating to mean, mode and median.
2. Problems relating to standard deviation.
3. Problems relating to standard error.
4. Problems relating to Chi- square method for testing genetic ratios.

MICROBIOLOGY

1. Microscopic observation for identification and characterization of micro organisms 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.

II M.Sc., ZOOLOGY
III - SEMESTER

TITLE OF THE PAPER: BIOINFORMATICS AND COMPUTER APPLICATIONS

Core – Paper - VII **Course Code -**

Teaching Hours: 75 hrs **Credits : 4**

Objective: To impart knowledge and techniques of computers and to provide biologically important predictions from annotated data and transformation of their for DNA analysis.

UNIT I **15hrs**

Computer Hardware: Input Devices: Punched cards, Punched papers , tape , key board, barcodes, magnetic ink character readers, light pen , mouse, optical mark reader.

Output Devices – Printers, visual display unit, memory devices- primary memory devices – ROM and RAM, secondary memory devices – magnetic tapes, floppy disk , hard disk , CD.

UNIT II **15 hrs**

Computer Software: Operating system –Windows. Ms Office - Ms Word, Power point, Ms Excel.

UNIT III **15hrs**

Internet : The concept of networking computers –LAN and WAN – Internet explorer - Use of the internet- Browsing and mailing –Multimedia.

UNIT IV **15hrs**

Bioinformatics: Genomics, Proteomics, Human Genome project , DNA arrays , the need for computers in biology.

UNIT V **15 hrs**

Bioinformatics: Computers in medical imaging- CAT and MRI. DNA Sequence Analysis, Protein Sequence Analysis and Structure determination. Computers in drug design.

TEXT BOOK:

1. V. Rajaraman, Fundamentals of computers (1985) Prentice Hall of India. Pvt,

REFERENCE BOOKS:

1. Alan Fielding, Computing for Biologists (1985) Benjamin Cuming Publishing Co.
2. D. Heams and M.P.Bakers, Computer graphics (1990) -Prentice Hall of India Pvt , Ltd.
3. J.P.Lamoitier, Basic exercises for the IBM personal computer (1985). Sybex Inc., Berkely, U.S.A..

II M.Sc., ZOOLOGY
III – SEMESTER

TITLE OF THE PAPER: DEVELOPMENTAL AND STEM CELL BIOLOGY

Core – Paper - VIII **Course Code -**

Teaching Hours: 75 hrs **Credits : 4**

Objective: To understand the use of " Cells as medicine " instead of drugs stem cells can alleviate the side effects of chemotherapy and repair the damaged organs, developmental biology helps to understand the ontogeny of animals.

UNIT I **15 hrs**

Definition – Explants- Balanced salt solution- Culture media – Maintenance of aseptic conditions – Culture of animal tissues – Isolated cells – Storage – Applications – Cryobanks – Breeding rare species – Test tube babies.

UNIT II **15 hrs**

Definition and measuring of stem cell- origin and functions of stem cells- Asymmetric division of stem cells – Types of stem cells-HSCS-MSCS-NSCS-ESCS-Adult stem cells vs embryonic stem cells-Migration- Therapeutic cloning- Ethical issues- Stem cell therapy.

UNIT III **15 hrs**

Chemodifferentiation- Nucleus of cleavage cells- Distribution of cytoplasmic substances in the egg during cleavage – Role of egg cortex – Role of maternal genes during early development.

UNIT IV **15 hrs**

Gene activity during gastrulation- Involvement of paternal genes in the control of development – Hybrid andromerogones- Exogastrulation- Arrested gastrulation- Amniotic and Allantoic fluids- Nucleocytoplasmic interactions- Control of differentiation by the intra organismic environment- Control of the reactive ability of tissues by the genotype.

UNIT V **15 hrs**

Determination of primary organ rudiments- Speemann‟s primary organiser- Analysis of the nature of induction- Gradients in the determination of the organ rudiments in vertebrates – Human cloning and its ethical applications- Ageing 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. Porgaman press.
3. Robert S.RughThe frog Reproduction. (1951) Tata Mc Graw Hill publications Ltd.
4. P.K.Gupa, Biotechnology and genomics.

II M.Sc., ZOOLOGY

III – SEMESTER

TITLE OF THE PAPER : ENVIRONMENTAL BIOLOGY AND EVOLUTION

Core – Paper IX **Course Code –**

Teaching Hours: 75 hrs **Credits : 4**

Objective: To study the interaction between living organism and the environment. The environmental biotechnology is an advanced branch of biology having application in environmental science.

UNIT I **15 hrs**

Habitat Ecology-Fresh water habitat- Lotic and lentic adaptations- Marine habitat- Zonation of sea –Plankton, Importance of planktons in productivity, as indicator organisms. Nekton and Benthos.

Estuarine adaptations and its role in productivity. Major Biomes with special reference to rain forest and high altitudes. Deserts and Mangrooves.

UNIT II **15 hrs**

Resources Ecology and Management –Renewable and Non-renewable Natural Resources. Aquatic and Animal resources, Wild life Conservation and Management. National Parks and Sanctuaries in India.

UNIT III **15 hrs**

Biodiversity-Types of Environmental Pollution and their Biological Effects –Air and Water, Industrial and Noise - Control measures. Laws Related to Environment. Space ecology and Radiation ecology and its effects on Biosphere.

UNIT IV **15 hrs**

Darwinism – Darwinian postulates – Natural selection – Define : Present status of the concept of natural selection: Types – Normalizing , Balancing and Directional Natural Selection. Group selection –Kin selection.

Evolutionary trend: Orthoselection . Genetic drift and Gene flow – Founder principle – Micro, Macro and Mega Evolution. Mimicry and Colouration .

UNIT V **15 hrs**

Molecular evolution- Amino acid substitution – Evolution of mammalian Antidiuretic hormone – Cytochrome –C – Haemoglobin regulating genes.

Phylogenetic analysis- chromosome phylogenies – Electrophoretic phylogenies-

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:

ENVIRONMENTAL BIOLOGY

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, New York.
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, (1990) Kedra nath Ramnath, Merrut.
6. Chapman, R. N. 1931 Animal Ecology, Mc Graw Hill. New York.

EVOLUTION

1. Moody. P.A., Introduction to Evolution, (1978) Harper International .
2. Peter Volpe.E., Understanding and patterns in Evolution (1998), Oxford University Press.
3. Charlottee.J. Avers, Process and Pattern in Evolution (1989) Oxford University Press.

II M.Sc., ZOOLOGY

III – SEMESTER

ELECTIVE III: ENTOMOLOGY

Teaching hours 80 **Credits: 4**

UNIT I: **13 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: **13 hrs**

Insects as pollinators, predators, parasitoids, scavengers, weedkillers, etc.,

Biology of Honeybees, Lac insects and their management.

Prospects of Sericulture, Biology of Silkworm (Nutrition, Genetics, Endocrinology, Reproduction, Pest and Diseases).

UNIT III: **18 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, stored products.

UNIT IV: **18 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, Antifeedants.

UNIT V: **18 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.

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.

II M.Sc., ZOOLOGY
IV - SEMESTER

TITLE OF THE PAPER: ANIMAL PHYSIOLOGY

Core – Paper - X **Course Code**

Teaching Hours: 60 hrs **Credits : 4**

Objective: To enlighten the functional aspects of organ system in the body of animal and man towards internal equilibrium homeostasis.

UNIT I **15 hrs**

Enzyme action-Factors influencing enzyme action and its reversibility. Digestive enzymes - Mechanics of adsorption-Gastrointestinal hormones.
Exchange of gases-Transport of oxygen- Properties and Functions of Haemoglobin, Oxygen equilibrium curves. Carbon-di-oxide transport and Acid-base regulation-regulation of respiration. Life at high altitudes. Man as a deep sea diver.

UNIT II **10 hrs**

Haemodynamics in open and closed circulatory system: Electrical activity of heart muscle. Neurosecretion- Mechanisms of Hormonal Action. Physiology of Endocrine System. Sex hormones.

UNIT III **10 hrs**

Patterns of excretion in relation to environment. Renal regulation of acid-base balance. Osmo - ionic regulation in invertebrates and vertebrates. Physiology of hypertonic urine formation.

UNIT IV **15 hrs**

Muscle physiology-contractile proteins - Theories of muscle contraction. Isotonic and isometric contractions. Tetanus – Myoneural junction - Transducer mechanism in vertebrate chemoreceptors- Chemical sense and animal orientation. Theories of hearing - Echo-orientation-Photoreceptor pigments - Human eye retina-Phototropic, Scotopic and Arythmic eyes.

UNIT V **10 hrs**

Animal behaviour-Instincts-Learning –Physiological basis of learning-Circardian and Circannual rhythm-Photoperiodism. Role of pheromones – Communication.

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.

II M.Sc., ZOOLOGY
IV - SEMESTER

TITLE OF THE PAPER: BIOCHEMISTRY

Core – Paper - XI **Course Code -**

Teaching Hours: 60 hrs **Credits : 4**

Objective: To train the students to apply the principles for a better understanding of biological phenomena and to impart knowledge.

UNIT I **12 hrs**

Nature of living matter- Biomolecules, pH, Buffers. Enzymes –Mechanism of enzyme action, coenzymes, classification and functions. Isoenzymes, Apoenzymes, Holoenzymes –Enzyme kinetics.

UNIT II **13 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 **13 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 **12 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 of biochemistry(1983).
2. Lehninger,A.L.(1970):Biochemistry, worth publishing co.,N.Y.
3. Lubert stryer: Biochemistry- (1975) Freeman and co.
4. D.W.Martin,P.A.Mayer and V.W.Redwell:Harper‟s Review of biochemistry 19th edition(1983).Maruyen Asian Edition.

II M.Sc., ZOOLOGY
IV - SEMESTER

TITLE OF THE PAPER: BIOTECHNOLOGY

Core – Paper - XII **Course Code -**

Teaching Hours: 60 hrs **Credits: 4**

Objective : To impart knowledge in understanding the principles of biotechnology and its applications.

UNIT I **15 hrs**

Introduction , origin and definition , scope and importance. Cloning strategies: Isolation of genomic DNA , Plasmid and Bacteriophage DNA . Introduction of r DNA into host cell. Identification of recombinants – Selection.

UNIT II **10 hrs**

Tools of Genetic Engineering : Enzymes in Gene cloning. E.coli vectors – Plasmid biology – PBR322 and its derivatives- Gene markers, Cloning Vectors and Phage Lambda, m13 Filamentous Phages – Cosmid – Phagemid. Expression vectors.

UNIT III **10 hrs**

Gene expression in prokaryotes and eukaryotes : cloning in yeast *Saccharomyces cerevisiae* genetics .Types of vectors - gene expression system . Eukaryotic vectors – SV 40 molecular genetics – markers system. Specialized cloning vectors for copy number – cloning promoters and terminators.

UNIT IV **15 hrs**

Gene cloning in health- care products: Insulin, Human growth hormone – Interferons, Tissue plasminogen activator, Recombinant vaccines – Types of recombinant vaccines - subunit vaccines, attenuated recombinant vaccines, vector recombinant vaccines, DNA vaccines.

UNIT V

Mining and metal biotechnology: Microbial enhancement of oil recovery –Biopolymers- surfactant and non-surfactant polymers. Biodegradation –Removal of metals from water. Xenobiotics and biomining

10 hrs

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 university press.
2. Desmond S.T.Nicholl- An introduction to Genetic Engineering (1996) – Cambridge University press.
3. Purohit- Biotechnology.
4. Schlegel- Genetic Engineering .
5. R.W.Old and S.B.Primrose Principles of Gene Manipulation .(1994).V Edition . Blackwell Science.

II.M.Sc., ZOOLOGY
IV - SEMESTER

TITLE OF THE PAPER: PRACTICALS III: ANIMAL PHYSIOLOGY, ENVIRONMENTAL BIOLOGY AND BIOCHEMISTRY

Core – Practical - III **Course Code -**

Teaching Hours: 60 hrs **Credits : 4**

ANIMAL PHYSIOLOGY

1. Estimation of RQ in fish with reference to temperature.
2. O_2 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 aminoacids in the tissues (Liver/muscle) of fish / egg albumin (paper chromatography).
6. Principles and applications of the following instruments:- Kymograph, spectrophotometer, Sphygomanometer, Electrophoretic unit.

ENVIRONMENTAL BIOLOGY

1. Identification of freshwater and marine planktons.
2. Study of rocky, sandy ,muddy shore fauna , Marine an Fresh water fauna and their adaptations.
3. Determination of hydrobiological features of different samples –(freshwater, brackishwater, seawater and polluted water)-pH, salinity, free- carbon dioxide dissolved oxygen and calcium.
4. Analysis of macro and micro organisms in soil, soil litter of The Ethiraj 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.

BIOCHEMISTRY

1. Blood : Clotting time, bleeding time,.
2. Estimation of haemoglobin.
3. Erythrocyte Sedimentation Rate (ESR) - Chick.

II.M.Sc., ZOOLOGY
IV - SEMESTER

TITLE OF THE PAPER : PRACTICAL IV: DEVELOPMENTAL BIOLOGY, BIOINFORMATICS, COMPUTER APPLICATIONS, AND ENTOMOLOGY

Core – Practical - IV **Course Code -**

Teaching Hours: 60 hrs **Credits: 4**

DEVELOPMENTAL BIOLOGY

1. Oogenesis and spermatogenesis – Histological studies in a mammal.
2. Demonstration. Induced ovulation and fertilization in frog or fish.
3. Egg density in frog / fish.
4. Mounting of chick embryo.

BIOINFORMATICS

1. Displaying any one web- page from Human Genome Project (Demonstration).

COMPUTER APPLICATIONS

1. Ms Word, Ms Excel
2. Preparing a Power point presentation.
3. Graphic presentation : Bar diagram and Histogram.

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, 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.

List of Courses on Soft-Skills for PG Course

S. No.	Course Title	Semester	Hrs per week	Credits
1	Language and Communication	I	1	2
2	Spoken and Presentation Skills	IV	1	2
3	Managerial Skills	III	1	2
4	Computing Skills	II	1	2
5	Quantitative Aptitude		1	2
6	Group Discussion		1	2
7	Content Writing		1	2
8	Contemporary Awareness		1	2

UOM S 002 LANGUAGE AND COMMUNICATION

Objectives

- *enable* students to convert the conceptual understanding of communication in to everyday practice.
- *train* students to ground concepts/ideas in their own experience.
- *create* a learner-language interface enabling students to exercise control over language use.
- *sensitise* 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.

Recommended Texts

- Windshuttle, Keith and Elizabeth Elliot. 1999. *Writing, Researching and Communicating: Communication Skills for the Information Age*. 3rd Reprint. Tata McGraw-Hill. Australia.
- Dignen, Flinders and Sweeney. *English 365.* Cambridge University Press.
- Goleman, Daniel. 1998. *Working with Emotional intelligence*. Bantam Books. New York.
- Jones, Leo and Richard Alexander. 2003. *New International Business English.* Cambridge University Press.

Websites

www.tatamcgrawhill.com/sites/0070600988

http://www.skillsyouneed.com/ips/listening-skills.html

http://skillsyouneed.com/ips/social-skills.html

http://wikihow.com/Improve-social-skills

UOM S 004 SPOKEN AND PRESENTATION SKILLS

Objectives

- *coach* students to identify, classify and apply relevant skill sets.
- *illustrate* role of skills in real-life situations with case studies, Role play, etc.
- *translate* performance of skills into efficient habits.
- *enable* students to perceive cultural codes involved in presentation and design language performance accordingly.

UNIT I: General Language Knowledge and Presentation.

UNIT II: Special Language Knowledge and Presentation.

UNIT III: General Communication Skills for Presentation.

UNIT IV: Professional Communication Skills for Presentation.

UNIT V: Social Communication Skills for Presentation.

Prescribed Books:

1. Raymond V Lesikar, John D petit, mary E Flatly. 2009. Lesikar‟s Basic
2. Business communication .11th ed. Tata Mcgraw-Hill, New Delhi.

Recommended Texts

- Cathcart, Robert. S. and Larry A. Samovar. 1970. *Small Group Communication: A Reader*. 5th Edition. Wm. C. Brown Publishers. Iowa.
- Goleman, Daniel. 1998 working with emotional intelligence. Banton Books. Newyork

- Tamblyn, Doni and Sharyn Weiss. 2000. *The Big Book of Humours Training Games.* 2004 Edition. Tata McGraw-Hill. New Delhi.
- Andrews, Sudhor. 1988. *How to succeed at Interviews.* 21st Reprint. Tata McGraw-Hill. New Delhi.
- Monippally, Matthukutty. M. 2001. *Business Communication Strategies.* 11th Reprint. Tata McGraw-Hill. New Delhi.

WEBSITES:

1. http://www.skillsyouneed.com/presentation-skills.html
2. http://www.presentationskills.ca/

UOM S 006 MANAGERIAL SKILLS

Objectives

- To help students to understand the mechanism of stress particularly negative emotions such as anxiety, anger and depression for effective management.
- To introduce the basic concepts of body language for conflict management.
- To give inputs on some of the important interpersonal skills such as group decision-making, negotiation and leadership skills.
- To make students learn and practice the steps involved in time management.
- To impart training for empowerment thereby encouraging the students to become successful entrepreneurs.

UNIT I- 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- 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- 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- 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 (coalitions).
- Managerial empowerment and entrepreneurship.
- Prevention of moral dwarfism especially terrorism.
- Altruism (prosocial behaviour/helping behaviour).
- Spirituality (clarifications with regard to spirituality)- strong sense of purpose- trust and respect- humanistic practices- toleration of fellow human beings expressions.

PRACTICAL TRAINING

Relaxation exercises- Western (Autogenic Relaxation) and Indian techniques (Shavasana).

Role-play.

Transactional Analysis.

REFERENCES

1. Swaminathan. V.D & Kaliappan. K.V. (2001). Psychology for Effective Living. Chennai. The Madras Psychology Society.
2. Robbins, S.B. (2005). Organizational Behaviour. 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.

UOM S 008 COMPUTING SKILLS

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 any6 work place 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 or 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- Autofiull, 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, wizard- 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 need 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.

***Examination*:**

1. Internal assessment could be based on Theory and/or practicals.
2. End semester is based on practicals.

SOFT SKILL

GROUP DISCUSSION

CREDITS: 2 NO.OF HOURS PER WEEK: 1 MARKS: 100

COURSE OBJECTIVES:

To impart the skills of solving problems quickly, efficiently and to give practice of facing Aptitude Test conducted by IT industry confidently.

1. FDI in higher education: a boon or bane?
2. Is wiki leaks 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?

SOFT SKILL

CONTENT WRITING

CREDITS: 2 **NO.OF HOURS PER WEEK: 1** **MARKS: 100**

COURSE OBJECTIVES:

Content writing enables the students to write documents in the software project and preparing the report of work done. Content writing gives a brief summary of unique ideas used to solve the given problem.

UNIT I: Introduction, Problem analysis

UNIT II: Design, Filter module

UNIT III: Stemming module, Parser module

UNIT IV: Testing documentation

UNIT V: Conclusion

PRESCRIBED BOOKS:

1. Thomas Jund, Andrew Mustun, Laurent Cohn, “Quaneko, Find the stuff on your local Harddisc”.

SOFT SKILL CONTEMPORARY AWARENESS

CREDITS: 2 **NO.OF HOURS PER WEEK: 1** **MARKS: 100**

COURSE OBJECTIVES:

To enhance the knowledge of the students on current environmental issues and to keep them updated on the day to day happenings.

UNIT I: Recent developments in science and technology including development in space, telecommunication and computers.

UNIT II: Environmental issues, human resources and related issues etc., role of national institutions.

UNIT III: International affairs and Institutions/Organizations related to it.

UNIT IV: Indian politics and Economy

Unit V: Geographical facts about India and the world

REFERENCE BOOKS:

1. The Pearson objective- general knowledge, Pearson publication
2. Current affairs, Jagran josh, josh publications, 2014.

WEBSITES:

1. http:///top7bisiness.com/?Top-7-Tips-to-Improve-Your-Telecommunication-Skills&id=207
2. http://www.epw.in/

SOFT SKILL MANAGERIAL SKILLS

CREDITS: 2 **NO.OF HOURS PER WEEK: 1** **MARKS: 100**

COURSE OBJECTIVES:

To provide the students with the basic knowledge in business management skills

UNIT I: Negotiation skills

UNIT II: Interpersonal and Persuading skills

UNIT III: Kinesics

UNIT IV: Business Etiquettes

UNIT V: Personal grooming and Interview skills

PRESCRIBED BOOKS:

1. Goleman, Daniel. 1998 Working with emotional intelligence. Bantam books, Newyork
2. Business communication.1 1th ed.Tata McGraw-Hill, New Delhi

REFERNCE 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

SOFT SKILL-QUANTITATIVE APTITUDE

CREDITS: 2 **NO.OF HOURS PER WEEK: 1** **MARKS: 100**

OBJECTIVE:

Students are trained in aptitude which includes numerical problems.
At the end of the session they should be able to clear aptitude test.

UNIT I: Numbers, HCF, LCM, Decimal fractions, simplification,square roots,cube roots,averages.

UNIT II: problems in numbers and ages, surds, indices, percentages, profit and loss, ratio and propotion,partnership,chain rule.

UNIT III: Time and work, pipes and distances. Time and distance, problems on trains.

UNIT IV: Boats and streams, allegation, simple interest, compound interest, logarithms,area,volume and surface area.

UNIT V: Races and games of skill,calendar,clocks,stocks and shares,permutation and combination, probability,true discount, banker‟s discount,height and distances,old manout and series, tabulation, bargraphs, pie charts, line graphs.

PRESCRIBED BOOKS:

1. R.S. Agarwal, “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.

GURU NANAK COLLEGE

VELACHERY ROAD, CHENNAI – 600042

ACCREDITED BY NAAC WITH "A" GRADE



M.COM COMMERCE (GENERAL)

(SEMESTER SYSTEM WITH CREDITS)

WITH EFFECT FROM ACADEMIC YEAR 2018-2019

REGULATIONS AND SYLLABUS

P.G DEPARTMENT&CENTRE FOR RESEARCH IN COMMERCE

GURU NANAK COLLEGE [AUTONOMOUS],CHENNAI-42

M.COM (GENERAL) [CHOICE BASED CREDIT SYSTEM]

W.E.F. AY 2018-19

SEME-STER	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	\4
	SOFT SKILL – I	ESSENTIALS OF LANGUAGE AND COMMUNICATION	2	2
		TOTAL	***30***	***22***
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	5	4
	CORE PAPER - VIII	INCOME TAX LAW AND PRACTICE	6	4
	ELECTIVE – II – EXTRA DISCIPLINARY	KNOWLEDGE MANAGEMENT	5	4
	INTERNSHIP			2
	SOFT SKILL – II	COMPUTING SKILLS	2	2
		TOTAL	***30***	***24***
III	CORE PAPER – IX	RESEARCH METHODOLOGY	6	4
	CORE PAPER – X	FUNDAMENTALS OF INFORMATION TECHNOLOGY	5	4
	CORE PAPER – XI	ACCOUNTING FOR MANAGERS	6	4
	CORE PAPER – XII	INDIRECT TAXES	5	4
	ELECTIVE – III EXTRA DISCIPLINARY	INDUSTRIAL RELATION AND LABOUR WELFARE	6	4
	SOFT SKILL – III	ESSENTIALS OF SPOKEN AND PRESENTATION SKILLS	2	2
		TOTAL	***30***	***22***
IV	CORE PAPER – XIII	CHANGE MANAGEMENT	5	4
	CORE PAPER – XIV	ADVERTISING AND SALESMANSHIP	6	4
	CORE PAPER – XV	CONSUMER RIGHTS AND EDUCATION	5	4
	CORE PAPER – XVI	PROJECT PLUS VIVA VOCE #	6	4
	ELECTIVE –IV	COMPUTERIZED ACCOUNTING	6	4
	SOFT SKILL – IV	PERSONALITY ENRICHMENT	2	2
		TOTAL	***30***	***22***

#@ Viva-voce examination carries 20 Marks and Project Report carries 60 Marks & CIA 20 marks. Project Viva-voce is considered one core paper.

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.

APPENDIX-A

GURU NANAK COLLEGE [AUTONOMOUS],Chennai-42
MASTER OF COMMERCE (M.Com. General)
(Choice Based Credit System) [w.e.f.2018 - 2019]

REGULATIONS

1. CONDITIONS FOR ADMISSIONS

A candidate who has passed the B.Com. B.Com/B.A (Corporate Secretaryship), B.Com (Acc Fin) B.C.S., B.B.A., B.Com (Bank Management), B.Com./B.A.(Co-operation), B.A. (Indus. Org.) and B.Sc.(Maths)/ Bsc (Stats) or B.Sc,(Comp. Sc.) or B.C.A, with any two core/main papers offered at the B.Com shall be eligible for admission to M.Com Degree course.

2. ELIGIBILITY FOR THE AWARD OF DEGREE

A candidate shall be eligible for the award of the degree only if he/she has undergone the prescribed course of study in a college affiliated to the University for a period of not less than two academic years, passed the examination of all the four semesters prescribed earning 90/91 credits and fulfilled such conditions as have been prescribed therefor.

3. DURATION OF THE COURSE

The duration of the course is for two academic years consisting of four semesters.

4. EXAMINATION

There shall be four semester examinations: first semester examinations at the middle of the first academic year and the second semester examination at the end of the first academic year. Similarly, the third and fourth semester examinations shall be held at the middle and the end of the second academic year, respectively.

5. The scheme of examinations for different semesters shall be as follows:

The following procedure to be followed for Internal Marks:

Internal Marks: 50

Test	= 20 marks (5=5=10)
Assignment	= 10 marks
Seminar	= 15 marks
Attendance	= 5 marks

Practical: Internal Marks 50

Attendance	= 5 marks
Practical Test	= 20 marks
Observation	= 10 marks
Practical activities	= 15 marks

Project:

Internal Marks	best 2 out of 3 presentations	= 20 marks
Viva		=20 marks
Project Report		= 60 marks

6. REQUIREMENTS FOR PROCEEDING TO SUBSEQUENT SEMESTERS:

(i) Candidates shall register their names for the First semester examination after the admission in the PG courses.

(ii) Candidates shall be permitted to proceed from the First Semester upto the Final Semester irrespective of their failure in any of the Semester Examination subject to the condition that the candidates should register for all the arrear subjects of earlier semesters along with current (subject) Semester subjects.

(iii) Candidates shall be eligible to proceed to the subsequent semester, only if they earn, sufficient attendance as prescribed therefore by the Syndicate from time to time.

Provided in case of candidate earning less than 50% of attendance in any one of the semester due to any extraordinary circumstance such as medical grounds, such candidates who shall produce Medical Certificate issued by the Authorised Medical

Attendant (AMA), duly certified by the Principal of the College, shall be permitted to proceed to the next semester and to complete the course of study. Such candidate shall have to repeat the missed semester by rejoining after completion of final semester of the course, after paying the fee for the break of study as prescribed by the University from time to time.

7. PASSING MINIMUM:

a) There shall be (50%) 25 marks Passing Minimum for Internal.

b) For External Examination, Passing Minimum shall be of 50%(Fifty Percentage) of the maximum marks prescribed for the paper for each Paper/Practical/Project and Viva-voce.

c) In the aggregate (External + Internal) the passing minimum shall be of 50% .

d) Grading shall be based on overall marks obtained (internal + external).

8. CLASSIFICATION OF SUCCESSFUL CANDIDATES:

Candidates who secured not less than 60% of aggregate marks (Internal + External) in the whole examination shall be declared to have passed the examination in the First Class.

All other successful candidates shall be declared to have passed in Second Class.

Candidates who obtain 75% of the marks in the aggregate (Internal + External) shall be deemed to have passed the examination in First Class with Distinction, provided they pass all the examinations (theory papers, practicals, project and viva-voce) prescribed for the course in the First appearance.

9. RANKING:

Candidates who pass all the examinations prescribed for the course in the first appearance itself alone are eligible for Ranking / Distinction.

Provided in the case of candidates who pass all the examinations prescribed for the course with a break in the First Appearance due to the reasons as furnished in the Regulations under "Requirements for Proceeding to subsequent Semester" are only eligible for Classification.

10. PATTERN OF QUESTION PAPER FOR THEORY PAPERS FROM THE ACADEMIC YEAR 2018-2019 SHALL BE:

Section A: 10 questions to be answered out of 12, each carrying 3 marks (10x 3=30)

Section B: 5 questions to be answered out of 8, each carrying 6 marks (5x 6=30)

Section C: 4 questions to be answered out of 6, each carrying 10 marks (4x 10=40)

11. PATTERN OF QUESTION PAPER FOR PROBLEM PAPERS FROM THE ACADEMIC YEAR 2018-2019 SHALL BE:

Section A: 10 questions to be answered out of 12, each carrying 2 marks (10x 2=20)

Section B: 5 questions to be answered out of 8, each carrying 8 marks (5x 8=40)

Section C: 2questions to be answered out of 4, each carrying 20 marks (2x 20=40)

12. APPEARANCE FOR IMPROVEMENT:

Candidates who have passed in a theory paper / papers are allowed to appear again for theory paper / papers only once in order to improve his/her marks, by paying the fee prescribed from time to time. Such candidates are allowed to improve within a maximum period of 10 semesters counting from his/her first semester of his/her admission. If candidate improve his marks, then his improved marks will be taken into consideration for the award of Classification only. Such improved marks will not be counted for the award of Prizes / Medals, Rank and Distinction. If the candidate does not show improvement in the marks, his previous marks will be taken into consideration.

No candidate will be allowed to improve marks in the Practicals, Project, Viva-voce, Field work.

13. TRANSITORY PROVISION: Not available at present

Candidates who have undergone the course of study prior to the academic year …. will be permitted to appear for the examinations under those Regulations for a period of three years i.e., upto and inclusive of April/May ….. Examinations. Thereafter, they will be permitted to appear for the examination only under the Regulations then in force.

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 ACCOUNTING 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
8. Thomas, P. Edmonds, Fundamentals of Financial Accounting Concepts, TMH,New Delhi

Web References

www.**accounting**coach.com
www.**accounting**studyguide.com
www.cimaglobal.com
www.futureaccountant.com

Second Semester

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
www.computerizedaccount.tripod.com

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**

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

www.taxmanagementindia.com

EXTRA- DISCIPLINARY ELECTIVE- II 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

THIRD SEMESTER

CORE PAPER - IX **RESEARCH METHODOLOGY**

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 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.

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 provide distinction between Direct Tax and Indirect Tax and also related incidence of tax rules for indirect tax and to provide understanding on the concept central excise and Service under the emerging increase importance of service sector

UNIT- I

Basics: Tax Vs Duty; Direct Tax Vs Indirect Tax – Powers of Union/States – Varieties of Indirect Taxes – Movement towards GST

UNIT- II

Central Excise: Factors for Levy of Excise Duty – Goods, Excisable Goods, Manufacture, India
– First principles of valuation of goods – Types of Excise Duty – Procedure for assessment and payment of Excise Duty – Philosophy of Cenvat – Registration

UNIT- III

Service Tax: Genesis – First Principles of Taxable Service, Negative list, Exemption list, Taxable area, non-taxable area, point of taxation and valuation - Procedure for assessment and payment of Service Tax – Philosophy of Cenvat – Registration

UNIT- IV

Factors for levy of Customs Duty – First principles of valuation – Procedure for assessment and payment of Customs Duty – Types of Customs Duty – Warehousing – Drawback

UNIT- V

Value Added Tax: Salient features of VAT – Sales, Not Sales and Deemed Sales – Goods and Not Goods – Procedure for assessment and payment of VAT – Composition Scheme – Philosophy of Input Tax Credit – Registrations – Glimpses of CST

Book References

1. Datey, Indirect Taxes, Taxman Publication
2. Reddy T S and & Hariprasad Y Reddy, Business Taxation, Margham Publications
3. Govindan N S, Indirect Taxes made easy, Seethraman & Co
4. Finance Act, 1994
5. Central Excise Act, 1944
6. Customs Act, 1962
7. CST Act, 1956
8. TNVAT Act, 2006

Web References

www.legalserviceindia.com
www.indiacorporateadvisor.com
www.tnvat.gov.in
www.cbec.gov.in

ELECTIVE –III EXTRA DISCIPLINARY

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

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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

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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 4th 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 4th 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 – 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

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

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

Web references

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.emeraldinsight.com

www.taylorandfrancis.com

www.oxfordjournals.

EXTRA- DISCIPLINARY ELECTIVE- IV OPERATIONS RESEARCH

Object: 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 2017-2019

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 theperformance 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 Supplementary Examination

The details of the ESE is as follows:

External Component			
Assessment type	**Comprehensive**	**Maximum**	**% of**
		Marks	**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 currentsemester 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><th colspan="2">Range of Marks</th><th colspan="2">Grade Points</th><th colspan="2">Letter Grade</th><th colspan="2">Description</th></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">50-59</td><td colspan="2">5.0-5.9</td><td colspan="2">B</td><td colspan="2">Average</td></tr>
<tr><td>PG</td><td>UG</td><td>PG</td><td>UG</td><td>PG</td><td>UG</td><td>PG</td><td>UG</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.Com (Hons)</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

CGPA		GRADE		CLASSIFICATION OF FINAL RESULT	
PG & UG		**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			
PG	**UG**	**PG**	**UG**	**PG**	**UG**
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 NO OF PAPERS	CREDIT PER PAPER	Teaching Hours r paper per week @ 3 class days per W e e k	Duration of semester Exam (Hours)	PAPER-WISE CREDIT TOTAL			SEMISTR – WISE CREDIT TOTAL
								Core	Non-core	
I	C O R E	Theory	3	3	4	3	9	1 5		21
		Field Work	1	6	-	Viva	6			
	E l e c t i v e	T h e o r y	2	2	3	3	4		6	
	Soft Skill	-	1	2	2*	CIA	2			
II	C O R E	Theory	3	3	4	3	9	1 7		23
		Field Work	1	6	-	V i v a	6			
		Summer Placements **		2	-	Individual presentati on	2			
	E l e c t i v e	Theory	2	2	2	3	4		6	
	S o f t S k i l l		1	2	2*	CIA	2			
III	C O R E	Theory	3	3	1 2	3	9	1 6		22
		Field Work	1	6	-	Viva	6			
		Study Tour**	1	1	4 - 5 days	-	1			
	E l e c t i v e	Theory	2	2	2	3	4			
	S o f t S k i l l	-	1	2	2*	C I A	2		6	
IV	C O R E	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	
	S o f t S k i l l	-	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	Counselling	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 Economics (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)	International Social Work (CD and MPSW)/ Strategic HR 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**					

SEMESTER - 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)	Women Development (CD)/ Human Resource Development (HRM)/ Hospital Administration (MPSW)	3	45	3	50	50	100
Interdisciplinary (Common Paper)	Corporate Social 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 (Field Work)	Concurrent Field Work - IV	6			50	50	100
Soft Skill - IV	Spoken and Presentation Skills	2	30	3		100	100
Core Paper	Block Placement (After the IVth Semester	2					
(Field Work)	**Theory Examination)**						
	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 andPromotive Approaches, RightsBased, 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, 2nded, 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: (5 hours)

Sociology: Definition, Nature and Importance. Fundamental concepts: Society, Community, Association, Institution, Organization, social structure and Social System. Relationship of sociology with social work.Social Process (co-operation, competition, conflicts, accommodation, assimilation and acculturation).

UNIT II: (6 hours)

Concept, Functions and Elements of culture- norms, folkways, mores, institutions and laws.Institution: Concept, Function and types of Institution (Religious, Economic, Educational, Social [caste, family, kinship, marriage], Political institution. Changing Trends in these institutions and their institution and their impact on Indian society.

UNIT III: (6 hours)

Concept, needs, means of social control-formal and informal. Agencies of social control-values, norms, folkways, custom, mores, law and fashion.

UNIT IV: (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 movement, Kisan Movement, Self-respect movement, Naxalbari movement, Religious movements.

UNIT V: (6 hours)

Social problems-meaning, causes and consequences.General social problems-terrorism, health, environmental degradation, population, unemployment, poverty, illiteracy. Problems faced by women, children, weaker sections, marginalized and elderly. 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. Bhusan, Vidya & Deva Sach, D.R. (2005). *An Introduction to sociology*.Allahabad, UP: Kitab Mahal Publications.
2. Duberman, Lucile and Clayton.*Sociology—focus on society*. A.Hartjen.
3. Gidden, Antony. (2001). *Sociology*.Cambridge. UK: Polity Press.
4. Madhan,G.R. (1973). *Indian social Problems*. Allied Pacific pvt Ltd.
5. Richard.T., & Schaefer, Lamm. P. & Robert.(1995). *Sociology*.New York. NY: Mc. Graw Hill Inc.
6. Srinivas, M.N., (1963). *Social changes in modern India*. University of Calcutta.

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 and learning-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.

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: Mental Health and Mental Disorders. (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. Coon, Dennis. (1977). *Introduction to Psychology, Exploration and Application.*
2. Coon, Dennis. (1980). *Introduction to psychology*. Watts & Company.
3. Gross, Richard. (2nd ed), D. *Psychology – The Science of Mind and Behaviour*.,Hodder and Strongton.
4. Hjelle, Larry, A., Ziegler, Daniell J,. (1981). *Personality theories*. McGraw-Hill.
5. Hurlock, Elizabeth, B. (1980). *Developmental psychology: Life-span Approach.* McGraw-Hill.
6. Morgan and King.(6th ed), (1979).*Introduction to psychology*.McGraw Hill.
7. Seven Pathways, Bruno, Frank, J., (1983).*Adjustment and Personal Growth*. John & Wiley sons, Inc.
8. Sarason, Irwing, Sarson, Barbara, R,.(3rd ed). (1980). *Abnormal Psychology*. Prentice Hall.
9. Steinberg, L., & Hueberverlag, Max. (1996). *Adolescence Munchen*.
10. 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:

- To highlight the relevance of research for social work
- To study the various facets of the research process with special emphasis on quantitative research
- To hone the skills in undertaking research and in writing about the same.
- To develop an understanding about the scientific approach to human inquiry
- To acquire the skills for data analyses and research writing.

UNIT I: Introduction (9 hours)

Meaning: Research, social research and social work research; scope and objectives of social work research; social work research ethics; relevance of research for social work; approaches to research: quantitative and qualitative research

Introduction to qualitative research: meaning, characteristics and methods (case study, focus group, diaries, documents). Approaches - mixed method approach, historical approach. Concept of participatory and development 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- formulating hypothesis. Research design: Meaning, types.

UNIT III: Data Collection (9 hours)

Data: Meaning, Sources: Primary and Secondary, Tools: Observation, Questionnaires

Interview Schedule, Interview Guide, Group Interviews, Focus Group discussion.Pilot study and Pretesting of the tools. Scaling Techniques: concept and types (Likert, Thurston). Reliability and validity of tools. Selection of Sample: Meaning of Sample, Universe, Sampling Method (probability and non probability) techniques. Usage of Internet in data collection.

UNIT IV: Data Processing and Analysis (9 hours)

Content checking- Editing data- classification – coding –Tabulation-Analysis- Presentation – Interpretation.Levels of Measurements (nominal, ordinal, interval and ratio) .Types of data analysis – Univariate, Bivariate, multivariate Analysis. 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.

UNIT V: Data Presentation & Interpretation and Research writing (9 hours)

Data Presentation & Data Interpretation: Meaning and Need.

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. Duane, Monette, R. & Thomas, Sullivan, J. (1998). *Applied social Research: Tool for Human Services*. New York, NY: Harcourt Brace College Pub.
2. Gupta, S.C. *Fundamentals of Statistics*, Himalaya Publication Co.
3. Goode, William.J &Paul K.Hatt.*Methods in Social Research*. New York, NY: Mc.Graw Hills.
4. Gopal, M.B.*An Introduction to Research Procedure in Social Science*. Bombay, Bombay: Asia Publication House.
5. Kothari, C.R.(1997). *Research Methodology, Method and Techniques*, New Delhi, New Delhi : Vishwa Prakashan.
6. Ramachandran, P.(1990).*Issues in Social Research in India*.Bombay, TISS.
7. Ramachandran, P. (1993).*Survey Research for social work*. Bombay, Bombay: Institute for Community Organization Research.
8. Rubbin, Allen and Babbie, Earl.(2004). *Research Methods for Social Work with infotrac*.California, US Thomposon and Wadsworth Publishing.
9. Wilkinson, T.S &Bhandarkar, P.L.*Method and Techniques in social Research*. Himalaya Publications.
10. 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 (6 Hours)

Genealogy of Welfare State - Concepts: Rights, Justice, Citizenship, and Welfare State - Relationship between Civil society, State, Governance and Development – various critiques of Welfare State theories - typologies of welfare state regimes – globalization and welfare states.

UNIT I (6 Hours)

Introducing Social policy and Social legislation. Post-colonial Welfare State: Policy making processes and structures in India – The role of Executive, Legislature and judiciary-Political parties, Pressure groups, Non-Governmental Organizations, Mass Media. Policy implementation: The role of Governmental agencies - the participation of Non-governmental organizations and citizens participation- Problems in implementation of policy-Analysis of different policies of the Central and State Governments. Liberalism, Globalization and changing nature of social policy in India.

UNIT III (6 Hours)

Child Marriage restrained (Amendment) Act, 2006; Child Labour (Prohibition and Regulation) Act, 1986; Central Adoption Resource Agency Guidelines, 1991; Pre Conception and Pre-Natal Diagnostic Techniques Act (Prohibition of Sex Selection), 1994. The Juvenile Justice (Care and Protection of Children), Act 2000; Right of Children to Free and Compulsory Education Act. 2009; Women: Prevention of Immoral Traffic Act, 1956; Dowry Prohibition Act, 1961; Medical Termination of Pregnancy Act, 1978; Indecent Representation of Women Act, 1986; Domestic Violence Act, 2005. Sexual Harassment in Work Place prohibition & redressal 2013.

UNIT IV (6 Hours)

Bonded Labour System (Abolition) Act, 1976; The Mental Health Act, 1986; The SC/ST (Prevention of Atrocities) Act, 1989 & Rules 1995, The Persons with Disabilities (Equal Protection of Rights And Opportunity and Full Participation) Act, 1995; The Unorganized Workers' Social Security Act, 2008.

UNIT V **(6 Hours)**

Protection of Human Rights Act, 1993; Consumer Protection Act, 1986; Right to information Act, 2005; Mahatma Gandhi National Rural Employment Guarantee Act, 2005.Enviornment protection Act,1986; Public Interest Litigation, Legal Aid in India.

REFERENCES:

1. Alcock, A. Erskine and May. (eds), (2003). *The Student's Companion to Social Policy*.(2nd edt). Blackwell.
2. Clasen, J. (ed.). (1999).*Comparative Social Policy: Concepts, Theories and Methods*. Oxford: Blackwell.
3. Harihar, Bhattacharya., Partha, sarkar and Angshuman, Kar. (eds). (2009).*The Politics of Social Exclusion in India*.Routledge, Democracy at the Crossroads.
4. James, Midgley and Michelle Livermore (eds).(2009).*The Handbook of Social Policy*. Sage Publication Kurien.*Growth and Justice*.(1992). Madras Oxford University Press.
5. Lewis, Gail et al (ed.) (2000). *Rethinking Social Policy*. London: Sage.
6. Marshall, T.H. (1975).*Social Policy in the Twentieth Century*. London: Hutchinson & Co
7. Pierson, Christopher and Castles, Francis (ed). (2006). *The Welfare State: Reader*. Cambridge:Polity Press.
8. Sainsbury, D. (ed.), (1999).*Gender and Welfare Regimes*. Oxford: Oxford University Press.
9. Sundarum, R.M., (1987). *Growth and Income Distribution in India*.New Delhi, New DelhiPolicy and Performance Since Independence, Sage.
10. Vivekanandan, B. &Nimmi Kurian (eds), (2005).*Welfare State and the Future*. Hampshire: Palgrave Macmillan.
11. Williams. (1989).*Social Policy: A Critical Introduction.* Polity Press.

PERIODICALS & JOURNALS :

- Journal of Comparative Social Policy
- Journal of Comparative Social Welfare
- Combat law
- 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: 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 determine environmental circumstances that may or may not affect the counseling process

UNIT – I **(6 hours)**

Counseling – Definition, objectives. Qualities of a counselor. Theoretical approaches of counseling.Individual Vs group counseling – Ethics in counseling.

UNIT – II **(6 hours)**

Counseling skills and its process. Skills: Relationship, Sympathy Vs. Empathy and problem solving, decision making, behavior modification skills. Process: Steps, Techniques and Interventions. Skill Model.

UNIT – III **(6 hours)**

Life span Counseling / Counseling with different age groups..

UNIT – IV **(6 hours)**

Counseling for managing changes – Migrants, Refugees and Work place Counseling organizational changes etc. Counseling at different situations – Trauma care, Communal riots, Rape victims, Martial, Family, Alcoholic and their family, Counselling clients with Suicide ideation, Deaddiction counselling and AIDS. counselling in terminal Situations.crisis counseling, school counseling, Career Counselling.

UNIT – V **(6 hours)**

Ethics in counseling – Code of Ethics and Practice of Counseling. Issues and situations. Counseling in emergency Disaster Situations.

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.

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, SampoommaGrameenRozgarYojana, National Food for Work Programme, Jai Prakash Rozgar Guarantee Yojana, Antyodaya, Minimum Needs Programme, Rural Water Supply Programme, Rural Sanitation Programme, IndraAwasYojana, Accelerated Irrigation Benefit Programme, Water Shed Development Programme, Accelerated Rural Electrification Programme, Integrated Rural Energy Programme, Pradhan MantriGramodavaYojana, 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 ECONOMICS

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)**

Concept of Developed and Developing economies. Basic characteristics of the Indian economy, Major issues of development. Women as contributors to Development.Importance of knowledge of economics for social work practice.

UNIT II: Human Development and MDG **(9 hours)**

Millennium Development Goals and targets. Concept and measures of Human Development, Human Development Index, Gender Development Index, Gender Empowerment Measure. Human Development in India and states.

UNIT III: Agriculture and Economy **(9 hours)**

Agriculture and Economy: place of agriculture, causes for low productivity, farm size, fragmentation of holdings, cooperative forming, concept of food security and self Sufficiency, Green revolution and Mechanization of agriculture, Agriculture policy

UNIT IV: Industry and Development **(9 hours)**

Industry and economy: role of industrialization, pattern of industrialization, definition and role of public and private sector, IT sector, Service sector, small scale industry,village and cottage industry. Five year plans and Current industry policy-central andstate and Special Economic Zones-issues and implications.

UNIT V: Globalization and WTO **(9 hours)**

Globalization and its impact on Indian economy, World Bank, GATT, TRIPS, WTO-mission, Principles and functions and impact of WTO on economy.

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 sagarPublications.
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. OxfordUniversity Press.
6. Human development Reports UNDP publication.

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 (9 hours)

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.
8 . Lal , meera. (1994). *Quality management through quality circles- an Indian model*. Authors Press.
9. 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- Use of Mental Health Scales in assessment and intervention.

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),

UNIT IV **(9 Hours)**

Neurotic stress related and somatoform disorders. Study of the Clinical Signs, Symptoms, Causes and Treatment of: Behavioral syndromes associated with physiological disturbances. Disorders of adult personality and behaviour- Mental Retardation- Disorders of Psychological Development Behavioral and emotional disorders with onset in childhood and adolescence- suicide, sexual Disorders.

UNIT V **(9 Hours)**

Mental Health Act 1987, Person with Disabilities Act, 1995, 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. Bhugra ,Gopinath., & Vikram Patel., (2005). *Handbook of Psychiatry- A South Asian Perspective*. Mumbai: Byword Viva Publishers Pvt. Ltd.
2. Coleman, & James, (1996). *Abnormal Psychology Modern Life*. Mumbai: Tarapore Vala and Sons.
3. Kaplan , Harold, I., & Sadock, B.J., (1989). *Comprehensive Text Book of Psychiatry*. London: Williams & Wilkins, Baltimore.
4. Kapur, M., (1995). *Mental Health of Indian Children*. New Delhi: Sage Publications.
5. Mane, & Gandevia., (1998). *Mental Health in India: Issues and Concerns*. Mumbai: Tata Institute of Social Sciences.
6. WHO. (2004). The ICD-10 Classification of Mental and Behavioral Disorders,
7. Diagnostic Criteria for Research, AITBS Publishers and Distributors, Delhi
8. 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:

1. To develop an understanding of multidimensional approach to Health.
2. To understand the administration of the basic health infrastructure in the country
3. 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 – Community 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: INTERNATIONAL SOCIAL WORK

SUBJECT CODE:	THEORY	100 MARKS

Teaching Hours: 30
Credits: 2

Objectives:

1. To develop an understanding of the concepts of Social Work and International Social Work.
2. To make Students understanding the importance of utilizing an integrated perspective approach.
3. To provide the knowledge of the global context to International Social Work.
4. To familiarize the specific in International Social Work.
5. To give knowledge of some key programmes and strategies.

UNIT-I **(6 hours)**

Introduction -Definition, Features and scope of International Social Work, Concept development: social inequality social capital, Sustainable Development, structural adjustments, human development, capability approach. Diversity issues.

UNIT-II **(6 hours)**

Integrated perspective approach: global, human rights, ecological and social development perspectives. Basic programmes and strategies for international Social Work – Introduction, empowerment, capacity building, self-help and Self-reliance, social cohesion, income generation and community development. Challenges for International social Work for the Twenty First Century.

UNIT-III **(6 hours)**

Perspective on Poverty: Global poverty and deveopment–current dimensions and trend, various types of facets of poverty, Globalization and poverty, Poverty and thedevelopment process, Poverty measurement and indicators Alleviation policy and programmes.

UNIT-IV **(6 hours)**

Conflict and post conflict reconstruction-Extend and nature of modern conflict, Post- conflicts situation, post –conflict reconstruction agenda, Humanitarian Aid, Strategies for post conflict situations. Some Key areas of International Social Work in post-conflict situation, strengthening people's capacities rebuilding Community displacements and Forced Migration-Forced migration: presenting Situation and its back ground, Nature of forced migration in the contemporary World, Specific aspects of International Social Work's involvement in forced Migration situation- Trauma Counseling programs, social and recreation, Psychosocial programme, refuge women, repatriation programmes

UNIT-V **(6 hours)**

Tools for Development- Socio-economic / livelihood analysis, PRA/Palmetto, Policy analysis, Budget analysis, Gender analysis, stake holder analysis. Participatory project planning, Monitoring and Evaluation – Project Cycle, Logical Framework Approach.

Teaching methodology

Class Lectures, Discussion, Assignments/ paper Presentation, Guest Lectures.

Suggested Readings

1. Axin, G.H., & Axinn, N.W. (1997). *Collaboration in International Rural Development*. A Practioners Hand Book. New Delhi, India: sage
2. Cox,D., & Power, M. (2006). *International Social: Issues, Strategies and Programmes*. New Delhi : Vistaar Publications.
3. IFAD,IARF, MYRADA (Eds.,Pub), (2001). *Enhancing Ownership and Sustainability*. A Resource Book on Participation.
4. Metteri, Anna., & Kroger, Teppo., Pohjola, Anneli. Pirkko-LiisaRauhala (Edts). (2004). *Social Work Visions from around the Globe,* Haowath University Press.
5. Ramanathan, Chathapuram. S., & Link, Rosemary. J. (1998). *All Our Futures: Principles & Resources for social work practice in social era*. USA,Wards worth Publications.
6. UNDP-Human Development Reports 2000 Onwards Bank- World Development Report since 2000 Oxford Press Chennai.

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 industriesCorporation (NSIC), National Research Development Corporation (NRDC), Entrepreneurship development institute of India, National Institute for EntrepreneurshipOf 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 **(9 hours)**

Concepts: Industralisation, Urbanisation, Urbanism, Urban area, Suburb , Exurb, Urban sprawl, Slums, Squatter settlement, Ghetto; Urban development, Urban Community Development. Urban agglomerations, Metro & Megalapolis. Urbanization theories.

UNIT II **(9 hours)**

Urban Problems: Definition , causes, consequence- Migrants, Housing ,Transport ,Slums, Displacement ,Gated communities . Slum improvement and housing for the poor: strategies , Govt. programmes – Tamil Nadu Slum Clearance Board, NGO interventions, Critical assessment of interventions.

UNIT III **(9 hours)**

Urban Development and Urban Community Development in India: Delhi and Hyberabad projects; TNUDP, Jawaharlal Nehru Urban Renewal Mission, TN Urban development Fund. Role of Govt.agencies such as HUDCO, Corporation of Chennai and CMDA. Urban Local Government- Municipalities, Corporations – structure and functions. 74h amendment. Critical assessment of the effectiveness of Govt. intervention – NBO,TNIUS role and functions.

UNIT IV **(9 hours)**

Marginalized groups in Urban area: Urban displaced / evicted : causes, consequences ,interventions; Street and Working Children ; Homeless in Chennai, Trafficked women and children ; Specific Issues: Pollution and Solid waste management in Urban areas; Disaster management in urban areas.

UNIT V **(9 hours)**

Social work and urban community development : roles of the community development professional: conscientization, organizing, developing local leadership, conflict resolution ,enhancing peoples participation advocacy, capacity building.

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: WOMEN DEVELOPMENT

SUBJECT CODE:	THEORY	100 MARKS

Teaching hours: 45
Credits: 3

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; Women in development, women and development, Gender in development– meaning, strategic and practical needs; Patriarchy and patriarchial structures in India; Feminism and Women's movements. Gender analysis and its framework: Moser Framework , Social Relations Framework (SRF) (Kabeer), Harvard Framework, Gender Analysis Matrix (Parker), Womens Empowerment Framework (Longwe). Gender Census, Sex Ratio, WID, GID, GAD. Gender Mainstreaming, Gender budgeting. Self Help Groups: benefits, procedures and best practices.

UNIT II Education and Employment **(9 hours)**

Education :Differences between male and female children inenrolment 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, trends, exploitation of women, marginalization and casualization of women's labour, feminization of poverty, multiple roles of women.

UNIT III Women and Health **(8 hours)**

Health issues of women in India: Health problems, maternal health, maternal mortality, family planning choices and impact on health, access to health services. HIV/AIDS and impact on women in India.

UNIT IV Women in difficult circumstances (9 hours)

Women indifficult circumstances: sexwork, 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 (9 hours)

International conventions and efforts: CEDAW, Beijing Conference, International organizations and policies. Development programmes for women-Government policies and programmes for women-State and Center; Constitutional provisions; reservations for women. Best practices, Conventions, Committees, Policies and programmes. Role of National and State Women's Commissions

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*. New Delhi: Shakthi Books.
4. Hamilton. (1992). *The liberation of women: a study of patriarchy*. George Allenand Unwin, London.
5. ICSSR (1985). *Status of women in India- report of the National Commission*. New Delhi: Allied publishers.
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, Neera. (1987). *Women and society in India*, Ajanta Publications, New Delhi
10. UshaRao(1983), *Women in Development Society*, Ashish Publishing house, NewDelhi.
11. ShramShakthi, 1989.

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

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*. (7th edn) Pinnacle, Delhi.
9. UDAI PAREEK, & RAO T.V. (2006). *Designing & Managing Human Resource systems.* (3rd edn), 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:

- To develop the knowledge of Psychosocial Treatment Methods for persons with Mental and Emotional Disorders.
- To acquire knowledge of Institutional and Extra-mural approaches to provision of Mental Health Services.
- 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 Social Worker 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)**

Clinical Setting-Definition, Types, Models of Clinical Practice, Psycho- Social Therapies-Definition, Types, Emerging Trends in Holistic treatment.

UNIT II **(9 Hours)**

Social Worker's role in Therapy, Application of Social Case Work, Social Group Work in Clinical setting- Emerging trends. Use of Advanced Counseling Techniques in clinical setting-Behaviour Therapy-Cognitive Therapy- Gestalt Therapy.

UNIT III **(9 Hours)**

Psychotherapy- Definition, Techniques - Application of CBT in Clinical Settings- Interpersonal Therapy- Psychoanlysis- Role of Social Worker.

UNIT IV **(9 Hours)**

Indigenous therapeutic Techniques- Yoga, Meditation, Spiritual Healing and Relaxation Therapy

UNIT V **(9 Hours)**

Current trends in Healing- Transactional Analysis, Neurolinguistic Programming, Positive Imaging, Self analysis and Healing, Pain Management techniques, PTSD Therapy- Use of Art Based Therapies in the healing Process.

REFERENCES:

1. Egan, Gerard. (2006). *The skilled helper: A problem management and opportunity, Develpoment Approach to helping*, Wadsworth publishers, Boston, USA.
2. Hamilton, Gordon. (1955). *Theory and Practice of Social Case Work*. Columbia University Press, New York, USA .
3. Helen, (1995). *Social Case Work: A Problem Solving Process.* The University of Chicago Press, Chicago, USA.
4. Konopka, (1983). *Social Group Work: A helping Process*. Prentice Hall, New Jersy, USA.
5. Lapworth, Phil, (2001). *Integration in Counselling and Psychotherapy: Developing a personal approach*. sage publications, New Delhi.
6. Mangal, S.K. (2006). *An Introduction to Psychology*. Sterling Publishers Pvt. Ltd.
7. Windy, Dryden. (2002). *Handbook of Individual Therapy*. Sage Publications, New Delhi.
8. 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: Management Concepts and Theories: (4 hours)
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)

Objectives

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.

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)

(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 2018-19 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 2018-19 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 METHODOLOGY

SUBJECT CODE: 18LECOC01	THEORY & APPLICATION	MARKS 100
SEMESTER: I	CREDITS: 5	TOTAL HOURS: 6

Objective

To create an awareness of the Process of Research, the tools and techniques of research and generation of reports.

Unit I: Introduction to Research

Meaning – Objectives – Types of Research – Scope of Research – Research Approaches – Research Process – Research Design – Research Methods Vs Research Methodology – Steps in Research – Problem Formulation – Statement of Research Objective – Exploratory – Descriptive – Experimental Research.

Unit II: Methods of Data Collection

Observational and Survey Methods – Field Work Plan – Administration of Surveys – Training Field investigators – Sampling methods – Sample size.

Unit III: Tools for Collection of Data

Questionnaire Design; Attitude measurement techniques – Motivational Research Techniques – Selection of Appropriate Statistical Techniques.

Unit IV: Statistical Methods

Tabulation of data – Analysis of data – Drawing Testing of hypothesis, advanced techniques – ANOVA, Chi-Square – Discriminant Analysis – Factor analysis Conjoint analysis – Multidimensional scaling – Cluster Analysis (Concepts only)

Unit V: Report Writing

Types of Reports, Business, Technical and Academic Report Writing – Methodology Procedure – Contents – Bibliography.

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

CORE PAPER – II: ADVANCED ECONOMIC THEORY

SUBJECT CODE: 17LECOC02	THEORY	MARKS 100
SEMESTER: I	CREDITS: 5	TOTAL HOURS: 6

Unit-I

Theory of Demand – Axiomatic approach, Demand functions, Consumer behavior under conditions of uncertainty. Theory of production – Collusive and non-collusive oligopolies Different models of objectives of the firm – Baumol, Morris and Williamson Factor pricing. General equilibrium and Welfare Economics.

Unit – II

Keynesian and post-Keynesian approaches to theory of output and employment; concept of investment multiplier; consumption hypotheses. Theories of investment and accelerator. Theories of demand for money – Keynesian and post-Keynesian. Different approaches to money supply; money supply; components and determinants; money multiplier.

Output – price determination (aggregate supply and aggregate demand curve analysis) Fleming – Mundell open economy model.

Unit-III

Development and Growth – Role of institutions. Theories of growth and development – Models of growth of Joan Robinson and Kaldor; Technical Progress – Hicks, Harrod and learning by doing, production function approach to the determinants of growth: Endogenous growth: role of education, research and knowledge – explanation of cross country differentials in economic development and growth. Theories of development – Classical, Marx, Schumpeter and structural analysis of development – Imperfect market paradigm, Lewis model of development, Ranis-Fei model, Dependency theory of development. Factors in economy development – natural resources, population, capital, Human Resource Development and infrastructure Trade and development – trade as engine of growth, two-gap analysis, Prebisch, Singer and Myrdal views; gains from trade and LDCs.

Unit-IV

Theories of taxation, types, incidence and effects - Theories of public expenditure – effects on savings, investment and growth Burden of Public debt Union Finance – Trends in Revenue and Expenditure of the Government of India – State finance – trends in Revenue and Expenditure of the State Governments Public Debt – India's public debit since 1951 – growth composition,

ownership pattern and debt management - Union – State Financial Relations – Horizontal and vertical imbalances; the Finance Commissions Fiscal Policy and Fiscal Reforms in India

Unit-V

Monetary approach and adjustment in the balance of payments - Regional blocs – multilateralism and world trading system - The Political Economy of imposition of non-tariff barriers - International trade under conditions of imperfect competition in goods market- Theory of International reserves - Optimum Currency Areas – Theory and impact in the developed and developing countries- WTO and its impact on the different sectors of the economy.

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.

ELECTIVE: SPECIALIZATION PAPER: ENVIRONMENTAL ECONOMICS

SUBJECT CODE: 17LECOC03	THEORY	MARKS 100
SEMESTER: I	CREDITS: 5	TOTAL HOURS: 6

UNIT – I: Introduction: Economy-environment interaction; Material Balance Principle; entropy law; market failure; property rights; open, closed and common access resources; resource economics – environmental economics – ecological economics: characteristics and synergy

UNIT – II: Environment vs Development

Relation between development and environmental stress; Environmental Kuznet's curve hypothesis – theory and empirical evidence; concept of sustainable development; indicators of sustainability; various approaches to environmental accounting

UNIT – III: Public Goods and Externalities

Externalities – positive, negative and ecosystem externalities; Market failure; Public goods and bads – characteristics, categories; efficient provision of public goods and bads; Pricing of public goods and bads; Non-exclusion and commons - Pigouvian solution – taxes and subsidies; Buchanan's theory; Coase's theorem and its critique; Pigouvian vs Coasian solution; detrimental externality and non-convexities in the production set; Property rights; collective action.

UNIT – IV: Resource Economics

Exhaustible Resources – Hotelling's rule; Market structures and optimal extraction policy; Exploration; Resource scarcity; Renewable Resources – Characteristics of growth functions and growth rate; Economic models of fisheries; Economics of optimal harvest cycles of forests; Economics of biodiversity

UNIT – V: Environmental Regulation in India

Evolution of environmental policy in India; Air and water Acts; fiscal incentives; enforcement and implementation issues; emerging options – eco-taxes and eco-subsidies; case studies on pollution control in India

REFERENCES:

1. Kolstad, C., Intermediate Environmental Economics, Oxford University Press, 2012 (2nd Edition)
2. Kolstad, C., Environmental Economics, Oxford University Press, 2000.
3. Hanley, N., J.F. Shogren, and B. White, Environmental Economics: In Theory and Practice, Oxford University Press, 2006.
4. Prato, T., Natural Resource and Environmental Economics, Wiley-Blackwell, 1999.
5. Grafton, Q., Adamowicz, W., Dupont, D., Nelson, H., Hill, R.J., Renzetti, S., The Economics of Environment and Natural Resources, Wiley-Blackwell, 2004.
6. Perman, Roger, Yue Ma, Michael Common, David Maddison, James Mcgilvray, Natural Resource and Environmental Economics – 4th Edition, Pearson, 2012.
7. Conrad, J.M. and C. Clark, Natural Resource Economics – Notes and Problems, Cambridge University Press, 1987.
8. Conrad, J.M. Resource Economics, Cambridge University Press, 2010.

Note: Question paper set by individual guide and common examination under the guidelines of COE.

THESIS WORK

Research topic is assigned by the individual guide with discussion of Research Scholar.

GURU NANAK COLLEGE

(Autonomous)

VELACHERY ROAD, CHENNAI – 600042

(Re-Accredited 'A' grade by NACC

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M.Phil. Degree

(ZOOLOGY)

(SEMESTER PATTERN WITH CHOICE BASED CREDIT SYSTEM- CBCS)

SYLLABUS

(For the candidates admitted for the academic year 2015-2016 and onwards)

GURU NANAK COLLEGE, VELACHERY, CHENNAI-42
(Effective for the batch of Candidates admitted in 2018-2019 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	Applied Entomology	5	3	100
	Project Work	Dissertation	21	-	300

The assignment of marks for Project is as follows:

Continuous Internal Assessment

Literature survey, Methodology and Results of the project work - 60 marks

End Semester Assessment

Project work book - 40 marks

Dissertation - 150 marks

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-Focussing, 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 Dosimmetry, 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 – Glycans, Helix-Coil Transition. Vander Waals Electrostatic, Hydrogen bonding and Hydrophobic interaction, Energy terms in Biopolymers Conformational Calculation.

2. Glycolysis and TCA cycle, Glycogen break down and synthesis, Glycogenesis Interconversion of Hexoses and Pentoses, Amino acid metabolism, Co-ordianted control of metabolism, Biosynthesis of Purines and Pyrimidines, Oxidation of Lipids biosynthesis of Fatty acids, Triglycerides, Phosopholipids, Steroids.

3. Enzyme kinetics (negative and positive co-operativity) 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-energitics.

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, Attenutation 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, Onocgenes, 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)
APPLIED ENTOMOLOGY

(Credits: 5)

Unit – I

A. **Insect Classification & Biodiversity:**
Classification of insects with distinguishing features of important orders with examples – Thysanoptera, Isoptera, Dictyoptera, Orthoptera, Diptera, Neuroptera, Hemiptera, Hymenoptera, Lepidoptera, Coleoptera. Insect biodiversity and assessment.

B. **Major Crop Pests and their Management:**
Pests of cereals (rice, wheat and sorghum), Cotton, Sugarcane, Pulses, Oil Seeds, Vegetables, Fruit Crops, Plantation Crops, and Stored Grains.

C. **Pest Population Dynamics and Crop Losses:**
Biotic and Abiotic factors influencing pest population dynamics; Types of losses, Estimation of losses.

Unit II

Tactics of Insect Control

1. **Host plant resistance:**
Types and mechanisms of resistance
Genetics of resistance and breeding of insect pest resistance varieties
2. **Biological control:**
Biocontrol agents: Natural (Parasitoids and predators) and Entomopathogens (bacteria, viruses and fungi).
Formulations of microbial pesticides and methods of application
Augmentation and conservation of natural enemies.

Unit III

3. **Chemical control**
Classification of insecticides, major groups of pesticides
Important insectides in use, pesticide application methods and appliances (sprayers and dusters), handling of pesticides (precautions, first aid and antidote)
4. **Chemical ecology/Allelochemicals in insect control**
Semiochemicals/ Allelochemicals and pheromones and their role in monitoring and mating disruption techniques for the control of pests; cconstitutive and induced defences and impact on biological control- Tritrophic interactions.

Unit IV

5. **Hormonal control of insects**
Brain hormone, Juvenile hormone and Moulting hormone analogues and insect growth regulators and their role in insect control and modes of action.
6. **Cultural control of insect pests:**

Impact of alternate host plants and weeds, crop rotations, trap crops, fertilizer application, water management and Crop residue disposal.
Important Vectors of human and plant diseases.
IPM

Unit V

7. **Industrial Entomology:**
   a) Lac culture and Productivity
   b) Sericulture and resource potential – types of silk moths – methods of sericulture and silk yield
   c) Honey bees and apicultural techniques.
   d) Insects as food, ornamental insects

References:

1. R.F. Chapman – The insects structure and function
2. R.G. Davies – Imm's General Text Book of Entomology (Vol. I & II)
3. T.V. Ramakrishna Ayyar – Economic Entomology for South India. Narendra Publishing House, Delhi.
4. V.B. Wigglesworth – Insect Physiology, Chapman and hall.
5. Lourry P. Pedigo – Entomology and Pest Management. Macmillan Publishing Company, New York.
6. Dennis S. Hill – Agricultural insect pests of the tropics and their control, Cambridge University, London.
7. Richard L. Ridgway, Robert M. Livestein, May N. Inscoe. Behavior modifying chemicals for the insect management. Marcel Dekker inc. New York.
8. Mellville , Dupprte. Manual of Insect Morphology. Robert E. Krieger publishing company, New York.
9. Ayodhya P.Gupta. Haemocytic and Hormonal immunity in arthropods. A Wiley Insersuence Publication.
10. Comprehensive insect physiology, biochemistry and pharmoclogy. Vol. I – G.A. Kerkut, L.I. Gilbert.
11. Gupta, A.P. Insect Haemocytes. Cambridge University Press, Cambridge.
12. T.N. Ananthakrishnan- Recent advances in entomology in India. Viswanathan Pvt. Ltd. Chennai.
13. R.F. Chapman, Anthony. Biology of grasshoppers. John Wiley & Sons, Wiley Interscience Publications.
14. Gangwere and M.C. Muralirangan – The bionomics of grasshoppers katydids and their kin. CABI.

PROJECT WORK: DISSERTATION

(Credits: 21)

Study of biodiversity of Insects in crop fields, Conduction field and laboratory experiments to evaluate insecticides/ biopesticides/ biocontrol agents/ pheromones/ sticky traps/ light traps, etc.

Animal Ecology

Research in molecular taxonomy of animals, genetics

Reproductive physiology

Growth dynamics of animals

Animal toxicology

Oncology

Biodiversity

Contemporary research topic of interest to student/guide

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DEPARTMENT OF TAMIL

Regulations and Syllabus
(For the UG Batch of 2018 – 2021)

Part –I Foundation Course–LANGUAGE- TAMIL

Batch -2018-2021

PAPER TITLE: Modern Literature and Journalism

SUBJECT CODE: 17UTAMF01/17UHATAF01	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 3**	**TOTAL HOURS: 90**

COURSE OBJECTIVES:

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.

UNIT- I **15 மணி நேரங்கள்**

இராமலிங்கஅடிகள் - *பிள்ளைச் சிறுவிண்ணப்பம்- 'தடித்தஓர்மகனை',* ' பெற்றதம்பிள்ளைக் குணங்களை','பொய்பிழை அனந்தம்','வெம்மதிக் கொடியமகன்', 'இறக்கவும்ஆசையில்லை' எனத்தொடங்கும் 5 பாடல்கள்.

பாரதியார் கண்ணன் என் விளையாட்டுப்பிள்ளை&கண்ணன்என்காதலன்-1

பாரதிதாசன் - தமிழின்இனிமை- கைமைப்பழி *நூலைப்படி* - எனத் தொடங்கும் மூன்றுபாடல்கள்

கவிமணி தேசிக விநாயகம் பிள்ளை - பெண்களின் உரிமைகள்

கண்ணதாசன் - கவிஞன் யானோர் காலக்கணிதம்

UNIT- II **15 மணி நேரங்கள்**

கவிஞர் மு.மேத்தா - ' செருப்புடன் ஒரு பேட்டி' *(கண்ணீர்ப் பூக்கள்)*

வைரமுத்து - 1.மழைக்காலப்பூக்கள் **(இன்னொரு தேசிய கீதம்)**

2.மரங்களைப்பாடுவேன்**(இந்தப் பூக்கள் விற்பனைக்கல்ல)**

சுந்தரராமசாமி - 'ஒரு படைத்தலைவர் மேலதிகாரிக்கு மனதில் எழுதும் சொற்கள்'

இன்குலாப் - 'ஒவ்வொரு பூக்களையும்' எனும் தலைப்பிலான கவிதை

மனுஷ்யபுத்திரன் - 'கால்களின்ஆல்பம்' (*மனுஷ்யபுத்திரன் கவிதைகள்)*

செல்வி, சிவரமணி - 'உங்களின் வரையறைகளின் சாளரத்துக்குப் பின்னால்', 'பூமியின் மையத்துள் கொதிக்கும் தழலென 'எனத் தொடங்கும் கவிதைகள்

இலக்கணம்- -- (*செய்யுள் பகுதிக்கான இலக்கணக்குறிப்பு மட்டும்)*

UNIT – III **15 மணி நேரங்கள்**

சிறுகதை

வ.வே.சு.ஐயர் - குளத்தங்கரை அரச மரம்

ஜெயகாந்தன் - அக்னிபிரவேசம்

புதுமைப்பித்தன் - சாபவிமோசனம்

பிரபஞ்சன் – சைக்கிள்

UNIT –IV **15 மணி நேரங்கள்**

நாடகம் - நாற்காலிக்காரர் – ந. முத்துசாமி

நாவல் - வெக்கை - பூமணி

UNIT –V

பாடந்தழுவியஇலக்கியவரலாறு

UNIT – VI **15 மணி நேரங்கள்**

இதழியல்-அறிமுகம்

1. இதழியல் வரலாறு
2. தலையங்கம் எழுதுதல்
3. நேர்காணல்
4. நூல் மதிப்பீடு

செய்தி எழுதுதல்,செய்திக் கட்டுரை

Prescribed books: -

ந. முத்துசாமி, நாற்காலிக்காரர் , போதிவனம் பதிப்பகம், சென்னை - 2017

பூமணி, வெக்கை, *நற்றிணைப் பதிப்பகம்*, சென்னை

தொகுப்பு நூல் , தமிழ்த்துறைப் பாடத் திட்டக் குழு , குரு நானக் கல்லூரி, சென்னை

Reference books: -

சக்திவேல்.சு, இதழியல் , மணிவாசகர் பதிப்பகம், சென்னை:2004

சம்பந்தன்.மா.சு., தமிழிதழியல் வரலாறு , தமிழர் பதிப்பகம்,சென்னை:1987

சிவத்தம்பி, கார்த்திகேசு., *தமிழில் இலக்கியவரலாறு* , நியூ செஞ்சுரி புக்ஹவுஸ் பிரைவேட்லிமிடெட் ,சென்னை – 2007

தமிழண்ணல், புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு, மீனாட்சி புத்தக நிலையம்,மதுரை:புதிய பதிப்பு:2014

மதுமிதா, நான்காவது தூண் (நேர்காணல்கள்) , விஜய பதிப்பகம்,சென்னை : 2006

வல்லிக்கண்ணன், தமிழில் *சிறுபத்திரிக்கைகள்,* ஐந்திணைப் பதிப்பகம், சென்னை:1971.

வேங்கட்ராமன், கா.கோ, *தமிழிலக்கியவரலாறு,* கலையக வெளியீடு,நாமக்கல் ,2008.

ஜெயம்,அ., சந்திரலேகா வைத்தியநாதன், *தமிழிலக்கியவரலாறு,*ஜனகா பதிப்பகம் சென்னை, 2013

ஸ்ரீசந்திரன் .ஜெ. தமிழ் இலக்கிய வரலாறு,தமிழ் நிலையம் ,சென்னை,புதிய பதிப்பு 2013

இணையதளம் : www.kalloorithamizh.com,

www.thamizhthuthu.com

www.tamilvu.org

www.ta.wikipedia.org

Noolagam.org

Part –I Foundation Course–LANGUAGE -TAMIL

Batch -2018-21

PAPER TITLE: Bhakthi Literature – Sitrilakkiyam – Language Skills

SUBJECT CODE: 17UTAMF02 / UHATAF02	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 3**	**TOTAL HOURS: 90**

Objectives

நோக்கம் : இடைக்கால தமிழ் இலக்கிய வளர்ச்சியை அறிதல் - ஆழ்வார் மற்றும் நாயன்மார் பாடல்களில் இலக்கிய நயமும் விழுமியங்களும் அறிதல் – சிற்றியங்களின் சிறப்பு அறிதல் – மொழித்திறன் பயிற்சி தருதல்.

UNIT-I **25 மணி நேரங்கள்**

அ . தேவாரம் – திருஞானசம்பந்தர் - 'மண்ணில்நல்லவண்ணம்வாழலாம்' எனத்தொடங்கும்பதிகம்

ஆ .நாலாயிரதிவ்யப்பிரபந்தம் – நாச்சியார்திருமொழி (வாரணம்ஆயிரம்தொடங்கி 10 செய்யுள்கள்)

இ.திருமந்திரம்– 5 பாடல்கள் ('யான்பெற்ற இன்பம்' , ஊரெல்லாம்கூடி' , 'அன்பும்சிவமும்' , 'படமாடக்கோயில்', 'மரத்தை மறைத்தது மாமத யானை') எனத் தொடங்கும் பாடல்கள்

ஈ .சித்தர்பாடல்கள்- 5 பாடல்கள் – 1. சிவவாக்கியர் - மூன்று பாடல்கள்

'என்னிலே இருந்த ஒன்றை யானறிந்தது இல்லையே'

'தூரம் தூரம் தூரமென்று சொல்லுவார்கள் சோம்பர்கள்'

'மனத்தகத்தது அழுக்கறாத மவுன ஞான யோகிகள்' - என்றவாறு தொடங்கும் 3 பாடல்கள் –

2. பாம்பாட்டிச்சித்தர்

'சாதிப் பிரிவினிலே தீயை மூட்டுவோம்'

'ஊசித்துளைக் குடத்தினில் பாம்பை யடைப்போம்' - 2 பாடல்கள்

உ. தனிப்பாடல்கள் – காளமேகப்புலவர் (பூசனிக்காய் -பரமசிவம், வைக்கோல்- யானை ,கதவு –ஆடு) என்று பொருள் அமையும் மூன்று சிலேடைப் பாடல்கள்

ஊ .இரட்டைப் புலவர் பாடல்கள் (4) அப்பிலே தோய்த்து அடுத்தடுத்து... கண்ணாயிரம்உடையகந்தையேஆனாலும்..

புராதனமான தமிழ்ப் புலவர்.....

குன்றும் குழியும்....என்று தொடங்கும் நான்கு பாடல்கள்

UNIT – II **15 மணி நேரங்கள்**

நந்திக்கலம்பகம் – 5 பாடல்கள்

திருவின்செம்மையும்நிலமகள்உரிமையும்(பா.61)

சிவனைமுழுவதும்மறவாதசிந்தையான்(தனிப்பாடல்.8)

அன்னையரும்தோழியரும்(தனிப்பாடல்.12)

ஓடுகின்றமேகங்கள்(தனிப்பாடல்.17)

வானுறுமதியை(தனிப்பாடல்.21) எனத் தொடங்கும் பாடல்கள்

முத்தொள்ளாயிரம் – 9 பாடல்கள் (சேரன்,சோழன்,பாண்டியன்)

சேரன் i)வானிற்குவையகம்வென்றது

ii)அள்ளல்பழனத்துஅரக்குஆம்பல்

iii) . ஏற்றுஊர்தியானும்

சோழன் i) கொடிமதில்பாய்ந்துஇற்றகோடும்

ii)முடித்தலைவெள்ளோட்டு

iii) .அந்தணர் ஆவொடு

பாண்டியன் i)பார்படுப செம்பொன்

ii)நேமிநிமிர்தோள்

iii) . கார்நறு நீலம் - எனத் தொடங்கும்

ஒன்பது பாடல்கள்

கலிங்கத்துப்பரணி – *போர்பாடியது* (பாடல் : 1 - 8)

'எடும்எடும்' எனத் தொடங்கி '*மருப்பொடுமருப்பெதிர்*'

முடியும் எட்டுப் பாடல்கள்

UNIT – III **25 மணி நேரங்கள்**

அ.திருக்குற்றாலக் குறவஞ்சி - வசந்தவல்லி பந்தாடுதல்

('*செங்கையில்வண்டுகலின்கலின்*' எனத்தொடங்கி' ,

'நகுதர்த் திகுதர்த் தகுதர்த் தொம்மெனப்' (பந்து) எனமுடியும்

பாடலடி உள்ளிட்ட 5 பாடல்கள் - சரணம் உட்பட)

ஆ .தமிழ்விடுதூது - 'சீர்கொண்ட' எனத்தொடங்கி 'புண்ணியம்'

முடிய – 25 கண்ணிகள்

இ.இரட்சண்யயாத்திரிகம் – சிலுவைப்பாடு - 10 பாடல்கள்

'அகில லோகம் படைத்தளித் தன்பினால்

,பொல்லாத யூதர்களும்', 'நோக்கிலணு ஒவ்வொன்றும்',

'மரணத்தின் கூரொடிய', 'என்று துயர் உறு மடவார்க்கு',

'இப் பரிசு பெருந்துக்கக்குறிமல்கி' ,

'ஈண்டினியான் புகல்வதென்', 'மற்றிரண்டு திருடரையும்',

' தன்னரிய திருமேனி',

'கீண்டீருப்பு முளையுடலைகக் கிழித்துருவி '

என்றவாறு தொடங்கும் 10 பாடல்கள்

ஈ. – பராபரக்கண்ணி - குணங்குடிமஸ்தான் – *15* கண்ணிகள்

'அண்ட புவனமென்று மாடுதிருக் கூத்தினையான்'

எனத் தொடங்கி 'தேடக் கிடையாத் திரவியமே தேன் கடலே'

எனத் தொடக்கும் 15 கண்ணிகள்

இலக்கணம் - *(செய்யுள்பகுதிக்குரியஇலக்கணக்குறிப்பு மட்டும்)*

UNIT –I **15 மணி நேரங்கள்**

பாடந்தழுவிய இலக்கியவரலாறு

UNIT – V **10 மணி நேரங்கள்**

மொழித்திறன்

1.பொருந்தியசொல்தருதல்

2.பிழைநீக்கிஎழுதுதல் - எழுத்துப்பிழை நீக்கம், வல்லொற்று மிகும், மிகா இடங்கள், தொடர்ப்பிழை நீக்கம், பிறமொழிச்சொற்களைன நீக்கி எழுதுதல்

3. அகரவரிசைப்படுத் தல்

Prescribed books: -

தொகுப்பு நூல் , தமிழ்த்துறைப் பாடத் திட்டக் குழு , குரு நானக் கல்லூரி, சென்னை

Reference books: -

- **கண்ணன்** , சிற்றிலக்கிய ஆராய்ச்சி முதல் தொகுதி, அப்பர் பதிப்பகம், சென்னை:2002 **செயராமன் .ந .வீ**., *சிற்றிலக்கியத் திறனாய்வு* ,மணிவாசகர் பதிப்பகம்,சென்னை,முதல் பதிப்பு, 1977.
- **தமிழண்ணல்**, *புதிய நோக்கில் தமிழ் இலக்கிய* வரலாறு, மீனாட்சி புத்தக நிலையம், மதுரை: புதிய பதிப்பு 2014
- **வேங்கட்ராமன், கா.கோ,** *தமிழிலக்கியவரலாறு,* கலையக வெளியீடு,நாமக்கல் ,2008
- **ஜெயம்,அ., சந்திரலேகா வைத்தியநாதன்**, *தமிழிலக்கியவரலாறு,*ஜனகா பதிப்பகம் சென்னை, 201
- **ஸ்ரீ சந்திரன் .ஜெ. தமிழ் இலக்கிய வரலாறு,தமிழ் நிலையம் ,சென்னை,புதிய பதிப்பு 2013**

இணையதளம் :

www.kalloorithamizh.com,

www.thamizhthuthu.com. www.tamilvu.org

www.noolagam.org, www.wikipedia.com.

Part –I Foundation Course–LANGUAGE TAMIL

Batch -2018-2021

PAPER TITLE:MORAL EPIC LITERATURE – CREATIVE WRITING

SUBJECT CODE: 17UTAMF02	**THEORY**	**MARKS: 100**
SEMESTER: III	**CREDITS: 3**	**TOTAL HOURS: 90**

Objectives

நோக்கம் : சங்க மருவியகால தமிழிலக்கிய வளர்ச்சி மற்றும் போக்குகளை அறிதல் , அறஇலக்கியங்கள் முன்வைக்கும் மதிப்பீடுகளைக் கற்றல் காப்பியங்களின் இலக்கியநயம் மற்றும் அவை முன்வைக்கும்மானுட விழுமியங்களைக்கற்றல்– படைப்பாக்கத் திறன்களின்பயிற்சிபெறுதல்.

UNIT – I **25 மணி நேரங்கள்**

திருக்குறள் - (அதிகாரம் 34,95,132)

அறம் – நிலையாமை

பொருள் – மருந்து

இன்பம் – புலவிநுணுக்கம்

நாலடியார் – நட்பாராய்தல் (211 தொடங்கி 21 5 வரையிலான ஐந்து பாடல்கள் – கருத்துணர்ந்து’ ‘ தொடங்கி ‘கோட்புப்பூப் போல’ முடிய 5 பாடல்கள்)

பழமொழிநானூறு _ 4 பாடல்கள் - *கல்வி* _ (பா. 5,7,)

’ஆற்றவும் கற்றார்அறிவுடையார்’(பா.5)

’உரைமுடிவுகாணான் (’பா.7)

அறிவுடைமை (பா. 27,33)

’அறிவினால் மாட்சிஒன்றுஇல்லாஒருவன்’(பா.27)

’பரந்ததிறலாரைப்பாசிமேல்இட்டு,(பா.33) என்றவாறு தொடங்கும் பாடல்கள்

பிற்கால நீதி இலக்கியம்- அவ்வையார் (*நல்வழி*)

‘சாதிஇரண்டொழியவேறில்லை’ (பா.2), ‘இடும்பைக்குஇடும்பை’ *(பா.3)*

‘ஒருநாள்உணவைஒழியென்றால்ஒழியாய் ’*(பா.11)* ‘மானம்குலம்கல்வி’*(பா.26)* - எனத் தொடங்கும் நான்கு பாடல்கள்

அதிவீரராமபாண்டியர்- 2 பாடல்கள்(*நறுந்தொகை*)

’தேம்படுபனையின்திரள்பழத்தொருவிதை’(பா.16)

'தெள்ளியஆலின்சிறுபழத்தொருவிதை' (பா.17) எனத் தொடங்கும் இரண்டு பாடல்கள்

UNIT – II **15 மணி நேரங்கள்**

சிலப்பதிகாரம் – மனையறம்படுத்தகாதை

மணிமேகலை – ஆதிரைப் பிச்சையிட்டகாதை

UNIT – III **20 மணி நேரங்கள்**

கம்பராமாயணம் – யுத்தகாண்டம்

(கும்பகர்ணன்வதைப்படலம்-பாடல் 43 – 98 வரை)

'நன்றிதுகருமமென்னாநம்பியைநணுக வோடி'

எனத்தொடங்கி *'இற்றைநாள்வரைமுதலியான்முன்செய்தன'* வரை

பெரியபுராணம் – மெய்ப்பொருள்நாயனார்புராணம்

இலக்கணம் - *அணி இலக்கணம்* - (முதல் மூன்று அலகில் உள்ளசெய்யுள் பகுதியில் இடம் பெறுபவை)

UNIT – IV **15 மணி நேரங்கள்**

பாடந்தழுவியஇலக்கியவரலாறு

UNIT – V **15 மணி நேரங்கள்**

படைப்பிலக்கியம்

கதைஎழுதுதல் – கருப்பொருள் கொடுத்து ஒருபக்கக் கதைஎழுதுதல்

புதுக்கவிதைஎழுதுதல் – தலைப்புதொடர்பாகக் கவிதைஎழுதுதல்

நாடகம்எழுதுதல் – ஓரங்கநாடகம் (இரண்டுஅல்லதுமூன்றுகாட்சிகள்)

கட்டுரைஎழுதுதல் – பொதுக்கட்டுரைஎழுதுதல்

நடிப்பு - மெய்ப்பாடு பயிற்சி

Prescribed books: -

தொகுப்பு நூல் , தமிழ்த்துறைப் பாடத் திட்டக் குழு , குரு நானக் கல்லூரி, சென்னை.

Reference books: -

- **கோபாலகிருஷ்ணமாச்சாரியார் .வை.மு**(உ.ஆ). *கம்பராமாயாணம்*, உமா பதிப்பகம், சென்னை-2006
- **சுதந்திரமுத்து.மு**. படைப்புக்கலை, அறிவுப் பதிப்பகம் ,சென்னை:2002
- **தமிழண்ணல் ,** *புதியநோக்கில் தமிழிலக்கிய வரலாறு,* மினாட்சி புத்தக நிலையம், மதுரை, புதிய பதிப்பு:201
- **ஜெயம்,அ., சந்திரலேகா வைத்தியநாதன்**, *தமிழிலக்கியவரலாறு*, ஜனகா பதிப்பகம் சென்னை, 2013

இணையதளம் : www.kalloorithamizh.com, thamizhthuthu.com., www.tamilvu.org www.ta.wikipedia.org,www.noolagam.org

Part –I Foundation Course–LANGUAGE TAMIL

Batch -2018-2021

PAPER TITLE: SANGAM LITERATURE – FOLKLORE – COMPUTATIONAL TAMIL

SUBJECT CODE: 16UTAMF04	**THEORY**	**MARKS: 100**
SEMESTER: IV	**CREDITS: 3**	**TOTAL HOURS: 90**

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

UNIT-I **15 மணி நேரங்கள்**

நாட்டுப்புறவியல் - வரலாறு-வகைப்பாடு-நாட்டுப்புற இலக்கியம்- கலைகள்.

நாட்டுப் புறப்பாடல்கள் - தாலாட்டு, காதல், ஒப்பாரி, தொழிற்பாடல்கள், வாய்மொழிக் கதைகள்

நாட்டுப்புறக்கலைகள்– சிலம்பு, காவடி, வில்லுப்பாட்டு ,கரகாட்டம் , தெருக் கூத்து, தோற்பாவைக் கூத்து

UNIT – 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– 10 பாடல்கள் (2, 3,8,23,27,40,65,77,97,135)

கொங்குதேர்வாழ்க்கை (2) ,*நிலத்தினும்பெரிதே* (3) *கழனிமாஅத்துவிளைந்துஉருதீம்பழம்*(8) *அகவன்மகளே*((23) ,*கன்றாஉண்ணாது* (27)*யாயும்ஞாயும்* (40) *வன்பரல்தென்அறல்பருகியஇரலைதன்* 965) *அம்மவாழிதோழியாவதும்* (77)*யானேஈண்டையேனேஎன்நலனே* (97) *வினையேஆடவர்க்குஉயிரே* (135) என்றவாறுதொடங்கும் 10 பாடல்கள்

கலித்தொகை 2 பாடல்கள்----

எறித்தருகதிர்தாங்கிஏந்தியகுடைநீழல்(பா.9) பாலைக்கலி

சுடர்த்தொடீஇ கேளாய்(பா.51)குறிஞ்சிக்கலி

அகநானூறு – 2 பாடல்கள்

தமிழர் திருமண முறை குறித்த பாடல்கள் (86,136)

உழுந்துதலைப்பெய்தகொழுங்களிமிதவை(பா.86)மருதத்திணை

மைப்பறப்புழுக்கின்நெய்க்கனிவெண்சோறு(பா.136)மருதத்திணை

புறநானூறு 5 பாடல்கள் (பா. 192,204 ,208, 279,,313)

யாதும்ஊரே(192) ஈயெனஇரத்தல் (204),

குன்றும்மலையும்பலபின்ஒழிய (208) ,

கெடுகசிந்தை (279) , ஈன்றுபுறந்தருதல் (313)

எனத்தொடங்கும்ஐந்துபாடல்கள்.

UNIT – III **15 மணி நேரங்கள்**

பத்துப்பாட்டு - முல்லைப்பாட்டு முழுவதும் (103 அடிகள்)

இலக்கணம் - புறத் *திணை, துறை* -விளக்கம் – அகத்திணை – முதல், கரு, உரிப்பொருள்கள்

UNIT – IV **15 மணி நேரங்கள்**

பாடந்தழுவியஇலக்கியவரலாறு

UNIT – V **20 மணி நேரங்கள்**

கணினித்தமிழ் - வலைப்பூஉருவாக்கம், தமிழ்இணையதளங்கள்அறிமுகம், இணையஇதழ்கள்அறிமுகம்.

இணையம்என்பதுஉலகையேஒருகிராமமாகமாற்றியுள்ளநிலையில் உலகம் முழுக்க பரவியிருக்கும்தமிழர்கள்தங்கள்மரபுசார்அடையாளங்களை,உறவுகளை,நட்புகளைசமூக வெளியில்பரிமாறிக்கொள்ளும்களமாகஇணையதளங்கள்மற்றும்சமூகவலைத்தளங்கள் உள்ளன.இணையவெளியில்மனிதன்பரிமாறிக்கொள்ளும்,படைக்கும்சிந்தனைகள்புதியஇ லக்கியவடிவைப்பெற்றுள்ளநிலையில்கணினித்தமிழ்வளர்ச்சி,இணையதளங்கள், வலைப்பூஉருவாக்கம்குறித்தஅறிதல்அவசியாமாகின்றது.அவற்றின்அறிமுகமாகவேஇப் பாடத்திட்டம்அமைந்துள்ளது.)

மொழிபெயர்ப்பு – ஆங்கிலத்திலிருந்துதமிழில்மொழிபெயர்த்தல் –
(அலுவலகமொழிபெயர்ப்புமட்டும்)

Prescribed books:-

தொகுப்பு நூல் , தமிழ்த்துறைப் பாடத் திட்டக் குழு , குரு நானக் கல்லூரி, சென்னை

Reference books:-

- **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(ஸ்கைடெக் பப்ளிகேசன்ஸ்),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 பதிப்பகம் சென்னை, 2013
- **ஸ்ரீசந்திரன் .ஜெ.** *தமிழ் இலக்கிய வரலாறு*,தமிழ் நிலையம் ,சென்னை,புதிய பதிப்பு சென்னை:2013
- **தமிழ்க்கம்ப்யூட்டர், இதழ்.**

இணையதளம் : www.kalloorithamizh.com, thamizhthuthu.com. www.tamilvu.org, www.ta.wikipedia.org, www.noolagam.org

Part –IV Basic Tamil–I

Batch -2018-2021

COURSE TITLE : Basic Tamil 1

SUBJECT CODE: 16UBAT401	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 2**	**TOTAL HOURS: 30**

நோக்கம் – Course Objectives : நோக்கம் : தமிழை மொழிப் பாடமாக கற்காத மாணவர்களுக்கு அடிப்படைத் தமிழ் அறிமுகம் – எழுத்துகள், சொற்கள்,தொடரமைப்பு – அறிமுகம், பிழையின்றி எழுதுவதற்கான பயிற்சி, தொடர் எழுதுதல் மற்றும் வாசித்தல்பயிற்சி அளித்தல்

தமிழ் மொழியின் அடிப்படைக் கூறுகள்

எழுத்துக்கள் **5 மணி நேரங்கள்**

1.

முதல் எழுத்துக்கள்

1. உயிர் எழுத்து, ஆய்த எழுத்து
2. மெய் எழுத்து
3. உயிர்மெய் எழுத்து

சொற்கள் **5 மணி நேரங்கள்**

2.

1. பெயர்ச் சொல்
2. வினைச் சொல்
3. இடைச் சொல்
4. உரிச் சொல்

தொடரமைப்பு **5 மணி நேரங்கள்**

3.

1. எழுவாய்
2. பயனிலை
3. செயப்படு பொருள்

4. பிழை நீக்கம் **5 மணி நேரங்கள்**

4.

1. ஒற்றுப் பிழை

2. எழுத்துப் பிழை

3. தொடர்ப் பிழை

5.i)**பயன்பாட்டுத் தமிழ்ச் சொற்கள்** 10 **மணி நேரங்கள்**

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.org www. Tamilvu.org, www.kalloorithamizh.blogspot.in

Part –IV Basic Tamil–II

Batch -2018-21

COURSE TITLE : Basic Tamil II

SUBJECT CODE: 16UBAT402	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 2**	**TOTAL HOURS: 30**

நோக்கம் – Course Objectives : எளிய செய்யுள்கள் அறிமுகம், நீதி நூல்கள், நீதிக் கதைகள் முதலியவற்றைக் கற்பித்தல், தமிழர் வரலாறு மற்றும் பண்பாடு குறித்த அறிமுகம், பேச்சுத் திறன் பயிற்சி

I .நீதி நூல்கள் **5 மணி நேரங்கள்**

i)ஆத்தி சூடி (1-12)

ii)கொன்றை வேந்தன் (1-8)

2.திருக்குறள் -5 **5 மணி நேரங்கள்**

i)அகர முதல... (1)

ii)ஈன்ற பொழுதின்... (69)

iii)இனிய உளவாக... (100)

iv)தோன்றின் புகழோடு..(236)

v)முகநக நட்பது.... (786))

3.நீதிக்கதைகள் **5 மணி நேரங்கள்**

i)பஞ்சதந்திரக் கதை

ii) மரியாதைராமன் கதை (நேர்மை உயர்வு தரும்)

4. அறிமுகம் **5 மணி நேரங்கள்**

i)தமிழ் இலக்கியங்கள்

ii)தமிழ் நூல்களும் ஆசிரியர்களும்

iii) தமிழக வரலாற்றுச்சின்னங்கள்&சுற்றுலாத்தலங்கள்

5. அறிமுகம் **10 மணி நேரங்கள்**

i) பழமொழிகள்,

ii) விடுகதைகள்

பார்வை நூல்கள்

தியாகமணி.எஸ்.,அடிப்படைத்தமிழ்(Basic Tamil With English Translation)www.ta.wikipedia.org

www. Tamilvu.org, www.kalloorithamizh.blogspot.in

Part –IV Advanced Tamil–I

Batch -2018-2021

COURSE TITLE : Advanced Tamil–I

SUBJECT CODE: 16UADT401	**THEORY**	**MARKS: 100**
SEMESTER: I	**CREDITS: 2**	**TOTAL HOURS: 30**

நோக்கம் –Course Objectives

பள்ளிப்படிப்பில்தமிழைமொழிப்பாடமாகப்பயின்றுகல்லூரியில்பிறமொழிப்பாடத்தை தெரிவுசெய்தமாணவர்களுக்குப் பகுதி- 1 தமிழ்ப் பாடத் திட்டத்தில் சில பகுதிகளைஅறிமுகப்படுத்துதல்-- தற்கால இலக்கிய வடிவமான புதுக்கவிதையை அறிமுகப்படுத்துதல்-கவிதை வடிவில் எளிமைப் புகுத்தியவர்களை அடையாளப் படுத்துதல் –புதுக்கவிதைக் கவிஞர்கள் சிலரை அடையாளப்படுத்தி , படைப்புகளின் சிறப்புகளை அறிதல்-இதழியல் அறிமுகம் மற்றும் இதழியல் திறன்களைப் பெறுதல்

பாட நேரங்கள்

பாடஅலகு

அலகு 1 : *10* **மணி நேரங்கள்**

பாரதியார் : கண்ணன் என் விளையாட்டுப்பிள்ளை

பாரதிதாசன் : தமிழின் இனிமை

அலகு2: *10* **மணி நேரங்கள்**

அப்துல்ரகுமான் _ குருடர்களின்யானை

வைரமுத்து _ மரம் (வைரமுத்துகவிதைகள்)

அலகு 3 : *5* **மணி நேரங்கள்**

இதழியல்

இதழியல்அறிமுகம், நேர்காணல். தலையங்கம்.

அலகு 4 : *5 மணி நேரங்கள்*

பாடந்தழுவியஇலக்கியவரலாறு

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
- **தமிழண்ணல், *புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு*,** மீனாட்சி புத்தக நிலையம்,மதுரை:புதிய பதிப்பு:2014
- **வேங்கட்ராமன், கா.கோ,** *தமிழிலக்கியவரலாறு*, கலையக வெளியீடு,நாமக்கல் ,2008
- **ஜெயம்,அ., சந்திரலேகா வைத்தியநாதன்**, *தமிழிலக்கியவரலாறு*,ஜனகா பதிப்பகம் சென்னை, 2013
- **ஸ்ரீ சந்திரன் .ஜெ.** *தமிழ் இலக்கிய வரலாறு*,**தமிழ் நிலையம் ,சென்னை,புதிய பதிப்பு 2013**

Part –IV Advanced Tamil–II

Batch -2018-2021

COURSE TITLE : Advanced Tamil–II

SUBJECT CODE: 16UADT402	**THEORY**	**MARKS: 100**
SEMESTER: II	**CREDITS: 2**	**TOTAL HOURS: 30**

நோக்கம் – Course Objectives

பள்ளிப்படிப்பில்தமிழைமொழிப்பாடமாகப்பயின்றுகல்லூரியில்பிறமொழிப்பாடத்தை தெரிவுசெய்தமாணவர்களுக்குப் 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

பாடஅலகு **பாடநேரங்கள்**

அலகு 1: கட்டுரை **5 மணி நேரங்கள்**

. மு.வரதராசனார்–நல்வாழ்வு - **வழிபாடு** முதல் உரிமையும் **கடைமையும்** வரை ஐந்துகட்டுரைகள்

அலகு 2: செய்யுள் **15 மணி நேரங்கள்**

1. புறநானூறு – 'ஈயெனஇரத்தல்இழிந்தன்று', 'ஈன்றுபுறந்தருதல்'
2. திருக்குறள் – கல்விஅதிகாரம்
3. சிலப்பதிகாரம் – வழக்குரைகாதை
4. பக்திஇலக்கியம் – திருவாசகம்–நமசிவாயப்பதிகம்
5. நாச்சியார்திருமொழி–'வாரணம்ஆயிரம்'

அலகு 3 **5 மணி நேரங்கள்**

பாடந்தழுவியஇலக்கியவரலாறு

அலகு 4 **5 மணி நேரங்கள்**

மொழித்திறன்- அகர வரிசைப் படுத்துதல் ,கலைச்சொல்லாக்கம், பிழைநீக்கிஎழுதுதல்

பரிந்துரைக்கப்பட்ட நூல்

தொகுப்புநூல், தமிழ்த்துறை,குரு நானக் கல்லூரி

பார்வை நூல்கள்

- **தமிழண்ணல், புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு,** மீனாட்சி புத்தக நிலையம்,மதுரை:புதிய பதிப்பு:2014
- **வரதராசனார்.மு, *நல்வாழ்வு*, பாரி நிலையம்**, **சென்னை**: **மறுபதிப்பு**, 2000
- **வேங்கட்ராமன், கா.கோ,** *தமிழிலக்கியவரலாறு*, கலையக வெளியீடு,நாமக்கல் ,2008
- **ஜெயம்,அ., சந்திரலேகா வைத்தியநாதன்**, *தமிழிலக்கியவரலாறு*,ஜனகா பதிப்பகம் சென்னை, 2013
- **ஸ்ரீசந்திரன் .ஜெ.** *தமிழ் இலக்கிய வரலாறு*,**தமிழ் நிலையம் ,சென்னை,புதிய பதிப்பு 2013**

GURU NANAK COLLEGE

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DEPARTMENT OF SANSKRIT

Syllabus
(For the UG Batch of 2018 – 2021)

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 -2018-2021

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 -2018-2021

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 -2018-2021

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 -2018-2021

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 2018- 2021)

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 -2018-21 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 -2018-21

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 -2018-21

PAPER TITLE: Paper III : Language and Culture – I
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 1782 **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 out of 12	1-12	3	**30**
Section B	Les questions de Vocabulaire tirées du texte prescrit. Without choice based on the grammar exercise	13-21	5	**40**
Section C	Les questions de production et compréhension écrite Answer any 3 out of 4 Questions	22-26	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 -2018-21

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 out of 12	1-12	3	**30**
Section B	Les questions de Vocabulaire tirées du texte prescrit. Without choice based on the grammar exercise	13-21	5	**40**
Section C	Les questions de production et compréhension écrite Answer any 3 out of 4 Questions	22-26	10	**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: 2018-2021

PAPER TITLE: PROSE, FUNCTIONAL HINDI & TRANSLATION

SUBJECT CODE: 16UHINF01	**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: 2018-2021

PAPER TITLE: SHORT STORIES, NOVELETTE & CREATIVE HINDI

SUBJECT CODE: 16UHINF02	**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: 2018-2021

PAPER TITLE: ANCIENT & MEDIEVAL POETRY, HISTORY OF HINDI LITERATURE

SUBJECT CODE: 16UHINF03	**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	2	
	Unit – 4	1	
	Unit – 5	1	

GURU NANAK COLLEGE (AUTONOMOUS), VELACHERY, CHENNAI-42

DEPARTMENT OF HINDI

Part –I Foundation Course–LANGUAGE HINDI

Batch: 2018-2021

PAPER TITLE: MODERN POETRY & HINDI LITERATURE

SUBJECT CODE: 16UHINF04	**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	2	
	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: 2018-2021

PAPER TITLE: BASIC HINDI- I

SUBJECT CODE: 17UBAH401	**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: 2018-2021

PAPER TITLE: BASIC HINDI-II

SUBJECT CODE: 17UBAH402	**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 ROAD, CHENNAI – 600042

ACCREDITED BY NACC WITH "A" LEVEL

FOUNDATION ENGLISH

2018-21

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

PG SOFT SKILLS FROM 2016, 2017, 2018

LANGUAGE AND COMMUNICATION

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.

Recommended Texts

- Windshuttle, Keith and Elizabeth Elliot. 1999. *Writing, Researching and Communicating: Communication Skills for the Information Age.* 3rd Reprint. Tata McGraw-Hill. Australia.
- Dignen, Flinders and Sweeney. *English 365.* Cambridge University Press.
- Goleman, Daniel. 1998. *Working with Emotional intelligence.* Bantam Books. New York.
- Jones, Leo and Richard Alexander. 2003. *New International Business English.* Cambridge University Press.

Websites

www.tatamcgrawhill.com/sites/0070600988

http://www.skillsyouneed.com/ips/listening-skills.html

http://skillsyouneed.com/ips/social-skills.html http://wikihow.com/Improve-social-skills

SPOKEN AND PRESENTATION SKILLS

UNIT I: General Language Knowledge and Presentation.

UNIT II: Special Language Knowledge and Presentation.

UNIT III: General Communication Skills for Presentation.

UNIT IV: Professional Communication Skills for Presentation.

UNIT V: Social Communication Skills for Presentation.

Prescribed Books:

1. Raymond V Lesikar, John D petit, mary E Flatly. 2009. Lesikar‟s Basic
2. Business communication .11th ed. Tata Mcgraw-Hill, New Delhi.

Recommended Texts

- Cathcart, Robert. S. and Larry A. Samovar. 1970. *Small Group Communication: A Reader*. 5th Edition. Wm. C. Brown Publishers. Iowa.
- Goleman, Daniel. 1998 working with emotional intelligence. Banton Books. Newyork
- Tamblyn, Doni and Sharyn Weiss. 2000. *The Big Book of Humours Training Games.* 2004 Edition. Tata McGraw-Hill. New Delhi.
- Andrews, Sudhor. 1988. *How to succeed at Interviews*. 21st Reprint. Tata McGraw- Hill. New Delhi.
- Monippally, Matthukutty. M. 2001. *Business Communication Strategies.* 11th Reprint. Tata McGraw-Hill. New Delhi.

WEBSITES:

1. http://www.skillsyouneed.com/presentation-skills.html
2. http://www.presentationskills.ca/

MANAGERIAL SKILLS

UNIT I- 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- 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- 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- 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 (coalitions).
- Managerial empowerment and entrepreneurship.
- Prevention of moral dwarfism especially terrorism.
- Altruism (prosocial behaviour/helping behaviour).
- Spirituality (clarifications with regard to spirituality)- strong sense of purpose- trust and respect- humanistic practices- toleration of fellow human beings expressions.

PRACTICAL TRAINING

Relaxation exercises- Western (Autogenic Relaxation) and Indian techniques (Shavasana).

Role-play.

Transactional Analysis.

REFERENCES

1. Swaminathan. V.D & Kaliappan. K.V. (2001). Psychology for Effective Living. Chennai. The Madras Psychology Society.

2. Robbins, S.B. (2005). Organizational Behaviour. 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.

COMPUTING SKILLS

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- Autofiull, 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, wizard- 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 need 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.

***Examination*:**

1. Internal assessment could be based on Theory and/or practicals.
2. End semester is based on practicals.

Soft Skills I

Batch – (2018-21)

PAPER TITLE: Listening and Speaking Skills

SUBJECT CODE: 16UGSL401	**THEORY**	**MARKS: 50**
SEMESTER: I	**CREDITS: 3**	**TOTAL HOURS: 30**

COURSE OBJECTIVES:

- To prepare the students to master the English language, the spellings of the words and use them without making mistakes in their communication.
- Phonetic transcription enables the students to aptly pronounce the words
- **To improve the listening skills of the students**
- **To help the learners to acquire speaking skills in English**
- **To familiarize students with sounds not found in their mother tongue**

SYLLABUS

UNIT I Phonetic Symbols (6 hrs)

UNIT II: Stress and intonation (6 hrs)

UNIT III: Dictation and Use of Dictionary and Disambiguate sentences (6 hrs)

UNIT IV: Listening Comprehension and Developing Dialogue (6 hrs)

UNIT V: Body Language and Extempore (6 hrs)

Books for Reference:

1. Balasubramanian. T - A Textbook of English Phonetics for Indian Students – A workbook.
2. SasiKumar. V and P.V. Dharmija. 1993. Spoken English: A Self-Learning Guide Conversation Practice. 34th reprint. Tata McGraw - Hill. New Delhi.
3. Hewings, Martin. 1999. Advanced English Grammar: A Self- study Reference and Practice Book for South Asian Students. Reprint 2003. Cambridge University Press. New Delhi.
4. Lewis Norman.1991. Word Power Made Easy.
5. Mohan, Krishna &Meenakshi Raman. 2000. Effective English Communication. Tata Mc Graw Hill Publishing Company Ltd.
6. www.dictionary.cambridge.org.

SOFT SKILLS II

Batch – (2018-21)

PAPER TITLE: Reading and Writing Skills

SUBJECT CODE: 16UGSL402	**THEORY**	**MARKS: 50**
SEMESTER: II	**CREDITS: 3**	**TOTAL HOURS: 30**

COURSE OBJECTIVES

- To enable the students to design and utilize the English Language and also enable them to attain good command over the language.
- To serve as good ornament to the English communication
- To improvise their critical thinking and analytical skills.
- widens their thought process and helps them in describing their ideas

UNIT I: Vocabulary skills (8 hrs)
UNIT II: Idioms and Phrases (6 hrs)
UNIT III: Reading comprehension (8 hrs)
UNIT IV: Paragraph writing (8 hrs)

Books for Reference:

1. Balasubramanian. T - A Textbook of English Phonetics for Indian Students – A workbook
2. Mohan, Krishna &Meera Banerji. 2001. Developing Communication Skills. Macmillan.
3. Syamala. 2002. Effective English Communication for You. Emerald Publishers, Chennai.
4. Harishankar, Bharathi. Ed. Essentials of Language and Communication. University of Madras.
5. Swan, Michael and Catherine Walter. 1990. The Cambridge English Course-2. Cambridge University Press.
6. http://hubbs.spps.org/Reading-writing.html/

SOFT SKILLS III

Batch – (2018-21)

PAPER TITLE: Personality Enrichment

SUBJECT CODE: 16UGSL403	**THEORY**	**MARKS: 50**
SEMESTER: III	**CREDITS: 3**	**TOTAL HOURS: 30**

COURSE OBJECTIVES

- To enable the student's to awareness about themselves and also about how they are viewed by others.
- To serve as good ornament to the English communication
- To enable students to improve their critical thinking and analytical skills.
- To enable students to widen their thought process and helps them in describing their ideas
- To enable students to develop their writing Skills

UNIT I: Self Disclosure (6 hrs)
UNIT II: Anger, Stress and Managing Feelings (6 hrs)
UNIT III: Interpersonal Effectiveness (6 hrs)
UNIT IV: Study Skills (6 hrs)
UNIT V: Goal setting and Managing Time (6 hrs)

Books for Reference:

1 Balasubramanian. T - A Textbook of English Phonetics for Indian Students – A workbook

2 Mohan, Krishna &Meera Banerji. 2001. Developing Communication Skills. Macmillan.

3 Syamala. 2002. Effective English Communication for You. Emerald Publishers, Chennai.

4 Harishankar, Bharathi. Ed. Essentials of Language and Communication. University of Madras.

5 Swan, Michael and Catherine Walter. 1990. The Cambridge English Course-2. Cambridge University Press.

6 http://hubbs.spps.org/Reading-writing.html/

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	