

PROGRAMME SPECIFIC OUTCOME & COURSE OUTCOME

1. B.A ENGLISH PSO:

PSO1: Comprehend various forms of literature like prose, poetry, drama and fiction

PSO2: Apprehend different cultures and cultural sensibilities around the world

PSO3: Perspectives of literary movements that existed in different ages.

PSO4: Develop the knowledge of grammatical system of English language.

PSO5: Define literary theory and terms in criticism.

PSO6: Develop four language skills LSRW.

PSO7: Write analytically in different formats like essays, reviews, research papers etc.

PSO8: Scope of employability and entrepreneurship in the field of Media and Journalism, Teaching, Public Relations, Human Resource, Civil Service, Creative Writing etc.

B.A ENGLISH CO:

Semester I

Age Of Chaucer

CO 1 : Explain the prose in respective age.

CO 2 : Determine the prose style in detail.

CO 3 : Identify the poetry literary way in a specific text.

CO 4 : Define the thorough observation of drama with a respective age and text.

CO 5 : Analyse the equipped with the text .

Age of Milton and Restoration Age

CO1 :Analyzes English literary tradition from King Charles II to the age of Romanticism.

CO2 :Describe and discuss poems from John Milton to John Keats.

CO3 : Distinguish literary texts that reflect the socio-cultural and political interest of the period.

CO4 : Demonstrate the different literary cultures in relation to the drama.

CO5 :Categorize the genre of novel and short story.

History of English Literature I

CO1 : To describe how literature influences the social and political history of each period.

CO2 : To describe and identify the poetry of major writers.

CO3 : Explain various schools and forms of drama of major writers.

CO4 : Identify the literary, cultural, historical, political influence of fictional works in the literary world.

Semester II

Romantic Age

CO 1 : Describe the students with the outline of the prose through the respective age .

CO 2 : Determine the romantic age authors and their style.

CO 3 : Explain the poems of poetic devices to the specific text.

CO 4 : Analyse the background of the drama and its culture to the respective era .

CO 5 : Identity the experiment of novel concepts and its structure.

Indian Writing in English

CO1 Describe and differentiate the varieties of prose of major Indian writers.

CO2 : Identify the various forms and types of poetry.

CO3 :Specify the figurative language used in poems.

CO4 : Analyze the use of myth in Indian writing in English.

CO5 :To explain the issue or subalternity and regionality in the literary domain.

History of English Literature II

CO1 : Explain the importance of brevity in writing.

CO2 : Compare English Literature of one period with that of another.

CO3 : Demonstrate major writers and their works in chronological order.

CO4 : Explain the ethical interpreters of literary text in English by nurturing their ability to understand drama.

CO5 : Identify the literary cultural, historical, political influencers of fictional works in the literary world.

Semester III

Shakespeare

CO1: Describe and discuss the themes brought up in Shakespeare's plays, poems and sonnets.

CO2, CO3, CO4 & CO5: Analyze the structures and organizations of his dramatic works.

Identify major literary characters in Shakespeare's works.

Victorian Age

CO1 : Analyze the stylistic use of language .

CO2 : Define various elements of poetry such as diction, tone, form, genre.

CO3 : Recognize the rhythms, metrics and other musical aspects of poetry.

CO4 : Demonstrate social and artistic movements that shaped theatre and dance as we know it today.

CO5 : Make us of the beauty of coherence of language and literature.

Literary Forms

CO 1 : Explain the introduction of literary terms .

CO 2 : Identify the poetic devices to the connection of poems .

CO 3 : Describe the process and origin of the development of drama in its structure with the text .

CO 4 : Define the various types of novel with its structure .

CO 5 : Analyse the different ways of essay with the text.

Semester IV

Modern Age

Co1: Gives insight into the major issues related to the social and cultural contents of the

Co2: Recognize and analyse poetry I terms of different schools of poetry

Co3: Interpret different genres of drama like comedy, tragedy, farce and melodrama.

CO4: Perceive trends that prevailed in writing 20th century drama.

CO5: Comprehend the development of 20th century fiction and elements of fiction- style, narrative forms and point of view.

Phonetics and Phonology

CO1: Comprehend the articulation of English speech sounds.

CO2: Ability to read and write phonetic transcription.

CO3: Identify the manner of articulation and classification of vowels and consonants.

CO4: Adopt the functions of stress and intonation.

CO5: Differentiate accents of British English and American English.

Media and Communication

CO1 : Acquire in-depth knowledge of contemporary issues in media and communication.

CO2 : Make use of recent developments and current debates in media and communication through the range of modules.

CO3 : Explain various specialist subdisciplines, including big data, digital cultures , mobile media, news and information.

CO4 : Explain the methods of production and technological practices and relevant social issues.

CO5 : Demonstrate proficiency in writing in one or more professional media writing applications.

Semester V

American Literature

CO1: Analyse American prose as a expression of individual or communal values curbes within social, political and cultural perspectives of different periods in American literature

CO2: Demonstrate American literary movements through verses of the ag

CO3: Trace the development of characteristic styles of expression through American ficti

CO4: Define the diverse dramatic styles or forms that existed though the ages in America.

CO5: Express the aesthetic ideas present in both fiction and drama.

Introduction to Linguistics

CO1: Apprehend and express nature and function of language.

CO2: Develop the knowledge of grammatical system of English language.

CO3: Analyse language variation, historical, social and regional dialects.

CO4: Illustrate the differences in phonetics, phonology, morphology, syntax, semantics and pragmatics.

CO5: Gain integrated knowledge of four language skills LSRW.

Women's Writing

CO1: Perceive the concepts like women's liberty, empowerment, feminism and movements.

CO2: Examine various literary selections of fiction, drama and poetry that focuses women's life

CO3: Explain the development, themes and narrative perspectives of various works of women's

writing.

CO4: Identify the key point of a selection of feminist theory and apply them as a context for reading

literary texts.

CO5: Describe women's writing and critically analyse the varied views expressed in the text.

Literary Criticism

CO1: Define representative literary and cultural texts in diverse contexts.

CO2: Interpret the critical ideas, values and themes in the literary texts.

CO3: Apply critical and theoretical approaches to the literary pieces of the past and the present.

CO4: Write analytically in different formats like essays, reviews, research papers etc.

CO5: Evaluate literary texts and write critical views about the text.

Travel Writing

CO1 : Recognize about the historical places .

CO2 : Realize the cultural heritage of the places.

CO3 : Familiarize with writing styles of various travel writers.

CO4 : Improve the factual knowledge and problem solving skills .

CO5 : Work on adaptability, cross-cultural competence and attitude change.

Semester VI

Indian Literatures in Translation

CO1 : Examine the issues discussed in the text in the socio-historic and cultural context.

Compose an article in technical writing genre.

CO2 : Recognize poetry from a variety of cultures, languages and historic periods.

CO3 : Make use of the vocabularies and to develop an appreciation of language.

CO4 : Conceptualize various types of Drama such as Tragedy, Comedy, Farce, Melodrama etc.

CO5 : Explain the elements of fiction such as Narrative Techniques, setting, point of view, style.

European Drama

CO 1 : The students will identify the familiar of European Drama.

CO 2 : Analyse the different social issues in Europe.

CO 3 : Determine the complex issues in European Literature.

CO 4 : Explain the regional level of understanding.

CO 5 : Describe the awareness of the changes and developments in the European Drama

World literature

CO1 :Analyze the major writers and their works.

CO2 : Demonstrate and differentiate, variety of prose.

CO3 : Explain and delineate the different types of drama by major writers.

CO4 : Assess mastery in aspects of plot, setting, themes,

Modern Latin American Literature

CO1 : Realize that anything can be a subject in an essay.

CO2 : Explain the historical background of Latin America and Spain.

CO3: Interpret foundational knowledge relating to historical, socio-cultural, geographic and economic conditions in Latin America.

CO4 : Discuss basic methodologies of social science research and writing as well as humanities/language based research.

CO5 : Critically analyze ideas, evidence and arguments relating to a current topic or a significant historical event/process in Latin America.

Interpretation of literature

CO1: Define kinds of poetry and types of poetry.

CO2: Demonstrate poetry using poetic devices and metrical analysis.

CO3: Explain dramatic devices used and assess the genre in which it is written.

CO4: Illustrate characterization and its importance in drama and fiction.

CO5: Validate the forms of literature by applying literary devices.

2. B.A DEFENCE AND STRATEGIC STUDIES PSO:

On completion of B. A., Defence and Strategic Studies students will be able to:

PSO1: Define the basic concepts of National security and Strategic aspects and different dimensions and approaches to National security.

PSO2: Explain the constitutional framework of various states and Analyse the current socio, political, economic and military situation of the state under varying competitive conditions

PSO3: Assess and evaluate the national, regional and international history in the development of security studies by analyzing the causes and consequences of the war and its impact on society and nation and inculcate human values that results in the transformation of conflict

PSO4: Demonstrate critical thinking skills to analyse and evaluate the way in which National Security Strategists examine the real world scenario for the purposeful resolution.

PSO 5: Classify various theories of international relations and their application in contemporary scenario

PSO 6: Familiarize the student to read, write and speak with confidence on different aspects affecting national security and offer solutions

PSO 7: Make the students socially responsible and adopt ethical standards or practice and develop the feeling of patriotism and nationalism

PSO 8: Assess and evaluate the working process of the government on National Security affairs in terms of Policy Formulation/Policy Making

PSO 09: Students with a M.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.

4. B.B.A PSO:

PSO1: Would gain a thorough grounding in the fundamentals of business management.

PSO2: The industry and entrepreneurship oriented curriculum offers a number of specializations and practical exposures

PSO3: The holistic outlook of the program with a number of value based and personality development courses ensures that students are groomed into up-to-date, assertive and effective business executives with strong leadership skills and social consciousness.

PSO4: An ability to apply knowledge, skills and right attitude necessary to provide effective leadership in a global environment and also would equip to face the contemporary challenges in the field of Business.

PSO5: An ability to develop competent management professionals with strong ethical values, capable of assuming a pivotal role in various sectors of the Indian Economy & Society, aligned with the national priorities

PSO6: An ability to develop proactive thinking so as to perform effectively in the dynamic socio-economic and business ecosystem

4. B.B.A CO:

Subject Name/Course Code	Unit	Outcome's
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Accounting

Course Code:
17UBBAC01

Title of Paper:
Financial

CO1

To formulate of the basic concepts of Accounting

CO2

To demonstrate Sole trading Concern and Balance Sheet

CO3

To identify the main financial statements and their purposes.

CO4

To explain about depreciation and loss of Stock

CO5

To prepare about Single entry and double entry system

Management

Course Code:
17UBBAC02

Title of Paper:
Principles of

CO1

To evaluate the importance and levels of Management

CO2

To Demonstrate the planning procedure and decision process.

CO3

To explain the types of organization, power and Authority

CO4

To demonstrate about recruitment , selection and control process

CO5

To analyse about business ethics and moral responsibility

communication

Course Code:
17UBBAA01

Title of Paper:
Business

CO1

To Communicate the basic principles of effective Communication.

C02

To Create use of business letters.

C03

To Compile the business Correspondence letters

C04

To Analyse about Agenda, minutes, circular and notes

		C05	To outline about modern forms of communication
Logical Reasoning	Course Code: NME Title of Paper: Analytical and	CO1	To Identify and analyse the elements of arguments. [Inquiry, Critical Thinking]
		C02	To Effectively communicate the substance and meaning of mathematical problems and solutions. [Critical Thinking, Thoughtful Expression]
		C03	To Analyse arguments based on mathematical reasoning and/or careful analysis of data.
		C04	To Create, solve and interpret basic mathematical models. [Foundational Knowledge, Inquiry, Information Literacy, Critical Thinking]
Corporate law	Course Code: 17UBBAC03 Title of Paper: Business and	CO1	To Identify the principles behind law of contract
		CO2	To Get equipped to identify the validity different types special contracts
		CO3	to explain the use of sale of goods act
		CO4	To outline the general awareness about the principles behind, companies
		CO5	To outline the general awareness about the partnership act
17UBBAC04	Course Code: Title of Paper:	C01	to Explain the three primary purposes of management accounting namely, inventory valuation, decision support and cost control
		C02	To Compare traditional and contemporary costing approaches for the above purposes.

Accounting	Management	C03	To know how costs are analysed for different product costing contexts such as job-order, process or joint-product systems
		C04	Develop and apply standards and budgets for planning and controlling purposes.
		C05	Apply incremental analysis to a range of business scenarios.
Economics	Course Code: 16UBBAA02	C01	To acquaint the students with the micro and macroeconomic bases of business decisions in a business organization
	Title of Paper: Managerial	C02	Apply the economic way of thinking to individual decisions and business decisions
		C03	To demonstrate economies of scale, diseconomies of scale, economies of scope, and cost complementarities, and how each affects the cost of production
		C04	To Derive the equilibrium conditions for cost minimization and profit maximization
		C05	To identify the different costs of production and how they affect short and long run decisions
Insurance	Course Code: NME	CO1	To Explain nature and principles of Insurance
	Title of Paper: Basics of	C02	To discuss the features of Life Insurance
		C03	To demonstrate the features of General Insurance
		C04	To Explain the regulatory framework of Insurance in India

Management

Course Code:
16UBBAC05

Title of Paper:
Marketing

C01

To demonstrate about Marketing Approaches and marketing mix

C02

To plan for Segmentation, targeting and Positioning.

C03

To discuss the PLC, NPD, Packaging & Labelling

C04

To apply about advertisement, publicity & public relations

C05

To assess knowledge about Channels of Distribution

Management

Course Code:
16UBBAC06

Title of Paper:
Financial

C01

To identify the financial sources and the role of managing it.

C02

To analyse the use of Capital structure & equity proportion.

C03

To compute the concept of cost of Capital

C04

To evaluate calculations of dividend policies

C05

To formulate the methods of Working Capital

Course Code:
16UBBAC07

Title of Paper:
E- Business

C01

To identify the Opportunities and goals of E-Business

C02

To design the Network infrastructure for E-Business

C03

To compute the concept of Internet Payment System

C04

To predict strategies about B2B models

C05

To utilize the technology of WAP and Networking Standards

Development

Course Code: 16UBBAC08 Title of Paper: Entrepreneurial	C01	To demonstrate of basic concepts of Entrepreneurship.
	C02	To identify the Entrepreneurial Development Agencies
	C03	To outline the concept of Project Management
	C04	To plan about conducting EDP
	C05	To explain about Economic Development & Entrepreneurial growth

Enrichment

Course Code: Soft Skill Title of Paper: Personality	C01	Design and complete a research project that can take the form of a development in personality
	C02	To demonstrate the issues in human development..
	C03	The students will have the opportunity to explore current management literature so as to develop an individual style and sharpen his skills in the area of leadership, communication, decision making, motivation and conflict management

Economics

Course Code: 16UBBAC09 Title of Paper: International	C01	To acquaint the students with the micro and macroeconomic bases of business decisions in a business organization
	C02	To Explain Models Of Supply And Demand Within The Context Of International Trade Theory Analysis
	C03	To Establishe the relationship between foreign trade theory and economic development.

	C04	To analyse the concept of exchange markets, and exchange rate systems
	C05	To Explain liberalization of world trade, and international trade.
Course Code: 16UBBAC10 Title of Paper: Management Information System	C01	To Demonstrate the basic concepts and technologies used in the field of management information systems
	C02	To Compare the processes of developing and implementing information systems.
	C03	To Outline the role of the ethical, social, and security issues of information systems
	C04	To Outline the role of information systems in organizations, the strategic management processes, with the implications for the management.
	C05	To Apply the understanding of how various information systems like DBMS work together to accomplish the information objectives of an organization.
Course Code: 16UBBAC11 Title of Paper: Financial Services	C01	To Explain Financial Services management as an important and contemporary area of financial management
	C02	To Outline the various financial services and their future
	C03	To Discuss the most suitable financial service Factoring
	C04	To Discuss with the students get familiarized with Mutual Funds
	C05	To Compile about the credit rating and its regulatory

Course Code: 16UBBAC16 Title of Paper: Business Taxation	C01	To outline the Taxation concepts and articles of it
	C02	To assess the importance of taxation policies
	C03	To identify the taxable and non-taxable entities.
	C04	To analyze the Taxation Forms and Reports.
	C05	To communicate the basic concepts of GST
Course Code: Soft Skill Title of Paper: Environmental Studies	C01	To interact with the environment on both a personal and a social level
	C02	To outline the human interactions with the environment.
	C03	To demonstrate how natural systems and human-designed systems work together, as well as in conflict with each other.
Course Code: 16UBBAC13 Title of Paper: Business Environment	C01	To demonstrate the multidisciplinary nature of environmental studies
	C02	To assess the link of political environment with business
	C03	To explain the concepts of socio cultural environment
	C04	To demonstrate the concepts of legal and technological environment
	C05	To outline the financial information is utilized in business
Course Code:	C01	To Manage conflict amongst groups in business environment

16UBBAC14 Title of Paper: Organisational Behaviour	C02	To apply motivational theories in the workplace
	C03	To Identify changes within organizations and power and politics in organizations
	C04	To Evaluate the developments of basic conflict resolutions
	C05	To Examine group types and team working techniques.
Course Code: 16UBBAC15 Title of Paper: Business Research	C01	To outline the basic concepts of research process in business.
	C02	To evaluate research design and sampling techniques
	C03	To demonstrate the concept of questionnaire and graphical representation
	C04	To analyse about hypothesis testing and test of significance
	C05	To compile about research report
Course Code: 16UBBAC12 Title of Paper: Advertising management and Sales Promotion	C01	To demonstrate basic concepts of Advertising & copy development.
	C02	To outline about Mass Media & budget planning
	C03	To explain the concept of advertising agencies
	C04	To assess the use about sales promotion
	C05	To evaluate about advertisement effectiveness
Course Code:	C01	To outline the basic concepts of Production management.

16UBBAC17 Title of Paper: Operations Management	C02	To plan for production planning and control
	C03	To explain the concept of plant location & layout
	C04	To analyse about work and method study
	C05	To compile about quality control & types of inspection
Course Code: 16UBBAC18 Title of Paper: Human resource management	C01	To demonstrate the concept, principles and practices of H.R.M
	C02	To discuss HR Planning
	C03	To demonstrate Recruitment and Selection Process through Practice work
	C04	To identify the cases with applicability of training and development, personnel record reports and audit
	C05	To assess necessary skill set for application of various HR issues.
Course Code: 16UBBAC19 Title of Paper: Services Marketing	C01	To outline the theoretical and practical basis for service
	C02	To Explain the significance of services marketing in the global economy and the deeper aspects of successful services marketing
	C03	To explain the nature and scope of services marketing and present about this in a professional and engaging manner
	C04	To evaluate the expectations of customers and know how to translate this knowledge into genuine value for customers

	C05	To identify the current research trends in services marketing and management
Course Code: 16UBBAE02	C01	To identify the benefits of value creation for the customers. Gained an understanding of key concepts , technologies and best practices of CRM
Title of Paper: Customer Relationship Management	C02	To explain the customer equity and the importance of customer retention to the organization
	C03	To analyse the different processes and design the strategic framework for CRM integration in the existing functions of the organizations.
	C04	To plan CRM as a business strategy
	C05	To analyse the role of appropriate business process and technology management capabilities in managing customer relationships.
Course Code: NME	CO1	To evoke knowledge amongst students on Emotional Intelligence
Title of Paper: Importance of Emotional Intelligence	CO2	To make students understand the importance of self-awareness and self-development
Course Code: IDE	CO1	To enhance the public speaking skills
Title of Paper: Managerial Skill Development	CO2	To apply the skills in excelling in the competitive examinations.

6.B.Com BANK MANAGEMENT PSO:

PSO1:Banking system plays a very significant role in the economy of a country. The phenomenal growth of the banking and finance industry, lucrative career prospects in this field and their increasing

contribution to the development of Indian economy has brought out the need for the establishment of B.Com (Bank Management) as a separate department by the University of Madras. This course as per the demands of the student community was started in the academic year 2015-16 in our college in Shift II.

PSO2:This course familiarises the students with the subjects related to commerce such as financial and corporate accounting, cost and management accounting, corporate laws and financial services with an intense emphasis on banking technology and its regulatory mechanism, banking communication, international banking, global awareness in banking systems and banking law. This course also focusses on imparting the much needed skills like communication skills, presentation skills, technical skills, etc., through specially designed skill development programmes.

PSO3:This programme is designed to develop knowledge on the Accounting, financial aspects of management, and knowledge on banking, auditing and tax along with analytical, communication, managerial and statistical aspects in current environment.

PSO4At the under graduate level one of the best programme provides the student a specific knowledge on banking sectors as well as understanding on a variety of disciplines in commerce and management.

PSO5:The programme is designed in such a fashion to provide ample scope for practical exposure to the problems and opportunities for students who can choose not only banking sectors but also accounting sectors, management as well as entrepreneurship.

B.Com BANK MANAGEMENT CO:

Subject Name	Unit	Outcome's
Financial Accounting	CO1	Able to demonstrate the various basic accounting concepts and formulate the accounting Transactions such as Journal, Ledger, Preparation of Trial Balance
	CO2	Preparation of various types of cash book and compute final accounts with adjustments
	CO3	Compute and evaluate journal, ledger, trial balance and final accounts

	CO4	Outline the various depreciation concepts and compute the same. Explain the concept of insurance and create average clause.
	CO5	Analyse and compute errors on accounting and able to prepare suspense accounts. Compute and solve single and double entry system of accounting.
Principles of Management	CO1	Identify and apply the various levels of management, importance and application of management in functional areas like production, accounting and finance, marketing and personnel management .Demonstrate about various theories of management and their approaches to management and administrative system.
	CO2	Explain about the various functions of management such as planning, organizing, directing, and controlling and their nature, types, functions, structure and importance for the managerial activities.
	CO3	Able to Communicate the importance of planning and decision making and apply the same in managerial functions based on the process, types and functions.
	CO4	Outline the meaning and importance of staffing, recruitment and directing in an organisation.Demonstrate about various leadership styles like Authoritative, participative and delegation.
	CO5	Demonstrate about need, functions, types and process of coordination and control which are very essential for modern management and administrative system. values and social responsibilities of business
Monetary Economics	CO1	Compile the role of money in all the three economics.
	CO2	Analyse the value and utilization of money in market.

	CO3	Utilize the existing factors impacting the money supply and write a plan to overcome it.
	CO4	Outline in the significance stages of business cycle.
	CO5	Design a plan to inculcate the positive traits of emotions in our day to day life
Corporate Communication	CO1	Discuss about the various concepts of communication, principles, need and process. Outline the barriers to communication and essential ways to overcome the barriers. Explain about the various types of communication and their merits and demerits.
	CO2	Outline the various channels of communication and their role with advantages and disadvantages in an organisation.
	CO3	Explain the principles of effective letter writing and demonstrate the various business letters and layouts like parts, structure, full block, modified block and semi block.
	CO4	Compose the essential letters pertain to personnel such as Job application, Resume letter acceptance, inter office memo and letter of resignation. Design the various business correspondence essential organisational functions such as Trade letters, order, credit and status enquiry, complaints, sales and promotional letter and memo.
	CO5	Design the various report writings with respect to organisation like Agend, Minutes of Meeting, Memorandum, office order and circular
Banking Law and Practice	CO1	Discuss the significance of Banking Regulation Act, 1949 and role of RBI
	CO2	Analyse the concepts involving in banker and customer relationship.

	CO3	Compile the role of negotiable instruments such as promissory notes ,Bills of exchange, cheques, etc
	CO4	Explain the different forms of E-Banking operations along with the benefits over normal banking operations
	CO5	Analyse various forms of customer grievance redressal mechanism
Theory of Money and banking	CO1	Demonstrate about the kinds of money its functions and significance in economy.Explain the evaluation of money from Barter system to paper money which communicate about the importance of money being medium of exchange.
	CO2	Outline the evolution of banking system and differentiate the functions and structure between central and Commercial bank. Comprehend and explain about credit creation in banking, policies of banking, clearing houses and balance sheet of bank.
	CO3	Compile the functionaries of exchange and discuss about exchange market and rate of exchange. Able to demonstrate about the exchange control.
	CO4	Analyse the significance of various banking sectors in India. Students will be able to assess the differences of banking sectors and their significance for economic growth.
	CO5	Able to explain about various Indian banking sectors like NABARD,SBI,Exchange banks, commercial banks, indigenous banks and cooperative banks and differentiate them based on functions and role.
Business and corporate laws	CO1	Compile the essential elements of a valid contract along with its classifications.
	CO2	Analyse the pros in Discharge of Contract with respect to valid pledge, Rights and Duties.

	CO3	Utilise the existing legal rules and principles to formulate valid agency, termination of agency.
	CO4	Outline the characteristics of kinds of companies and its significance in formulating associations.
	CO5	Explain the concept of debentures and its implications.
Corporate Accounting	CO1	To explain the Issue and Underwriting of shares, and complete, partial, firm underwriting
	CO2	To demonstrate the Redemption of preference shares at par, premium and to assess the profits prior to incorporation.
	CO3	Outline on Preparation of final accounts of joint stock company
	CO4	To assess the Valuation of good will and shares
	CO5	To evaluate the alteration of share capital and internal reconstruction
International Economics	CO1	Explain about International economics and international trade, its scope and Importance for economic development. Demonstrate the various theories and growth pertains to international trade.
	CO2	Outline the concept of Balance of trade and balance of payments and evaluate the causes of disequilibrium caused and methods to correct the same. Discuss about the various exchange rates such as fixed and floating and concepts like euro and dollar marketing.
	CO3	Discuss on Export Management its procedures and various documentations. Pertaining to export procedure, promotion, pricing and finance.
	CO4	Demonstrate about various International Economic Organizations such as IMF, IDA, IFA, IBRD, ADB, UNCTAD, UNIDO and its Functions

	CO5	Communicate about WTO and various Trade Liberalization esp. for manufacturing and agricultural in india. Discuss on Indian patent laws and intellectual property rights such as TRIPS and TRIMS
Financial services	CO1	To analyse the importance of Financial Services and economic environment
	CO2	To predict the players in financial service sector and to assess the types of markets and issue management
	CO3	Explain the types of leasing and various outline of factoring, hire purchase
	CO4	Plan and discuss about the features and functions ,modes of VC,CRISIL,ICRA&CARF
	CO5	Analyse the various types of mutual funds
Advance Corporate accounting	CO1	Gain knowledge on Amalgamation, absorption and external reconstruction.
	CO2	Understanding on Consolidated statements of holding and subsidiary companies
	CO3	Acquire knowledge on Final statements of banking and insurance companies
	CO4	Impart knowledge on Liquidator's final statement of account and final statement of insurance companies.
Management Accounting	CO1	Explain about management accounting and its difference with cost accounting and financial accounting.
	CO2	Compute and analyse various financial statements using comparative, common size and trend analysis
	CO3	Evaluate and analyse different ratios such as liquidity, profitability and turnover and demonstrate its use for management.
	CO4	Analyse and compute funds flow statement, preparation of working capital statement and funds from operation.

	CO5	Outline the meaning of cash flow statement and able to prepare statement as per AS – 3.Demonstrate and prepare various budget such as flexible, cash and production.
Personal Investment Planning	CO1	Demonstrate about investment and its differences with speculation and gambling
	CO2	Discuss about various non-marketable financial assets.
	CO3	Outline the meaning of stock exchange and its functions with respect to SEBI.Discuss about stock brokers, speculation and their types.
	CO4	Explain about the various investment schemes like PF,PPF and bank deposits
	CO5	Analyse the various opportunities of investment and their importance for current scenario.
Financial Management	CO1	Outline the meaning, objective and Functions of financial management which are essential to perform the role of financial manager in current scenario.
	CO2	Compute and analyse the Capital structures such as Debt and Equity and determining the proportion and factors affecting the same. Able to demonstrate the various theories pertaining to capital structure and explain the concept of leverage.demosntrate and analyse the weighted average cost of capital of the firm
	CO3	Create and design the optimum capital structure with using the cost of appropriate proportion of equity, preference capital, and debt and retained earnings.
	CO4	Analyse and compute various dividend payment methods such as Walter’s and Gordon’s model. Outline the factors affecting dividend payment and company law provision for the same.

	CO5	Evaluate the Working Capital Management and compute the various components working capital operating cycle.
Customer Relationship Management	CO1	Discuss the concept of customer relationship management.
	CO2	Compare the different modes of communication channel along with the advantages.
	CO3	Access the barriers prevailing in communication with respect its inter and intra personnel communication
	CO4	Prepare a business letter-communicating its fill up the existing vacancies in an organisations
	CO5	Explain the outcome of talwar and[701poria community]
Practical Auditing	CO1	To explain about Audit types, audit planning and working papers
	CO2	To analyse the Importance of vouching of cash receipts payments
	CO3	Outline about Appointment of auditors and their removal
	CO4	To assess the Rights duties and of an auditors
	CO5	An outline about EDP audit and types of online computer systems
Management of Human Resources	CO1	Discuss the significance of Human Resource Management along with the methods of selection process.
	CO2	List out the training techniques and its effectiveness of traditional and modern methods.
	CO3	Compare the differences between Abraham Maslow's theory, McGregor's 'X', 'Y', William Ouchi's Z theory, Herzberg's two factor theory, Vrooms valance

		expectancy theory , McClelland's need achievement theory .
	CO4	Explain the outcome of functions of trade unions, and its types and effectiveness.
	CO5	Discuss the Industrial Disputes and Settlements [laws excluded]
Cost Accounting	CO1	To explain the concepts and classifications, installation of costing systems
	CO2	To demonstrate about the cost sheets, reconciliation of cost and financial accounts
	CO3	To explain the concepts on material purchase EOQ, ABC analysis, VED, and issue of materials -FIFO, LIFO,HIFO,SAM,WAM.
	CO4	To design about the labour cost method of wages payments and payroll procedure
	CO5	Analysis of overheads, classifications, allocations and absorptions
Entrepreneurial Development	CO1	Discuss about the basic concept and functions of entrepreneurship, the various types and classification of entrepreneurs and factors that influence entrepreneurship.
	CO2	Outline the various Entrepreneur development agencies and financial institutions prevailing in India and the schemes to develop entrepreneurship.
	CO3	Create and demonstrate the complete Project management starts from Business idea generation, identification of opportunity, various feasibility study, project report submission and appraisal of projects.

	CO4	Explain about the various Entrepreneurial development programmes, role and achievements by government on the same.
	CO5	Communicate about the various role entrepreneurial growth with respect to Economic development
	CO6	Discuss and use the importance of strategic approaches formulated for small scale industries, networking, and niche players and franchising. Identify the various opportunities available for women entrepreneur and utilize the same.
Emotional Intelligence	CO1	Illustrate the concepts and competencies of emotional intelligence.
	CO2	Describe the significance of psychological needs.
	CO3	Discuss the negative traits of emotional along with the solutions.
	CO4	Design a plan it's indicate the positive traits of emotions in our day its day life.
	CO5	Apply the outcome of self-analysis with its benefits.
Advance financial accounting	CO1	Explain the types of branches, branch accounts.
	CO2	Compile the basis for allocation of expenses need for deposit account
	CO3	Evaluate the hire purchase trading account, purchase system
	CO4	To Compile the admission of partner, retirement

7. B.Com GENERAL PSO:

	CO5	Outline the concepts of involving dissolution and insolvency of partnership act(1932)
Business Taxation	CO1	Learn significance of Business Taxation in Historical and current scenario
	CO2	Taxation concepts in the practical applications of Business Taxation
	CO3	Learn the basic scenario with respect to classification of goods and its valuation under customs act.
	CO4	Thorough knowledge on the Business Taxation's important topics
	CO5	Concepts on Import and exports, GST, and learn the aspects of it
Credit and Risk management in banking	CO1	Outline of Bank credit, – types of securities & legal documents, RBI directives & Various committee
	CO2	Explain the access of lending to Different Customers
	CO3	Demonstrating the Loan Processing – Sanctioning – Monitoring – Recovering Commercial Loans
	CO4	To Assess the balance sheet, profit loss, cash flow and fund flow and project approach
	CO5	To plan & evaluate the remedial measure, debt recovery tribunals, management NPA
Income Tax Law and practice (1)	CO1	Analyse the features of income tax act and its significance
	CO2	Compare the unique features of terms such as Heads of Income, Salaries, Allowance.
	CO3	Discuss the concept of the house property annual value and the computation of income.

	CO4	Compare the different types of barriers in business or profession, allowable and non-allowable expenses.
	CO5	Explain the signification of Income tax authorities such as CBDT, PAN, etc.
Income Tax Law and practice (2)	CO1	Compile the significance of different terms such as income under capital gains and indexation of cost under various circumstances.
	CO2	Describe about the income from the source along with reduction in computing the income
	CO3	Apply the in clubbing of income and the implication in set of losses.
	CO4	Illustrate about the permissible deduction from gross total income SEC 80C, 80CCC,80CCCD
	CO5	Discuss the assessment of individuals in computation of tax liability

After completing the Bachelor of Commerce (B.Com.) Course, students are able to

PSO1:Accomplish their goals towards the need for current business scenario with their equipped contents in the financial affairs of the business.

PSO2:Manage the purity of business transactions with ethics through the gained knowledge in the field of Accounting and Auditing.

PSO3:Position themselves in determining and managing Costs, Revenue, Pricing and budgetary techniques through effective management accounting expertise

PSO4:Proficient in handling tax filing systems, GST and other Legal Procedures required for business environment.

PSO5:Empower to locate themselves in the competitive business scenario with the acquired communication skills, Marketing skills and Professional Development skills.

PSO6:Make pro-active decisions pertaining to business solutions with regard to application of economic principles and techniques at micro and macro level.

PSO7:Initiate and sustain entrepreneurship as a career by the well-built competencies acquired.

PSO8: Enrich their minds with human resources managerial skills, aptitude skills, interview skills and over all personality skills to face the challenges in the corporate world.

7. B.Com GENERAL CO:

Course Code - 16UCOMC01

Course Title - FINANCIAL ACCOUNTING

1	CO	Recalls the basic concepts, conventions and accounting process.
2	CO	Enables the students to prepare financial statements in accordance with appropriate standards.
3	CO	Determines the useful value of the life of Assets in the business
4	CO	Familiarizes the students in managing their business loss through insurance claims
5	CO	Distinguishes the two system of accounting and enables to summarize the necessary statements.
6	CO	Outlines the overall functions of Financial Accounting in business.

Course Code - 16UCOMC02

Course

Title

-BUSINESS

COMMUNICATION

1	CO	Describes the dimensions, methods and the barriers to communication
2	CO	Outlines the preparation of various official communications
3	CO	Elaborates the several essential business correspondences
4	CO	Details the process of communication with community towards banking and insurance
5	CO	Enables the students to outlay the different required reports needed for business

6	CO	Acquaint with knowledge on all business correspondences
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Course Code - 16UCOMA01

Course Title-ECONOMICS FOR BUSINESS

DECISION

1	CO	Introduces the basic concepts of business economics.
2	CO	Illustrates the Demand and Supply approach of economics for decision making
3	CO	Examines the consumer behavior theories
4	CO	Familiarize with Production theories for business application
5	CO	Discusses the pricing strategies and techniques
6	CO	Equips the students with the economic principles in order to apply into business.

Course Code - 16UCOMC03

Course Title- FINANCIAL ACCOUNTING

1	CO	Introduces the procedure of preparing accounts for hire purchase system
2	CO	Illustrates the types of branches and its accounting procedures
3	CO	To handle and maintain accounting statements for various departments.
4	CO	Elaborates the system of partnership firms towards admission, retirement and death of partners
5	CO	Enables the students to calculate distribution of assets in case of dissolution .

6	CO	Familiarize with various accounting procedures of different forms of organizations.
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Course Code - 16UCOMC04

Course Title - PRINCIPLES OF

MANAGEMENT

1	CO	Introduces the Management Thoughts
2	CO	Enables the students to plan and decision making in business solutions
3	CO	Demonstrate the structure of organization and management of subordinates
4	CO	Examine the procedures of recruitment and explains the power and Authority
5	CO	Enriches the students in coordinating business with effective control.
6	CO	Enables the students to effectively manage a business.

Course Code - 16UCOMA02

Course Title - INDIAN ECONOMIC

DEVELOPMENT

1	CO	Develop ideas of basic characteristics of Indian Economy and its potentials
2	CO	Acquiring knowledge about computation of National Income
3	CO	Examines the causes and impact of major problems of Indian Economy
4	CO	Justify agriculture as the foundation of economic growth
5	CO	Discuss the changing nature of industrial sector and its contribution

6	CO	Predict the Indian economic development through Planning undertaken by Govt. of India
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Course Code - 16UCOMC05

Course Title - CORPORATE

ACCOUNTING -I

1	CO	Familiarize the students with issue of shares and underwriting
2	CO	Demonstrate the preparation of liquidator final statement of accounts
3	CO	Construct the computation of Goodwill and shares
4	CO	Assess the preparation of Final accounts of companies
5	CO	Acquaint the knowledge on social responsibility accounting and Human Resource Accounting
6	CO	Enable the students on the accounting treatment relating to company accounts

Course Code - 16UCOMC06

Course Title - BUSINESS

LAW

1	CO	Describe the general terms relevant to business and contract
2	CO	Demonstrate an understanding of key elements while signing an agreement
3	CO	Illustrate the process of performance and remedies available to the aggrieved party in case of default
4	CO	Develop the general understanding on contract of sale of Goods Act
5	CO	Outline the rights and duties of a person entrusted by various Laws of contract
6	CO	Explains the overview of Legal framework of business.

Course Code - 16UCOMC07

Course

Title–

BANKING THEORY LAW AND PRACTICE

1	CO	Outline the role of RBI and Indian Banking System
2	CO	Compare and contrast the practices of Traditional and Modern Banking Services
3	CO	Familiarize the students with adoption of e-banking
	CO4	Demonstrate the customer relationship practices of banks
5	CO	Illustrate and categorize the use of Banking instruments
	CO 6	Examine the realistic procedures of banking system.

Course Code - 16UCOMC08

Course

Title–

MARKETING

1	CO	Recalls the functions and importance of Marketing Management
2	CO	Analyse the consumer buying behavior in Marketing environment
3	CO	Examine the product mix and pricing strategies
	CO4	Identify the channels of marketing communication
5	CO	Familiarize with the latest trends on e- marketing
	CO 6	Enhance the marketing skills of students for effective business performance

Course Code - 16UCMATA22

Course Title–BUSINESS STATISTICS

1	CO	Explains the methods of collection of data
2	CO	Classify and represent the data into required tables and charts
3	CO	Complete the analysis of measurement of central tendency
	CO4	Examine the skewness of data symmetry
5	CO	Estimation of future values through trend analysis
	CO 6	Relate the data with needed information

Course Code - 16UCOMC09

Course

Title-

CORPORATE ACCOUNTING –II

1	CO	Enlighten the students on the accounting treatment of Amalgamation and Merger
2	CO	Familiarize the students with consolidated financial statement of Holding Companies
3	CO	Draft Final accounts for life insurance Companies
	CO4	Assess the preparation of general insurance companies account
5	CO	Solid foundation in accounting and reporting requirements.
6	CO	Solve the corporate related issues through accounting standards.

Course Code - 16UCOMC10

Course

Title–COMPANY

LAW

Course Code – 17UCOMC11

Course Title–GOODS AND SERVICES TAX AND

CUSTOMS LAW

1	CO	Recalls the basic concepts of company formation as per companies Act (Amendment) 2013
2	CO	Outline the importance of various documents prepared and filed at the time of incorporation of company
3	CO	Equip the students with the practical exposure on preparation of prospectus for capital mobilization
	CO4	Familiarize the purpose, process of various meetings held at different point of time
5	CO	Discuss the modes of closure of a company and the role of a liquidator
6	CO	Categorize the provisions of Company Law as per business need.

1	CO	Discuss the tax system in India and taxation procedures.
2	CO	Illustrate the provisions of Customs Laws
3	CO	Introduce GST and examine the functioning of GST Council
	CO4	Examine the Time and value of supply in GST
5	CO	Complete the registration process in GST.
6	CO	Familiarize with various provisions of Indirect Taxes

Course Code – 16UCOMC12

Course

Title–FINANCIAL

SERVICES

Course Code – 17UCOMA04

Course

Title–ADVANCED

STATSTICAL

METHODS

1	1	CO	Describe about the Indian Financial System index
2	2	CO	Differentiate the coverage of Money market and Capital market
3	3	CO	Analyze the different types of Stock Exchange and SEBI guidelines
		CO4	Explain the testing of Hypothesis
5		CO	Compare and contrast the variables through Correlation and Regression analysis
5		CO	Justify various financial assistance available for the community
6		CO	Utilize the statistical tools of Financial insurance Business decision
6			development

Course Code – 16UCOMC13

Course Title– COST ACCOUNTING

1	CO	Familiarize the concepts of cost accounting
2	CO	Enhance knowledge on preparation of cost sheets in real time business
3	CO	Facilitate the students to manage the material purchase control
	CO4	Assess the Labour wage rate management system
5	CO	Construct the allocation and apportionment of overhead cost
6	CO	Invent the installation of costing system.

Course Code – 16UCOMC14

Course Title– PRACTICAL

AUDITING

Course Code – 16UCOMC15

Course Title– ENTREPRENEURAL

DEVELOPMENT

1	CO 1	CO	Create and develop an appropriate financial auditing procedure	
2	CO 2	CO	Enhancing the knowledge on vouching, valuation and verification procedure Outline entrepreneurial development agencies and their services	
3	CO 3	CO	Empower the students regarding functions of depreciation and reserves	
	CO4	CO4	Facilitate the students to judge over the appraisal of business idea and successful of business proposals	
5	CO 5	CO	Discuss about the different auditing procedure as specialized audits	
6	CO 6	CO	Empower the students to take up auditing in a professional way	

Course Code-

16UCOMC16

Course Title-FINANCIAL MANAGEMENT

	CO 1	Expose the students on the role of finance
	CO 2	Investigate into the different cost attached with investments
	CO 3	Demonstrate the structuring of financial plans
	CO4	Assess the different dividend models
	CO 5	Application of working capital management strategies
	CO 6	Enhance the management skills on the flow of finance in business

Course

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Code

16UCOME01

Course Title-INCOME TAX LAW & PRACTICE-I

Code- 16UCOMC17	Course	1	CO	Enlighten the basic concepts of direct taxation	
		2	CO	Prioritize the computation of various components of salary	
		3	CO	Assess the income from house property	
	Title-ADVANCED COST ACCOUNTING		CO4		Synthesis the provisions relating to income from business or profession
		5	CO		Construct the filing of returns
			CO		
Code 16UCOMC18	Course	6	CO	Empowers the practical exposure on income tax provisions	
		1		Describe the computation of Job and Batch Costing	
	Title- MANAGEMENT ACCOUNTING		CO		Construct the preparation of contract costing
		3	CO		Facilitate the assessment of process costing
			CO4		Evaluate the methods of operating costing of service sector
		5	CO		Expose students of various applications of marginal costing
	CO				
1	CO		Compare and contrast the management accounting with other forms of accounting		
2	CO		Enlighten the preparation and interpretation of financial statement analysis		
3	CO		Demonstrate the tools and techniques of assessing the profitability of business		
	CO4		Construct the flow and management of funds		
5	CO		Empower the students with budgetary control strategies		
6	CO		Enhance the decision making skill through the application of accounting tools		

Course Code – 16UCOMC19

Course Title–BUSINESS ENVIRONMENT

1	CO	Overview of concepts of Business Environment
2	CO	Familiarize the Government and business relationship in India
3	CO	Inspect the social responsibilities and analyse the cultural environment of business
	CO4	Assess the economic environment and its impact on business
5	CO	Compose the determinants to technological environment of business
6	CO	Scan the business environment to improve the business performance

Course Code – 16UCOME02

Course Title–INCOME TAX, LAW & PRACTICE-

II

1	CO	Examine the income under capital gains
2	CO	Justify the various other sources income available for assesses
3	CO	Recommend the assesses to club their income and set-off of their losses with other heads of income
	CO4	Investigate the various deductions for computation of income
5	CO	Inspect the power and duties of Central Board of Direct Taxes
6	CO	Acquaint with the practical applicability of income tax provisions

Course Code – 16UCOME03

Course Title–HUMAN RESOURCE MANAGEMENT

Course Code – 16UNME01H

Course Title–NME- BASICS OF RETAIL MARKETING

1	1	CO	Outline the basic concepts of human resources practices in an organization.
		CO	Describe the importance of Retail Marketing
2	2	CO	Assess the levels of performance of employees for their career advancement.
		CO	Examine the functions of retailing
3	3	CO	Familiarize the welfare schemes and benefits offered to the employees.
		CO	Illustrate labelling and franchising of retailing.
		CO	Identify various retailing communication tools and grievances handling mechanism
5		CO	Discuss the Supply Chain Management.
	5	CO	Design the Human Resource Information system modules.
6		CO	Explain the role of Information Technology in Retailing
6			Offer exposure on Human Resource practices in organisations.

Course Code – 16UNME02H Course Title–NME- FUNDAMENTALS OF BUSINESS

INSURANCE

		CO	
1			Recall the history and principles of Insurance
		CO	
2			Find the various insurance agencies available
		CO	
3			Examine the role of IRDA in insurance field.
		CO	
4			Discuss the fundamental principles and policies of Life Insurance
		CO	
5			Explain the principles and concepts of Fire Insurance
		CO	
6			Familiarize various Marine Insurance schemes

8.

B.COM

CORPORATE SECRETARYSHIP PSO:

PSO1: B.COM CS students are equipped with skills to fit in to the jobs in the Corporate world in various fields such as Accounting, Finance, Marketing, IT, ITES, etc.

PSO2: Students have the skill to pursue professional courses such as ACS, CA and CMA.

PSO3: Pursue post-graduation like M.COM, M.COM C.S, M.COM Accounting and Finance and other related courses.

PSO4: Student can become entrepreneur by starting own business.

PSO5: Student can establish their own consultancy as GST Practitioner for online registration, Tax filing, TDS/TCS etc.

PSO6: Students can take up various government examinations such as Group I, Group II, Central Excise, Railway examination & on successful completion of the exam settle in to different kinds of jobs.

PSO7: Appear for CAT exams on successful completion of which pursue MBA in reputed business schools.

PSO8: Students can pursue banking exam and enter in to banking sector.

8. B.COM CORPORATE SECRETASYSHIP CO:

COURSE TITLE: CORE I: FINANCIAL ACCOUNTING –I

COURSE CODE: 17UCOSC01

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Discuss the fundamental features and need for making an adjustments while preparing final accounts of a sole trader.
CO2	Compile Accounting procedure for the Non Trading Concern , ascertain the Cash position and surplus/deficit of the Non Trading Concern
CO3	Demonstrate and Analyses the changes in the Current Account and also the Due Date on which the payment to be made.
CO4	Compare and analyses the various methods of depreciation, and to ascertain the book value, profit and loss on the assets.
CO5	Outline the incomplete system of accounting (Single Entry), Understand the steps involved in conversion of singe entry system into double entry book keeping.

COURSE TITLE: CORE II: COMPANY LAW AND SECRETARIAL PRACTICE – I

COURSE CODE: 16UCOSC02

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Outline the knowledge about the provisions of the Companies Act 2013.
CO2	Utilize the legal procedures relating to the formation of a company.
CO3	Selection of various sources like shares and debentures to raise the capital of a company through the issue of the prospects.
CO4	Demonstrate different kinds of capital, company and its objectives.
CO5	Communicate the students to differentiate the meaning regarding members and shareholder of a company and the powers subject to them.

COURSE TITLE: ALLIED I: CORPORATE E-MANAGEMENT

COURSE CODE: 16UCOSA01

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Outline introduction to computer, classification and its uses in business.
CO2	Discuss the Operating System, Hardware & Software and computer networks
CO3	Demonstrate a basic uses of Internet, E-mail in current scenario and be aware of concepts like domain name & IP address in various organization
CO4	Identify the basic concepts & elements of Multimedia and their use in both education and entertainment.
CO5	Communicate the legal framework of E – Commerce and assess the various modes of Electronic Payment system

SEMESTER – II

COURSE TITLE: CORE III: ADVANCED FINANCIAL ACCOUNTING

COURSE CODE: 17UCOSC03

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Demonstrate the accounting procedure for Branch Accounts under debtors system and stock & debtors system.
CO2	Outline for preparation of Departmental Accounting, Inter departmental transactions, Allocation of expenses between the Departments.
CO3	Explain the concept of Hire purchase transactions, calculation of interests and various accounting treatments of Hire purchase & Installments system
CO4	Compile the accounting procedure for admission and retirement of partnership, treatment of goodwill
CO5	Analyze the accounting treatment of death of a Partner, executors account
CO6	Discuss the various procedures for accounting treatment of Dissolution, Garner Vs Murray, piece meal distribution

COURSE TITLE: CORE IV: HUMAN RESOURCE MANAGEMENT

COURSE CODE: 16UCOSC04

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Explain about the importance of Human Resource Management and its Processes that are concerned with various management activities and to run an effective organization.
CO2	Outline of different methods and technique of training and Performance Appraisal that are used in an organization.
CO3	Assess the different methods and technique relating to administration and to retain the human resources.
CO4	Discuss the various mechanisms in HR environment that to capable of applying the principles and techniques as professionals for developing human resources in an organization.
CO5	Predict the different faces of executives and preparing policies and practices based on it and also Human Resource audit.

COURSE TITLE: ALLIED II: BUSINESS COMMUNICATION

COURSE CODE: 16UCOSA02

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Discuss the importance and essentials of communication in business activities.
CO2	Outline to draft the various types of business letter and to practice the same.
CO3	Demonstrate the various types of business enquiries.
CO4	To compile the different types of correspondence relating to the company and secretarial practice.
CO5	To utilize the knowledge about the vital role played by computer in business entities.

SEMESTER – III

COURSE TITLE: CORE V: CORPORATE ACCOUNTING – I

COURSE CODE: 17UCOSC05

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Prepare the journal entries of issue of shares and compute underwriters liabilities
CO2	Demonstrate thorough knowledge of relevant accounting treatment of redemption of preference shares and the ability to find the profit prior incorporation of a companies.
CO3	Demonstrate thorough knowledge to preparation of financial statements of companies as per the provisions of companies act 2013.
CO4	Select the appropriate methods of valuation of shares and goodwill and perform the accounting treatment of the company.
CO5	Learn about the concepts of various procedures for alteration of share capital and accounting treatment in respect of internal reconstruction of a company

COURSE TITLE: COREVI: COMPANY LAW & SECRETARIAL PRACTICE – II

COURSE CODE: 16UCOSC06

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Compile the knowledge about the various provisions of Borrowing powers, debentures and its types, Secretarial duties relating to Borrowing powers.
CO2	Outline the legal procedures relating to the types, Appointment, functions, duties, powers, remuneration of the Directors and Key managerial personnel and their appointments, Secretarial duties relating to appointment of directors

CO3	Demonstrate the provisions for conducting the meetings of the companies, elements of valid meeting, resolution, and voting methods. Secretarial duties relating to conduct of meeting
CO4	Explain the concepts about the role of an auditor, different kinds of Audits, and their objectives, provisions for payment of dividend, and books of accounts. Secretarial duties relating to maintenance of books of accounts
CO5	Analyze the causes and circumstances of winding up and differentiate a Compulsory and Voluntary winding up of the company.
CO6	Discuss the concept of liquidator, functions, powers, duties and Secretarial duties relating to winding up

COURSE TITLE: ALLIED III: STATISTICS – I

COURSE CODE: 17UCOSA03

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Communicate the origin and basics about the statistics.
CO2	Demonstrate the classifications, tabulation of data including diagrammatic and graphical methods.
CO3	Analyze the knowledge of measures of central tendency – Mean, Median, Mode, Geometric Mean and Harmonic Mean.
CO4	Explain the characteristics of the range, Quartile deviation, mean deviation, variance, and the standard deviation.
CO5	Evaluate the measures of skewness – Karl Pearson’s coefficient of skewness and Bowley’s Coefficient of Skewness.

SEMESTER – IV

COURSE TITLE: CORE VII: CORPORATE ACCOUNTING – II

COURSE CODE: 17UCOSC07

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Describe the accounting concepts and policies related to accounting standards and identify the relationship for financial reporting purposes.
CO2	Demonstrate a thorough knowledge of relating accounting treatment and the ability to apply them to solve banking companies financial statement based on Indian accounting standard
CO3	Discuss the accounting procedure of amalgamation of companies and to give comprehensive understanding of all aspects relating to corporate requirements
CO4	Analysis the accounting procedure of absorption & external reconstruction of companies and to give comprehensive understanding of all aspects relating to corporate requirements
CO5	Demonstrate a thorough knowledge about the procedure of preparing liquidator's final statement of accounts at the time of winding up of the companies.

COURSE TITLE: CORE VIII: CORPORATE GOVERNANCE

COURSE CODE: 16UCOSC08

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Discuss the various corporate sectors and their functions, Elements of good corporate governance, Governance manual.
CO2	Demonstrate the shareholders vs stakeholders approach and welfare of stakeholders
CO3	Outline the due diligence, functions , advantages, guidelines for issue of Initial public offer(IPO),Sweat equity shares & Employee stock option scheme (ESOS) ,
CO4	Demonstrate the various committees and their functions which are prevailing in the corporate sector/Companies Act 2013.
CO5	Explain the various Corporate social responsibilities (CSR) Practices & Social Audit and its importance.

COURSE TITLE: ALLIED IV: STATISTICS – II

COURSE CODE: 17UCOSA04

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Discuss the scope of correlation and use of regression analysis to estimate the relationship between two variables and its applications
CO2	Analyses the use of time series models for forecasting and the limitations of the methods
CO3	Utilize the necessary set of skills in using statistical tool and technique of index number for price level changes.
CO4	Communicate the methods of interpolation & extrapolation.
CO5	Compile the various methods of statistical tools of quality monitoring including control charts

SEMESTER – V

COURSE TITLE: CORE IX: MANAGEMENT ACCOUNTING

COURSE CODE: 16UCOSC09

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Enable the students to acquire sound knowledge of concepts, methods and techniques of management accounting.
CO2	Apply the analytical skills associated with the interpretation of accounting reports.
CO3	Evaluate the results of profitability, liquidity, solvency and efficiency levels in the business
CO4	Communicate the knowledge about fund flow and cash flow statements under (AS-3) and also the concept of budgetary control
CO5	Outline and evaluate the absorption and marginal costing methods for various decision-making situations.

COURSE TITLE: CORE X: SECURITIES LAW & MARKETS OPERATIONS

COURSE CODE: 16UCOSC10

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Discuss the Basic Knowledge of SEBI Guidelines for new issue market and investors protection on it.
CO2	Describe the role of stock market and the various role played by its intermediaries.
CO3	Demonstrate the functions of Stock Exchange, mechanics, types and also listing of Securities.
CO4	Preparing the concept about trading pattern in OTCEI, NSE and other Index numbers.
CO5	Formulate an idea about the Demat Trading, and Mutual funds.

COURSE TITLE: CORE XI: INCOME TAX LAW & PRACTICE-I

COURSE CODE: 16UCOSC11

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Identify the basic concepts and principles of income tax law & practices
CO2	Analyze the various provisions contained in sections 15,16 and 17 of income tax act, 1961 under the income from salaries of individuals
CO3	Outline the various important provisos in sections 22 to 27 of income tax act, 1961 under the head income from house property
CO4	Compute to taxable income under the head, profit and gains of business and profession under section 28 to 44
CO5	Demonstrate the procedure of assessment, appeals and revisions relating to the administration of income tax act 1961,

COURSE TITLE: CORE XII: COMMERCIAL LAW

COURSE CODE: 16UCOSC12

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Revise the Important Concepts and terms in Business law and Classifications of Indian Contract Act
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CO2	Outline the Knowledge of the essential elements of contracts, Capacity of Parties, Performance of Contract.
CO3	Discuss the Knowledge of Breach of Contract and its remedies.
CO4	Analyze the concept of Bailment, Pledge, Indemnity and guarantee and its Differences
CO5	Understand the Concept of Contract of Agency, Types, Rights and Duties of an Agent, and Termination of Agency.
CO6	Demonstrate the Provisions for Contract of sale, Classification of Goods, Rights and Duties of Buyer and seller, Rights of Unpaid seller under the Sale of Goods Act 1930.

COURSE TITLE: APPLICATION ORIENTED: ENTREPRENEURIAL DEVELOPMENT
 COURSE CODE: 16UCOSE01

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Discuss the concept of entrepreneurship and its importance.
CO2	Analyze the scope of various financial institutions for the enhancement of small entrepreneurs.
CO3	Utilize the various technical tools for the business premises and encounter business ventures.
CO4	Communicate the important values of EDP's and the government role played in.
CO5	To design the valuable approaches in the changing economic scenario and to apply the same for the improvement of small scale entrepreneurs.

SEMESTER – VI

COURSE TITLE: CORE XIII: COST ACCOUNTING

COURSE CODE: 16UCOSC13

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Compile the basic concepts used in cost accounting.
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CO2	Outline about the basic principles of materials control and the latest techniques in inventory control.
CO3	Explain the classifications of the overheads, and Distribution of Overheads Under Primary and Secondary distribution.
CO4	Evaluate the various surfaces of labor cost control, various methods of remuneration and calculation of wages.
CO5	Demonstrate the transactions and preparations of accounting entries for unit costing, process costing, operating and operation costing.

COURSE TITLE: CORE XIV: INDUSTRIAL LAW

COURSE CODE: 16UCOSC14

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Deonstrate the various provisions of the factories act 1948.
CO2	Compare the scope and importance of Payment of wages Act 1936 and Minimum Wages Act1948.
CO3	Communicate the provisions relating to Industrial Dispute Act 1947 regarding lay off, retrenchment, lock out and strike.
CO4	Compile the growth and functions of Trade Union Act 1926 and regulation and abolition Act of Contract Act 1970.
CO5	Revise the need , scope and coverage of Workmen Compensation Act 1923.

COURSE TITLE: CORE XV: INCOME TAX LAW & PRACTICE-II

COURSE CODE: 16UCOSC15

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Compute Income from Capital Gain” under section 45 to 55, and analyses the various exemptions under the capital gains
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CO2	Analyze the various provisions contained under section 56 to 59 of the Income tax Act, 1961 under the heads “Income from Other Sources”
CO3	Outline the various provisions relating to “Aggregation of income” and “Set-Off and Carry Forward of Losses”
CO4	prepare gross total income and analyses the provisions under section 80 C to 80U relating to individuals
CO5	Compile the procedure for computation of tax on income for assessment of individual for the current assessment year under the income tax act., 1961.

COURSE TITLE: Core XVI -- GOODS SERVICE TAXES & CUSTOMS LAWS

COURSE CODE: 16UCOSC16

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Discuss the classification and methods, tax system in India, Objectives of taxation, and Cannons of taxation.
CO2	Outline the Concepts, Definitions and Types of Custom duties.
CO3	Explain the Various assessment procedures and valuation of goods, Clearance of goods.
CO4	Understand the Prohibition of Importation and exportation of goods under customs act, powers of various customs officers.
CO5	Demonstrate the applicability and non-applicability of GST, Exemptions, role of GST Council.
CO6	Discuss the provisions and rules relating to Supply, Types of goods, and Input Tax credit under GST.
CO7	Compile the various provisions and Importance for Registration, Cancellation.

COURSE TITLE: APPLICATION ORIENTED: INSTITUTIONAL TRAINING

COURSE CODE: 16UCOSE02

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Acquire institutional experience the nature of schools as workplaces and their associated values, routines and cultures
CO2	Demonstrate professional skills that pertain directly to the institutional experience
CO3	Analyse the various department activities and their responsibilities.
CO4	Formulate the organization structure, layout.
CO5	Describe the organization's financial statement analysis.
CO6	Prepare the report based on the training experience.

COURSE TITLE: Non – Major Elective: Fundamental of Insurance

COURSE CODE:

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Discuss the history of insurance and its scope and advantages
CO2	Revise the types of insurance, its profile and its functions.
CO3	Utilize the life insurance methods, its polices, principles and its types.
CO4	Describe the meaning of fire insurance, its principles, features and its types.
CO5	Communicate the term about marine insurance, its uses , police and types of it.

COURSE TITLE: Non – Major Elective: Introduction to Financial Market & Investments

COURSE CODE:

LEARNING COURSE OUTCOME:

Upon successful completion of this course, a student will be able to:

CO1	Discuss an overview of money markets, its features, constituents and its reforms.
CO2	Demonstrate the differences between money market and capital markets.
CO3	Explain about Indian stock mark and its types.
CO4	Discuss share market and its functions
CO5	Communicate foreign exchange markets, government securities markets and demat procedures.

9. B.COM HONOURS PSO:

PSO1: The emphasis of B.Com (Honours) programme is to nurture students as real commerce professionals and impart specialized skill sets in the areas of finance, accounting and taxation.

PSO2: It is a career oriented in nature that opens many job opportunities after successful completion of the program. The graduates may be employed among various sectors in the field of finance, law, taxation, treasury, accounting, etc. They may also undergo research in the field of commerce and management with suitable postgraduate degrees.

PSO3: The B.Com (Hons.) graduates with relevant postgraduate degrees and teaching qualifications may be employed as academicians in primary, secondary and tertiary level.

PSO4: This programme aims at to equip students with the knowledge and competence in the field of business and commerce to pursue a professional career in the specified areas of specialization. Professional career includes CA, CMA, CS,MBA, CIMA,CPA,etc

B.COM HONOURS CO:

Subject Name	Unit	Outcome's
Financial Accounting-I	Unit-1	Preparations of Final Accounts
	Unit-2	Preparation of Receipt and Payments Account
	Unit-3	Bank Reconciliation Statement
	Unit-4	Depreciation
	Unit-5	Single Entry
Marketing practice	Unit-1	Role and importance of marketing.

	2	Unit-	Marketing environment .
	3	Unit-	Consumer behaviour.
	4	Unit-	Marketing Mix.
	5	Unit-	Recent trends in marketing.
Principles of Management	1	Unit-	Functions of management.
	2	Unit-	various phases for decision-making process
	3	Unit-	Define Organization and briefly explain about the different types of organization.
	4	Unit-	styles of leadership
	5	Unit-	principles of effective communication
Business Economics	1	Unit-	Scope and Importance of Business Economics
	2	Unit-	Demand and Supply Functions
	3	Unit-	Diminishing Marginal utility
	4	Unit-	Perfect Competition
	5	Unit-	National Income
Financial accounting-II	1	Unit-	Hire Purchase System
	2	Unit-	Branch Accounting

	3	Unit-	Partnership Accounts
	4	Unit-	Dissolution
	5	Unit-	Tally
Banking theory and practice	1	Unit-	Commercial banking
	2	Unit-	E-banking
	3	Unit-	type of bank accounts
	4	Unit-	Crossing
	5	Unit-	Banking Regulations Act
Services marketing	1	Unit-	Relationship management.
	2	Unit-	Zone of tolerance.
	3	Unit-	New services.
	4	Unit-	Distributing services.
	5	Unit-	Evidence in service.
Business Policy and Environment	1	Unit-	Environmental Analysis
	2	Unit-	SWOT Analysis
	3	Unit-	FDI

	4	Unit-	Intellectual property
	5	Unit-	Corporate Communication
Corporate Accounting	1	Unit-	Underwriting of shares and Debentures
	2	Unit-	Acquisition of business
	3	Unit-	Final accounts of joint stock company
	4	Unit-	Alteration of share capital and internal reconstruction
	5	Unit-	Liquidator Final statement
Business law	1	Unit-	essential requirement for valid contract
	2	Unit-	What is meant by discharge of contract? Discuss the various method of discharge of contract
	3	Unit-	Agency
	4	Unit-	Sale of Goods Act.
	5	Unit-	Rights and duties of the Bailee
Business Mathematics	1	Unit-	Theory of Sets, Elements Types.
	2	Unit-	Binominal Theorem, Exponential and Logarithmic Series.
	3	Unit-	Limits and Continuity.Basic concepts of Differential Calculus
	4	Unit-	Algebra-Ratio,Proportion,Permutation and Combination

	5	Unit-	Interest and Annuity – Banker’s Discount – Binary Number System
Financial services	1	Unit-	Financial Services: An Overview
	2	Unit-	Credit rating, commercial bill financing and consumer finance
	3	Unit-	Insurance, factoring and leasing
	4	Unit-	Merchant banking and mutual funds
	5	Unit-	Securitization
Logistics And Supply chain Management	1	Unit-	Functions of logistics management.
	2	Unit-	Order processing.
	3	Unit-	Transportation.
	4	Unit-	Logistics information system.
	5	Unit-	Bill of lading
International Trade	1	Unit-	International Trade
	2	Unit-	Balance of Trade
	3	Unit-	Export Procedure and Documents
	4	Unit-	Import Management
	5	Unit-	International Economic Organizations.

Business Statistics and Operation Research	1	Unit-	Mean, Median, Mode.
	2	Unit-	Karl's Pearson Correlation-Rank Correlation, Regression. Hypothesis Testing
	3	Unit-	Time series, Seasonal Variation
	4	Unit-	OR meaning, scope, characteristics.
	5	Unit-	Assignment and Transportation Problems.
Insurance and Risk Management	1	Unit-	Risk management process.
	2	Unit-	commercial property insurance, workers' compensation and risk financing.
	3	Unit-	Personal risk management applications.
	4	Unit-	Retirement planning and annuities - employee benefits.
	5	Unit-	Privatization of insurance business in India - changes in Insurance Act.
Special Accounts	1	Unit-	methods of valuation of Goodwill and shares
	2	Unit-	Merger – amalgamation, absorption.
	3	Unit-	'Holding Company'
	4	Unit-	commercial bank
	5	Unit-	Life Insurance and General Insurance.
Company Law	1	Unit-	Incorporation procedure and documents to be filed.

	2	Unit-	Details of prospectus.
	3	Unit-	Share capital, its kinds and procedure for alteration of share capital(increase or decrease)
	4	Unit-	Membership in company and meetings.
	5	Unit-	Management & administration and KMPs.
Financial Management	1	Unit-	Introduction to FM & Time value of money.
	2	Unit-	Cost of Capital, Leveragesand capital structure.
	3	Unit-	Capital Budgeting.
	4	Unit-	Dividend policy & Working Capital Management.
	5	Unit-	Financial markets.
Customer Relationship Management	1	Unit-	Customer Relationship.
	2	Unit-	Customer relationship survey design.
	3	Unit-	Relationships in marketing.
	4	Unit-	Customer partnerships.
	5	Unit-	Relationship management.

10. B.COM INFORMATION SYSTEM MANAGEMENT PSO:

PSO1: The students can get the knowledge, skills and attitudes during the end of the B.com degree

course.

PSO2: By goodness of the preparation they can turn into a Manager, Accountant, Management Accountant, Cost Accountant, Systems Manager, Computer Programmer, Web developer, Teacher, Professor, Entrepreneur and Government employees.

PSO3: 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.

PSO4: The students will acquire the knowledge, skill in different areas of communication, decision making, innovations and problem solving in day to day business activities.

PSO5: Students will gain thorough systematic and subject skills within various disciplines of finance, accounting, management, communication, computer programming and systems.

PSO6: Students can also get the practical skills to work as accountant, audit assistant, HR trainee, computer operator, Web Developer as well as other financial supporting services.

PSO7: Students will learn relevant Advanced accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.

PSO8: Students will be able to do their higher education and can make research in the field of finance and commerce.

B.COM INFORMATION SYSTEM MANAGEMENT CO:

Financial Accounting:

- CO I: To enable the students to learn principles and concepts of Accountancy.
- CO II: Students are enabled with the Knowledge in the practical applications of accounting.
- CO III: To enable the students to learn the basic concepts of Partnership Accounting, and allied aspects of accounting.
 - CO IV: The student will get thorough knowledge on the accounting practice prevailing in partnership firms and other allied aspects.
 - CO V: To find out the technical expertise in maintaining the books of accounts. To encourage the students about maintaining the books of accounts for further reference.

Principles of Management

- CO I: To develop knowledge about evolution of management thoughts.

- CO II: To better understanding of planning and decision making
- CO III: To give an idea about organisation structure and different types of organisation
- CO IV: To make them familiarize with recruitment process and stages in selection
- CO V: To provide idea about motivation, importance of communication and Principles of coordination.

Basic computer skills for managers

- CO I: To make the students understand and demonstrate the concept of Microsoft word.

Describe the features and functions of the categories of application.

- CO II: To make the students aware about the basic features of PowerPoint.
- CO III: TO make students develop efficiency with specific sets of skills in Microsoft excel.

• CO IV: To help the students examine database concepts and explore the Microsoft Office Access environment.

- CO V: To make student build a new database with related tables.

Business Communication

- CO I: To make the students aware about the business communication.
- CO II: To understand the channels of communication and understand the structure and layout of business letters.

• CO III: To extend business communication skills through the application and exercises for personal correspondences.

• CO IV: To extend business communication skills through the application and exercises for business correspondences.

• CO V: To develop awareness regarding new trends in business communication, various media of communication and communication devices.

Cost Accounting

- CO I: Aimed to familiarize the concept of cost accounting
- CO II: Helps to gather knowledge on preparation of cost sheet in its practical point of view

• CO III: To facilitate the idea and meaning of material control with pricing methods

• CO IV: Develop the knowledge about remuneration and incentives

- CO V: To introduce the concept of overhead cost

HTML Programming

- CO I: To familiarize students with the tags and works on with basic html programs.
- CO II: To make students work with adding graphics to html and also different attributes.
- CO III: To make students understand the concept of linking of documents using hyperlink and also external document reference.
- CO IV: To introduce the concept of dynamic HTML
- CO V: TO make students create a form using html tags.

Importance of Emotional Intelligence

- CO I: Demonstrate emotional intelligence and realize the benefits of high emotional intelligence at workplace.
- CO II: Increased self awareness by identifying personal patterns.
- CO III: Ability to positively handle negative traits.
- CO IV: Analyse positive traits and apply them in workplace.
- CO V: Demonstrate SWOT analysis and create the art of celebrating life.

Marketing Management

- CO I: Identify the basic concepts and various environmental factors affecting marketing functions.
- CO II: To enable the students to analyze the buyer behavior and market Segmentation.
- CO III: Compare and analyze the classification of goods and apply the tools of branding, packaging, pricing and labeling.
- CO IV: To demonstrate the knowledge of advertising, public relations and sales promotion.
- CO IV: To critically analyze the recent changes in the field of marketing and discuss the types physical distribution.
- CO V: Apply theoretical marketing concepts to the practical situation.

Management Accounting

- CO I: To enlighten the students thought and knowledge on management Accounting

- CO II: Helps to give proper idea on financial statement analysis in practical point of view
- CO III: To introduce the concept of fund flow
- CO IV: To introduce the concept of cash flow statement
- CO V: To develop the know-how and concept of marginal costing with practical

problems

Programming in C

- CO I: Identify situations where computational methods and computers would be useful.
- CO II: Choose the right data representation formats based on the requirements of the problem.
- CO III: Use the comparisons and limitations of the various programming constructs and choose the right one for the task in hand.
- CO IV: Demonstrate the call by value and call by reference in functions.
- CO V: Ability to work with arrays of complex objects.
- CO IV: To use the concepts of edit, compile, debug, correct, recompile and run it.

Personality Enrichment

- CO I: Make use of techniques for self-awareness and self-development.
- CO II: Apply the conceptual understanding of communication into everyday practice.
- CO III: Understand the importance of teamwork and group discussions skills.
- CO IV: Develop time management and stress management.

Programming in c Lab

- CO I: Employ good software engineering practices such as incremental development, data integrity checking and adherence to style guidelines.
- CO II: Design flow-chart, algorithm and program logic.
- CO III: Apply programming concepts to compile and debug c programs to find solutions.
- CO IV: Demonstrate the concept of data types, loops, functions, array, pointers, string, structures and files.
- CO V: To analyze the usage of data using primitive and structured types.

Entrepreneurial Development

- CO I: To develop entrepreneurial awareness among students.
- CO II: Identify the process of entrepreneurship and institutional supports available to entrepreneurs and to prepare their mind set for thinking entrepreneurship as career.

- CO III: Examine the process of starting a new venture and create business plan.
- CO IV: Identify the role of government in organizing EDPs.
- CO V: Identify the role of entrepreneur in economic growth analyse strategic approaches in business

- CO VI: Generate ideas to empower women in entrepreneurship.

Programming in C++

- CO I: To identify the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.
- CO II: To apply dynamic memory management techniques using pointers, constructors, destructors, etc.
- CO III: Utilize the concept of function overloading, operator overloading, virtual functions and polymorphism.
- CO IV: Compile the concepts of inheritance with the understanding of early and late binding, usage of exception handling, generic programming.
- CO V: Demonstrate the use of various OOPs concepts with the help of programs.

Programming in C++ Lab

- CO I: Discuss the difference between object oriented programming and procedural oriented language and data types in C++.
- CO II: Formulate the key concepts of object oriented programming and have an ability to design OO programs and appreciate the techniques of good design.
- CO III: Analyze complex programming problems and optimize the Solutions.
- CO IV: Apply an understanding of ethical principles to problems.
- CO V: Graduates will be able to program using C++ features such as composition of objects, operator overloading, inheritance, Polymorphism etc.

Research Methods in Business

- CO I: To identify the various kinds of research, objectives of doing research, research process.
- CO II: Apply various research designs and sampling techniques.
- CO III: Compare and analyse various data collecting methods, data processing and analysis .
- CO IV: Identify types of hypothesis and use different testing methods

- CO V: Prepare research report and apply research methods in various areas.
- CO VI: Demonstrate the ability to carry out research projects.

Quantitative Aptitude

- CO I: To Train Competitive exams and other exams.
- CO II: To enhance the problem solving skills, to improve the basic mathematical skills.

Management Information System

- CO I: To understand the leadership role of Management Information Systems in achieving business competitive advantage through informed decision making.
- CO II: To analyze business information and systems to facilitate evaluation of strategic alternatives.
- CO III: To effectively understand the classification of computers and database management system.
- CO IV: To demonstrate an understanding of system development lifecycle and functional information system.
- CO V: To make the student understand the key features of decision support system and business process outsourcing.

Financial Management

- CO I: Identify the fundamentals of financial management, role of financial manager and sources of finance
- CO II: Demonstrate Capital structure planning and analyse the types of leverages
- CO III: To demonstrate the concepts in Financial Management which are important to make managerial Decisions.
- CO IV: Demonstrate capital budgeting ,Working capital Management and dividend policies which are used in making financial decisions
- CO V: Able and confident to tackle practical financial problems of business.

Web Technology

- CO I: Outline the features of ASP.Net, ASP.Net Compilation Model, Code behind Model Execution Stages.

- CO II: To analyze about ASP.NET Controls , ASP.Net Intrinsic Objects
- CO III: To Utilize page layout, styles and text balance, site map, Master pages and content Pages, Navigation controls.
- CO IV: To create a dynamic webpages using ASP.Net.
- CO V: Compile interactive web applications using ASP.NET.

Web Technology Lab

- CO I: Evaluate web application architecture, technologies and frameworks.
- CO II: To design and deploy real time web applications in web servers.
- CO III: Integrate frontend and backend web technologies in distributed systems.
- CO IV: Design the following static web pages required for a Design, develop and host a user friendly website.
- CO V: Implement small to large scale project to provide live solution in web application development fields.

E-Business

- CO I: To demonstrate an understanding of the foundations and importance of E-business.
- CO II: To prepare the students understand about the key features of Internet, Intranets and Extranets and explain how they relate to each other.
- CO III: To make the students aware about the electronic payment systems.
- CO IV: To obtain the knowledge of e-retailing and its services.
- CO V: To understand the basic concept of M-commerce and generation of mobile wireless technology.

Database Management system

- CO I: To understand the concepts of database models, languages and transaction management.
- CO II: To identify and understand the types of database system architecture
- CO III: To become familiar with the concepts of transactions.
- CO IV: To understand the various protocols of database management systems
- CO V: To understand the concept of storage structures and recovery

Human Resource Management

- CO –I. To aiming to enable the students in Human Resources Management.

- CO- II. To introduce the students about placement and training.
- CO-III. To facilitate the knowledge about performance appraisal and different methods.
- CO-IV. To provide an idea about different compensation policies.

Business Environment

- CO I: To discuss about the Business and Business Environment.
- CO II: To demonstrate the knowledge about the political environment and the Government relationship with business.
- CO III: To identify the social environment of business.
- CO IV: Recognize the importance of economy and analyze the economic environment of business.
- CO V: Identify the financial environment of business and the functions of various financial institutions.

Software Project Management

- CO I: To identify project planning and evaluation techniques.
- CO II: To identify appropriate project approach and choosing technologies.
- CO III: To explain the concept of estimation.
- CO IV: To determine an appropriate network planning models and identifying critical activities.
- CO V: To demonstrate the concept of risk management during the project approach and planning.

Project

- CO I : Hands-on experience to the students in fields of management, marketing, information system, human resource, finance or software project management.
- CO II: enabling them to learn the nuance of working both as an individual and as a team.

11. B.COM MARKETING MANAGEMENT PSO:

12. B.SC ADVANCE ZOOLOGY AND BIOTECHNOLOGY PSO:

PSO1. Knowledge about the nature and basic concepts of biological science and evolutionary relationships of major group of animals.

PSO2. Analyse the distribution of animals, plants and microbes and their relationships with the environment.

PSO3. Recognize the functions of the organism at the level of gene, genome, cell, tissue, organ, and organ-system

PSO4. Realize the importance of environment conservation and biodiversity.

PSO5. Perform procedures as per laboratory standards in the areas of Physiology, Biochemistry, Ecology, Biotechnology, Immunology and Microbiology.

PSO6. Realize the applications of biological sciences in Sericulture, Apiculture, Aquaculture, Economic Entomology and Pest Management, Genetic Engineering and Recombinant DNA technology. Microbiology and Industrial Biotechnology and Nanotechnology.

PSO7. Develop ethical, environmental and social responsibilities. Develop love and respect towards nature

PSO8. Able to integrate and apply the knowledge in interdisciplinary subjects and into their personal and professional life.

Students with a B.Sc. degree in Zoology may be employed as Research assistants, Environmental Managers, Quarantine Officers, Pest Management Officers, Collection Managers of Aquaria and Zoological Gardens, Primary and Secondary Teachers (with suitable teaching qualifications), Museum Curators (with suitable Postgraduate Degrees), Research Scientists (with suitable Postgraduate Degrees), University Academics (with suitable Postgraduate degrees). Students with the Zoology Degree Plus suitable Postgraduate qualifications may then be employed as Research Scientists, University Academics, Museum Curators.

B.SC ADVANCE ZOOLOGY AND BIOTECHNOLOGY CO:

Course Code - 16UAZTC01

Course Title - DIVERSITY AND FUNCTIONAL ANATOMY

OF INVERTEBRATES

1	CO	To acquire the basic knowledge on unicellular organisms
2	CO	Explain Cellular organization in Porifera and Coelenterate and appreciation of polymorphic forms

3	CO	Outline the life history and parasitic adaptations in Platyhelminthes, <i>Nematode</i> . Explain the Phylum Annelida with an example.
	CO4	Cognize the organization of <i>Penaeus</i> and Pila on significance of larval forms and foot in <i>Molluscs</i>
5	CO	Discuss Echinoderms and <i>Balanoglossus</i> with reference to larval forms and its systematic position.

Course Code - 16UAZTC03

Course Title - DIVERSITY AND FUNCTIONAL

ANATOMY OF CHORDATES

1	CO	Compare the basic and distinctive characters of each class and perceive knowledge on the development and affinities of <i>Urochordata</i> .
2	CO	Discuss the development and affinities of Cephalochordata; Describe the organization of <i>Cyclostomata</i> and migration in <i>Pteromyzon</i>
3	CO	Gain the knowledge on morphology and functional anatomy of <i>Labeo</i> and <i>Rana hexadactyla</i> . Illustrate the accessory respiratory organs; Identification of types of fins in fishes; Compare the parental care in Amphibia
	CO4	Differentiate the morphology and functional anatomy of <i>Columba livia</i> and <i>Calotes versicolor</i> . Gain knowledge on arcades and fossa, the migration in birds and Palate in Birds
5	CO	To acquire knowledge on the morphology and functional anatomy <i>Oryctolagus cuniculus</i> and to discuss types of dentition in mammals.

Course Code - 16UAZTC02P Course Title- INVERTEBRATA AND CHORDATA -

PRACTICAL

1	CO	To identify and classify the specimen upto order
2	CO	Focus on the biological significance of the given animal and Relate the structure and function

3	CO	Observation of the morphology and anatomy of Invertebrate and Chordate specimen through dissection
	CO4	Collection and Identification of Invertebrate and Chordate specimens during field visit
5	CO	Mounting the mouthparts of Cockroach, Mosquito, appendages of Prawn; Identification of Ctenoid Scale in Mugil.

BIOLOGY
Course Code - 16UAZTC04

Course Title- CELL AND MOLECULAR

1	CO	Distinguish the fundamental features of prokaryotic and eukaryotic cells and gain knowledge on the techniques to examine them.
2	CO	Analyse the structure, function and the metabolic processes of cells.
3	CO	Explain the structure and functions of cell membranes. Highlight the stages of cell cycle.
	CO4	Outline the structure and cytochemistry of nucleus. Discuss the structure and biogenesis of ribosomes.
5	CO	Compare the relationship of Golgi bodies with other cell components. Acquire the knowledge on functions with special reference to cell secretion.

Course Code - 16UAZTC06

Course Title - GENETICS AND EVOLUTION

1	CO	Apply Mendel's law to predict the outcome of crosses including the use of Punnett square.
2	CO	Explain the chromosomal basis of sex determination. To predict the sex of the individuals with normal and abnormal complements of sex chromosomes. Illustrate the structure of DNA and mechanism of DNA replication; Predict the types of mutation.

3	CO	Identify sex-linked characteristics and their transmissions. Critically analyze the linkage and crossing over. Highlight human genetics with reference to normal and abnormal karyotypes.
	CO4	Compare Lamarckism and Darwinism; living and extinct fossils and Mimicry and coloration. Analyse Geological time scale. Cognize the convergent, divergent, parallel evolution and adaptive radiation in mammals.
5	CO	Outline the role of genetics mechanism in evolution. Assess the key concept of genetic drift, founders principle. Grade the evolution of man

Course Code - 16UAZTC05P Course Title – CELL BIOLOGY AND GENETICS –

Practical

1	CO	Gain knowledge on the handling of microscope and its applications.
2	CO	Demonstrate blood smear preparation and enumeration of RBC and WBC.
3	CO	Compare various cell stages during mitosis and meiosis; observation of buccal epithelium
	CO4	Identify and discuss the prepared histology slides
5	CO	Validate common mutants; Distinguish normal and abnormal karyotype and comparison of human blood group

Course Code - 16UAZTC07 Course Title – DEVELOPMENTAL BIOLOGY AND

Endocrinology

1	CO	Cognize the basic concepts of developmental biology
2	CO	Compare the process of cleavage, Blastulation, gastrulation, tubulation in frog and chick

3	CO	Analyse the key concepts of development of membranes and formation of placenta. Assess the biochemical basis of embryology, regeneration and Illustrate the metamorphosis.
4	CO	Acquire knowledge on the basic concepts of hormones and their mode of action. Discuss the gonadal hormones in mammals. Outline the hormonal control of metabolism, development, somatic pigmentation and reproduction in insects.
5	CO	Compare the structure, functions and biological actions of endocrine glands

Course Code - 16UAZTC08

Course Title – BIOTECHNOLOGY AND

BIOTECHNOLOGY

1	CO	Discuss the history and Indian scenario in Biotechnology. Apply the knowledge of biotechnology in agriculture, food and pharmaceutical industry and beverages. Illustrate the Structure and reproduction of <i>E.coli</i> and Bacteriophage.
2	CO	Assess the steps involved in gene cloning; Compare the methods of DNA cloning in different types of cloning vectors
3	CO	Discuss the techniques and importance of gene cloning in <i>E.coli</i> .
4	CO	Design the principle, techniques and importance of plant and animal cell culture
5	CO	Compare the fundamental principles of nanotechnology and their application in medicine, environment, food and Veterinary

Course Code - 16UAZTC09 Course Title – ANIMAL PHYSIOLOGY, BIOCHEMISTRY AND

IMMUNOLOGY

1	CO	Realize the basis of enzymes and its regulation. Discuss the role of enzymes in digestion and digestion by symbionts. Deliberate the mechanism of absorption.
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2	CO	Discuss in depth the structure and physiology of Respiratory, Muscle, Excretory, Circulatory and Nervous system
3	CO	Outline the Metabolism of carbohydrate, protein, lipids and its regulation.
4	CO	Gains knowledge on the history and overall organization of the immune system
5	CO	Compare the types and properties of antigens and antibodies. Analyse the agglutination, precipitation, complement fixation, immunofluorescence, ELISA and RIA.

Course Code - 16UAZTC10 Course Title – BIOSTATISTICS AND COMPUTER

APPLICATIONS FOR LIFE SCIENCE

1	CO	Apply basic statistical concepts commonly used in Life Sciences; Explain how statistical techniques studied are incorporated in the analysis of research data. Calculate descriptive statistics and able to draw graphs; Compute a sample mean, sample variance, and a sample standard deviation
2	CO	Compile normal distribution and hypothesis testing.
3	CO	Assess the basic components of a computer system. Analyse computer algorithms and highlight milestones in hardware and software development techniques.
4	CO	Utilize the data storage devices in computer applications.
5	CO	Create MS Word and MS Excel. Analyse the advantages, limitations and applications of internet.

Course Code - 16UAZTE01

Course Title – MEDICAL LABORATORY

TECHNIQUES AND BIOINSTRUMENTATIONS

1	CO	Gain knowledge on collection of samples, maintaining records and preparation of reports
2	CO	Demonstrate laboratory practice standards and assess the safety precaution and first – aid treatment.
3	CO	Analyse the routine human medical samples
4	CO	Discuss the causative organisms, mode of transmission, pathogenicity, symptoms and preventive measures of infectious diseases in man
5	CO	Apply the knowledge in handling of the instruments utilized in common laboratories.

Course Code - 16UAZTC13 Course Title – TAXNOMOY, ECOLOGY AND PALEONTOLOGY

1	CO	Outline the perspectives of systematics and history, classification, procedure and importance of taxonomy. Evaluate the population structure of species.
2	CO	Compile the principles of ecology and ecosystem
3	CO	Compare the importance of biogeochemical cycles. Analyse the Energy flow. Evaluate the ecological succession.
4	CO	Gain knowledge on the freshwater and marine habitat. Assess the National and International Environmental organizations. Categorize the Red Data Book. Grasp the Wildlife management.
5	CO	Cognize the principles and importance of Paleontology. Compare the fossils and fossilization with special mention of important fossil groups. Distinguish the different Eras, Periods and Epochs.

Course Code - 16UAZTC14

Course Title – GENETIC ENGINEERING AND

RECOMBINANT DNA TECHNOLOGY

1	CO	Analyse the basic concepts of gene cloning. Compare the enzymes and plasmids used in genetic engineering
2	CO	Identify cloning vectors for <i>E.coli</i> . Illustrate the structure and reproduction of bacteriophages.
3	CO	Differentiate the cloning vectors for yeast and fungi. Identification of recombinants from gene library. Compare the methods of clone identification.
4	CO	Apply the various techniques used in genetic engineering and recombinant DNA technology. Discuss the role of rDNA technology in Medicine, Agriculture and Environment.
5	CO	Compute DNA sequencing method. Discuss the application of genetic engineering in medicine, alcohol production and vaccine production.

Course Code - 16UAZTC15

Course Title –

MICROBIOLOGY AND INDUSTRIAL BIOTECHNOLOGY

1	CO	Outline the history of Microbiology. Compare the basic concepts of biogenesis and abiogenesis. Discuss the Principle, Working procedure and application of Microscopy.
2	CO	Classify microorganisms. Distinguish the morphology of Bacteria, Viruses and Fungi. Demonstrate Gram positive and Gram negative bacteria and gain knowledge on microbial spores.
3	CO	Acquire knowledge on microbial growth. Describe sterilization techniques.
4	CO	Discuss the importance of food microbiology, dairy microbiology, water microbiology and soil microbiology

5	CO	Cognize the microorganisms in production of industrial enzymes, antibiotics, biopolymer, biopreservative, recombinant proteins. Revise the products of animal and plant cell culture.
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Course Code - 16UAZTE02

Course Title – SERICULTURE AND

APICULTURE

	CO	Compare the types of silkworm. Illustrate the life cycle. Analyse silkworm rearing and economic importance.
	CO	Outline the role of Central Silk Board in the Development of sericulture.
	CO	Analyse the anatomy and physiology of honey bee. Illustrate the life history of honey bee.
	CO	Differentiate the types of bee hive, structure. Assess the care and management.
	CO	Gain knowledge on the extraction of honey and beeswax. Enumerate their use and their yield in national and international market. Promote start-ups in small scale industries.

Course Code - 16UAZTE03

Course Title – ECONOMIC ENTOMOLOGY AND PEST

MANAGEMENT

	CO	Illustrate the insect structure. Compare the functions of various insects.
	CO	Identify beneficial and harmful insects
	CO	Enumerate the insect pests of stored grains. Compare the insect vectors of plants, animals and man.
	CO	Apply the insect pest control methods

CO	Formulate the principles of insecticides. Assess the precautions in handling pesticides.
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Course Code - 16UAZTC11P Course Title – PRACTICAL – ANIMAL PHYSIOLOGY, BIOCHEMISTRY, DEVELOPMENTAL BIOLOGY AND IMMUNOLOGY

CO	Outline the principle, working mechanism of BP apparatus, Respirometer and Kymograph.
CO	Observe and analyse the digestive enzymes in cockroach. Comparison of nitrogenous waste products and Estimation of oxygen consumption
CO	Analyse the principle, procedure and significance of qualitative analysis of sugar; Estimate the glycogen and protein.
CO	Identify and comment on the biological significance of the histological slides; Observe the specimens and materials related to developmental biology.
CO	Enumerate the applications of immunology.

Course Code - 16UAZTC12P Course Title – PRACTICAL – ENVIRONMENTAL BIOLOGY, BIOTECHNOLOGY AND MICROBIOLOGY

1	CO	Outline the principle, methodology and significance of estimation of oxygen, salinity, carbon dioxide, carbonates, bicarbonates and calcium in the given water samples.
2	CO	Demonstration of PCR, blotting techniques, staining techniques and media preparations.
3	CO	Identify planktons; Compare the adaptation of aquatic and terrestrial animals based on museum specimens and microbial slides.

4	CO	Gain knowledge on the basic principles of instruments through demonstration and experimentation.
5	CO	Collect and Identify the flora and fauna of various natural ecosystem during field visit

Course Code – 17UAZTA11

Course Title – ALLIED ZOOLOGY -I

1	CO	Outline the general characters and classification of invertebrates. Compare the morphology, anatomy and life history of Protozoa, Porifera, Coelenterata and Platyhelminthes.
2	CO	Differentiate the morphology, anatomy, larval forms and distinctive characters of Phylum Annelida, Arthropoda, Mollusca and Echinodermata.
3	CO	Assess the distinctive characters and classification of Chordata. Cognize the affinities of Prochordates. Realize the general characters and classification of class Pisces with an example.
	CO4	Differentiate the morphology and anatomy of class Amphibia and Reptilia.
5	CO	Compare and contrast between class Aves and Mammalia

Course Code - 16UAZTA13

Course Title – ALLIED ZOOLOGY -II

1	CO	Outline the fundamental features of an animal cell. Discuss the cell structure, function and the metabolic processes of cells in terms of cellular organelles, membranes and biological molecules. Enumerate the concepts of molecular structure of genes and the inborn errors of metabolism.
2	CO	Recognize the basic concepts of developmental biology. Explain the process of gametogenesis and fertilization. Discuss cleavage and gastrulation in chick.

3	CO	Gain knowledge on the physiology of the Digestive, Excretory and Cardiovascular systems.
	CO4	Apply the basic concept of Ecology. Enumerate the environmental degradation and greenhouse effect.
5	CO	Discuss Darwinism and Lamarckism. Explain the factors responsible for speciation.

Course Code - 16UAZTA12P

Course Title – ALLIED ZOOLOGY PRACTICAL

1	CO	Identify and classify the Specimen.
2	CO	Observe and comment on the biological specimen
3	CO	Compare the morphology and anatomy of Invertebrate and Chordate specimen through dissection
	CO4	Demonstrate the Mounting of mouthparts of Cockroach, Mosquito and appendages of prawn and their significance

Course Code - 16UNME01G

Course Title – NME - AQUACULTURE

1	CO	Analyze the physical and chemical characteristic features of water bodies in fisheries. Compare the types of culture system in fisheries.
2	CO	Formulate the feed for cultivable species. Assess the maintenance and management of different types of fish ponds.
3	CO	Cognize the importance of induced breeding in Indian major carps. Prepare live feed for carp culture.
	CO4	Apply the various techniques practiced in culturing of fishes and oysters.

5	CO	Outline the culture of marine and freshwater prawns. Identify the pathogens on fish and prawn. Analyse the use of crafts and gears in fishing technology. Assess the fish preservation and processing. Discuss the role of agencies involved in the Aquaculture.
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Course Code - 16UNME02G

Course Title – NME – PUBLIC HEALTH AND

H YGIENE

1	CO	Outline the scope of Public health and hygiene. Compare the Nutritional deficiencies and nutritional requirement for special group of children.
2	CO	Identify various sources of pollution on their impact on the environment and its control measures.
3	CO	Analyse the causative agents, pathogenicity and control measures of communicable diseases.
	CO4	Enumerate the cause, symptoms, prevention, control, early diagnosis and treatment of non-communicable diseases.
5	CO	Gain knowledge on first-aid and nursing. Analyse the role of Government, World Health Organization and Non - governmental Voluntary Health Organizations in Health education.

13. B.SC BIOTECHNOLOGY PSO:

PSO1: To gain knowledge and acquired skills to understand the fundamentals and complex interactions among various living organisms.

PSO2: To be trained towards sustainable development judiciary usage of natural resources ethically

PSO3: To decide and apply appropriate tools and techniques in Biotechnological manipulation.

PSO4: To undertake any responsibility as an individual and as a team in a multidisciplinary environment.

PSO5: To develop oral and written communication skills.

PSO6: To demonstrate knowledge of project and finance management during the product production.

PSO7: To peruse their ethical principles and commit to professional ethics and responsibilities in delivering his or her duties.

PSO8: To attain professional status in the core fields like Fermentation technology, Health care industries: therapeutic agent development like Vaccine production and formulation, nutraceutical product development and formulations, diagnostic kit development, Food industry, and also in the lateral fields like as Patent officers, Biostatisticians, *In-silico* fields like bioelectronics, bioinformatics, in the field of environmental sustainability, Bioentrepreneurs to support the biobased industries, Science communicators which are the need of the hour in today's world

B.SC BIOTECHNOLOGY CO:

Course Code:19UBIO301

Course Title: Cell Biology

1	CO-	To discuss the various fields of biotechnology and their scopes.
2	CO-	To outline the different types of intellectual property like Patents, Publications, Trademarks, Copyrights.
3	CO-	To compile the list of Indian Biotechnology sectors and to assess their various products.
4	CO-	To analyse and explain the organisation of living organism and to assess the role of different organelles and components of a cell.
5	CO-	To outline the molecular levels of organization from epithelial cell and integumentary system.
6	CO-	To discuss the role and function of mitochondria, chloroplast, lysosome, peroxisomes, glyoxysomes, centrioles and nucleus
7	CO-	To explain the role of transposable elements in the process of genetic recombination.
8	CO-	To demonstrate the overview of transcription and translation of eukaryotic cells and its regulatory mechanism.

9	CO-	To explain the role of protein and predict their modification for protein folding and sorting.
10	CO-	To analyse the types of cellular communication and to assess the phases of cell cycle and their role in cancer biology.

Course Code: 19UCHE333

Course Title: Chemistry

	CO-1	To discuss various fundamental concept in organic chemistry
	CO-2	To outline the importance of functional groups
	CO-3	To predict the atomic and molecular structures
	CO-4	To explain co-ordination chemistry and water technology
	CO-5	To analyse the basic principles of physical chemistry
	CO-6	To analyse the basic principles of electrochemistry
	CO-7	To discuss different concepts involved in stereochemistry
	CO-8	To explain the types and factors influencing chemical reactions

SEMSTER-II

Course Code:19UBIO304

Course Title: Biochemistry

	CO-1	To gain knowledge about early earth atmosphere and theory related to formation of biomolecules on earth based upon the case study
	CO-2	To relate classification and functions of biomolecules relate to health management.
	CO-3	To establish ideas, principals, concepts and techniques drawn from the study of biomolecules
	CO-4	To analyse the wide range of agriculture, medical and industrial application and product discovery.

CO-5	To conduct practical based task in a responsible safe and ethical manner taking proper account of risk assessment, health and safety regulations.
CO-6	To apply the major theories and research procedures to contemporary social demands

Course Code:19UBIO306

Course Title: Bioinstrumentation and

Biotechniques

CO-1	To explain the definition and calculations involved in sample preparation.
CO-2	To justify basic principles, working, types and applications of centrifuge.
CO-3	To describe the general principle and working of different chromatography types
CO-4	To prepare different solution like buffers required for electrophoretic technique.
CO-5	To prepare the solutions for sample extraction
CO-6	To acquire idea about the principle, working and applications of SDS-PAGE and Immuno electrophoresis.
CO-7	To examine principle, instrumentation and applications of various spectroscopic methods.

Course Code:

Course Title: Cell Biology and Biochemistry (Practical)

CO-1	To explain the principle and components of the compound microscope.
CO-2	To explain the morphology of cells using Buccal Smear and Onion Peel
CO-3	To count the blood cells and to assess the morphology of the cells for any diseased condition.
CO-4	To analyze the different stages of cell division (mitosis) by squash method.

CO-5	To examine different biomolecules like protein, carbohydrates and lipids from succulent stem.
CO-6	To explain and evaluate the estimation of biomolecules
CO-7	To demonstrate qualitative and quantitative of carbohydrates and amino acids
CO-8	To detect and analyse the different phytochemicals from tulasi leaf extract
CO-9	To demonstrate the different plant pigments through TLC.
CO-10	To evaluate the oxidative properties of plant leaf extract

Course Code: **Course Title: Chemistry and Bioinstrumentation and Biotechniques**

(Practical)

CO-1	To apply the titrimetric principles in acid base estimation
CO-2	To compare and discuss about functional groups of the organic compounds
CO-3	To demonstrate the water quality by chemical methods
CO-4	To calculate the molarity, molality, normality, equivalent weight.
CO-5	To apply the principles of centrifugation, spectroscopy in biomolecule separation and analyses
CO-6	To demonstrate the separation of biomolecules from the leaf sample
CO-7	To evaluate the proteins in food samples
CO-8	To discuss the various types of DNA banding pattern in agarose gel electrophoresis
CO-9	To explain the protein profiling by SDS-PAGE from bacterial cell

SEMSTER-III

Course Code: 17UBTKC04

Course Title: Genetics

CO-1	To compile the milestones in the history of classical and modern genetics
CO-2	To demonstrate the classical Mendelian experiments
CO-3	To use the techniques for the clarification of non-Mendelian concepts
CO-4	To explain the methods and principles of genetic recombination
CO-5	To discuss the theories and mechanism of evolution
CO-6	To recall the principles of molecular basis of inheritance and variation
CO-7	To discuss the effects of mutation in genetic disorders

Course Code: 18UBTKA05

Course Title: Biochemistry-I

CO-1	To discuss about the classification and structural elucidation and biological importance of biomolecules
CO-2	To relate bioapplications and classifications of porphyrins, vitamin and hormones
CO-3	To compile the principles of bioenergetics, metabolism of carbohydrates, fats, proteins and outline of purine and pyrimidine
CO-4	To create the deeper discussion about prostaglandins, leukotrienes, thromboxane, interferon and pigments.
CO-5	To identify the suitable separation techniques for biomolecules by chromatography, centrifugation and electrophoresis.
CO-6	To apply the major theories and practical knowledge for contemporary job market

SEMESTER-IV

Course Code: 17UBTKC06

Course Title: Plant Biotechnology

CO-1	To assess the plant genome and its collective gene family and the organization of chloroplast and mitochondria
CO-2	To compare the various plant viral vectors and to use the efficient method for genetic transformation.
CO-3	To evaluate the different seed storage proteins and to explain the regeneration of gene expression.
CO-4	To select the plant and the methodology for the production of plant based vaccine.
CO-5	To compare the molecular basis of action of different plant growth hormones and their role in photomorphogenesis
CO-6	To use novel technologies for the fruit ripening and processing.
CO-7	To evaluate the types of plant growth media and to formulate innovative and novel growth media.
CO-8	To apply the concepts of haploid plants and to use protoplast isolation for various applications.

Course Code: 17UBTKA06

Course Title: Biochemistry-II

CO-1	To gain adequate knowledge about classification of carbohydrates
CO-2	To compile classification of amino acids and proteins
CO-3	To explain biological, chemical importance and its metabolism of fatty acids and
CO-4	To discuss the structure of DNA, RNA and the importance of genetic code
CO-5	To relate the biological and chemical importance of vitamin and its deficiency status
CO-6	To use advanced technique with its principles to analyze deeper range of industrial applications.

CO-7	To apply the major theory and practical knowledge to contemporary industrial demands
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Course Code: 17UBTKC05P

Course Title: Genetics and Plant Biotechnology

CO-1	To analyze the karyotypes of human chromosome using photomicrograph
CO-2	To differentiate the male and female Drosophila, wild and mutant strains
CO-3	To culture genetic model- drosophila and to observe stages of its life cycle
CO-4	To perform the blood grouping and discuss the mechanism of co-dominance
CO-5	To perform and analyses the various stages of mitotic and meiotic cell divisions
CO-6	To design and outline the requisites of a Plant tissue culture laboratory
CO-7	To demonstrate the callus development and Micropropagation of plants.
CO-8	To demonstrate Protoplast isolation and fusion of plants.
CO-9	To isolate beneficial bacteria and bacterial consortium for production of secondary metabolites involved plant growth.
CO-10	To demonstrate the production of single cell protein by <i>Spirulina</i> Culture.
CO-11	To discuss and apply the various advanced techniques like Southern, Northern Hybridization, Electroporation and Biolistic methodology.

Course Code: 17UBTKA05P

Course Title: Biochemistry

CO-1	To apply the titrimetric principles in acid base estimation
CO-2	To explain and evaluate the estimation of biomolecules

CO-3	To demonstrate qualitative and quantitative of carbohydrates and amino acids
CO-4	Detection of biomolecules from food sample
CO-5	Estimation of Vitamin C by dichlorophenol indophenol

SEMESTER-V

Course Code: 17UBTKC07

Course Title: Animal, Medical Biotechnology

CO-1	To compile principles of animal biotechnology and its role in animal breeding
CO-2	To demonstrate about the importance of medical biotechnology and disease diagnosis using modern technique
CO-3	To analyze the diagnosis of existing and emerging health diseases
CO-4	To demonstrate in detail about vaccines and its types
CO-5	To explain different steps involved in genetic engineering of micro-organisms
CO-6	To discuss about maintenance of animal cell lines as an alternative to animal models

Course Code: 17UBTKC08

Course Title: Bioinformatics

1	CO-	To explain about the importance of bioinformatics and its scopes
2	CO-	To acquire idea about different types of biological databases and data retrieval
3	CO-	To discuss different methods of sequence alignment and its computational tools.

4	CO-	To discuss gene prediction methods in prokaryotes and eukaryotes
5	CO-	To explain in detail about protein database, comparison of protein sequences, database searching and its structure prediction.
6	CO-	To describe microarray technology for gene expression studies.
7	CO-	To analyze genomic and proteomic information with respect to biological system.

Course Code: 17UBTKC09

Course Title: Immunology

1	CO-	To demonstrate the basic concepts of immunology and antigen, isolation, purification and characterization
2	CO-	To demonstrate the purification of mononuclear cells from blood and isolation of lymphocytes
3	CO-	To explain hybridoma and monoclonal antibody production and their application in biomedical research
4	CO-	To assess the hypersensitivity reaction both in situ – and in vivo and HLA typing
5	CO-	To analyze the biology and assay of cytokines
6	CO-	To demonstrate the preparation of vaccine including DNA vaccine

Course Code: 17UBTKC10

Course Title: Biostatistics and Computer application in Life

Science

1	CO-	To outline early earth atmosphere and theory related to formation of biomolecules on earth based upon the case study
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2	CO-	To relate classification and functions of biomolecules relate to health management.
3	CO-	To establish ideas, principles, concepts and techniques drawn from the study of biomolecules
4	CO-	To analyze the wide range of agriculture, medical and industrial application and product discovery.
5	CO-	To conduct practical based task in a responsible safe and ethical manner taking proper account of risk assessment, health and safety regulations.
6	CO-	To apply the major theories and research procedures to contemporary social demands

Course Code: 17UBTKE01

Course Title: Pharmaceutical Biotechnology

	CO-1	To compare and screen the microbes of pharmaceutical values
	CO-2	To explain the series of steps involved in drug development process
	CO-3	To determine the fate of drug in human body
	CO-4	To demonstrate the phase involved in pre-clinical and clinical trials
	CO-5	To analyse the various drug formulation, drug administration and drug description methods
	CO-6	To clarify the protocols in achieving drug approval and marketing
	CO-7	To discuss about the demand of Health care products and diagnostics in local and global market
	CO-8	To plan and prepare themselves to meet the demand of the Biopharmaceutical sectors

SESMTER-VI

Course Code: 17UBTKC13

Course Title: Genetic Engineering

CO-1	To explain the mechanism of enzymes involved in Recombinant technology
CO-2	To select appropriate types of vectors and expression systems for molecular cloning
CO-3	To screen and distinguish the Transformants and non- Transformants
CO-4	To use the molecular techniques for analyzing the biomolecules
CO-5	To demonstrate series of steps involved in Recombinant technology
CO-6	To apply the principles of genetic engineering in the field of agriculture, medicine and research

Course Code: 17UBTKC14

Course Title: Bioprocess technology

CO-1	To compare traditional and modern fermentation technology for appropriate product production
CO-2	To demonstrate the applications of the different types of fermenters and fermentation mechanisms
CO-3	To differentiate different types of fermentation mechanism.
CO-4	To explain the parts of the industrial grade fermenters
CO-5	To outline, evaluate the microbial growth kinetics
CO-6	To discuss and demonstrate the nutrients requirements for the microbial growth and product formulation
CO-7	To compare the various physical parameters and to select the suitable product specific parameters
CO-8	To compare and outline steps involved for the down stream processes
CO-9	To apply the principles of fermentation processes for various product production

Course Code: 17UBTKC15

Course Title: Biotechnology and Nanotechnology

CO-1	To discuss the basic principles of Nanobiology and to demonstrate the various types of nanoparticles.
CO-2	To explain the synthesis, types and applications of biodegradable polymers (Bionanoparticles)
CO-3	To outline the different methodologies involved in the synthesis of Nanomaterials (Top Down and Bottom Up)
CO-4	To demonstrate the characterization techniques employed in the Nanobiotechnology.
CO-5	To evaluate the formation, role and biological applications of carbon nano tube.
CO-6	To formulate Nanoformulations for smart delivery systems, smart intelligent packaging and electrochemical sensors.

Course Code: 17UBTKE02

Course Title: Microbial Biotechnology

CO-1	To discuss the methods involved in the microbial culture an preservation
CO-2	To explain about the types of fermenter and its application
CO-3	To apply principles of microbial cell immobilization in production
CO-4	To demonstrate the culture of <i>Spirulina</i> and <i>Candida utilis</i> spp.
CO-5	To explain the role of microbes in alcoholic beverage production, dairy products
CO-6	To apply the microbes for agricultural benefits
CO-7	To evaluate the role of microbes in bioremediation and recalcitrant of biosphere

Course Code: 17UBTKE03

Course Title: Environmental Biotechnology

1	CO-	To discuss the importance of environmental biotechnology for sustainable utilization of natural resources
2	CO-	To discuss about biofilm and its kinetics
3	CO-	To demonstrate typical reactor design types and application
4	CO-	To demonstrate stoichiometric equation in a biochemical reaction
5	CO-	To outline the different strategies of recalcitrant techniques
6	CO-	To apply denitrification and physiology of denitrifying bacteria in nitrogen waste degradation
7	CO-	To analyze detoxification of different hazardous chemicals causing environmental pollution and biodegradation of organic pollutants
8	CO-	To demonstrate the various principles of biological and chemical applications in sewage and waste water treatment

Course Code: 17UBTKC11P Course Title: Animal, Medical Biotechnology and Immunology

(Practical)

	CO-1	To evaluate the cell viability
	CO-2	To explain the importance of serum in animal cell line culture
	CO-3	To demonstrate the preparation of single cell suspension for cell line culture
	CO-4	To outline the cryopreservation techniques for animal cell line maintenance
	CO-5	To apply the different serum, medium sterilization techniques

CO-6	To demonstrate the establishment of monolayer of animal cells and its Trypsinisation process
CO-7	To explain the principles of agglutination and precipitation reactions
CO-8	To demonstrate the indirect agglutination reactions
CO-9	To discuss about the maintenance of laboratory animals
CO-10	To demonstrate ELISA technique

Course Code: 17UBTKC12P Course Title: Genetic Engineering and Bioprocess Technology

(Practical)

CO-1	To extract the biomolecules : Protein, DNA and RNA by centrifugation methods
CO-2	To separate and observe the biomolecules by electrophoretic techniques
CO-3	To estimate the biomolecules using the UV-spectroscopy analyses
CO-4	To prepare the expression system for cloning
CO-5	To maintain the stock bacterial cell used in genetic engineering experiments
CO-6	To isolate the gene of insert by Restriction digestion methods
CO-7	To demonstrate the amplification of DNA by PCR
CO-8	To evaluate the biomolecules in grapes juice and to acquire the mechanism involved in the production of wine
CO-9	To select the appropriate techniques in the enzymes immobilization
CO-10	To formulate the media and to select the suitable physical parameters for the product production like citric acid and amylase
CO-11	To formulate medium and microbes concentration for citric acid production

CO-12

To choose the appropriate down- stream processing of citric acid production

14. B.SC CHEMISTRY PSO:

PSO 1: Acquire indepth knowledge to face competitive examinations of national standards and capable of doing higher studies.

PSO2: Utilize skills in problem solving, critical thinking, analytical reasoning in chemistry domain and use modern experimental techniques

PSO3: Enhance skill in planning and conducting experiments, enable them to handle classes at the secondary level.

PSO4: Develop a creative scientific mind to communicate effectively the scientific ideas and their impact on socio-economic issues and sensitize the need for a green environment

PSO5: Apply the knowledge of chemistry to function effectively as an entrepreneur in chemical or related industries.

B.SC CHEMISTRY CO:**On completion of the course the students will be able**

1	CO	To explain the atomic structure, quantum mechanical postulates, quantum number, shape of orbitals.
2	CO	To classify the elements in the periodic table and explain their periodic properties.
3	CO	To outline hybridisation ,chemical bonding and predict the geometry of molecules based on VSEPR theory.
4	CO	To write IUPAC name of the compounds, various constitutional isomers of a compound.
5	CO	To identify the reaction as substitution, elimination, addition and rearrangements and to understand polar effects, Reaction intermediates and their application in organic chemistry

Basic Chemistry –II

Course Outcome

On completion of the course the students will be able

1	CO	To explain of nuclear structure, stability of the nuclei, nuclear isomers, nuclear reaction, different modes of radioactive decay and nuclear reactor.
2	CO	To describe crystal structure, elements of symmetry and understand the defects in crystals
3	CO	To give preparation, important chemical properties and uses of hydrocarbons and poly nuclear hydrocarbons.
4	CO	To gain an understanding of principles of quantitative and qualitative analysis.
5	CO	To predict mechanism in aromatic and aliphatic compounds, types of reaction, to understand the orientation and reactivity in substituted benzene

Organo Oxygen Compounds

Course Outcome

The students will be able

1	CO	To gain knowledge about alcohols, ethers and phenol - structures, nomenclature, classification and chemical reaction, electrophilic substitution of phenols
2	CO	To write preparation of aldehydes and ketones, the mechanism of enolization reaction, nucleophilic addition, reduction and electrophilic substitution reactions.
3	CO	To explain preparation and properties of mono, dicarboxylic and aromatic acids, acidity of carboxylic acids, effect of substituents on acidity, acid derivatives
4	CO	To outline the mechanism of hydrolysis of ester $B_{Ac}2, A_{Ac}2$, keto-enol tautomerism, synthetic applications of acetoacetic, malonic and cyanoacetic ester.
5	CO	To gain knowledge on carbohydrates, concept of mutarotation, conformation and configuration of glucose, evidence for furanose and pyranose structure, interconversion of sugars

Chemistry of s-Block and p-Block Elements

Course Outcome

The students will be able

1	CO	To give preparation of s block elements, Diagonal relationship between Li and Mg. Extraction of Beryllium.
2	CO	To outline the preparation of Boron hydrides, Oxides of Boron, Boron and nitrogen compounds and preparation of diborane. glass and ceramic industry
3	CO	To write the preparation and properties of nitrogen and phosphorous compounds
4	CO	To explain the preparation of halogen compounds, interhalogen compounds and oxides of boron
5	CO	To discuss about noble gases, Xenon compounds, separation of noble gases and structure and bonding of noble gas halides.

Organo Nitrogen and Natural Products

Course Outcome

The students will be able

1	CO	To explain the preparation of amines and nitro compounds and their reactions.
2	CO	To discuss the classification, preparation, properties of amino acids, structures of proteins and their reactions.
3	CO	To identify the structure of RNA, DNA, and to explain the preparation and properties of five and six membered heterocyclic compounds.
4	CO	To discuss the preparation properties of alkaloids and to elucidate the structure of alkaloids .
5	CO	To classify, isolate and to learn the general properties and structure of terpenoids like citral, menthol, α pinene and camphor.

Chemical Kinetics and Electro Chemistry

Course Outcome

The students will be able

1	CO	To write the rate expression of a chemical reaction, to derive the rate constants and half life of zero, first and second order reactions.
2	CO	To explain the influence of temperature on reaction rates, collision theory and Lindemann's theory, Absolute reaction rate theory, catalyst and, to differentiate between chemisorption and physisorption.
3	CO	To calculate the conductance, specific and equivalent conductance, to apply Kohlrausch's law in solving problems, explain methods to determine the transport number and to calculate transport number, to explain the types of titrations using conductometry.
4	CO	To demonstrate electrochemical cell, construction, cell notation, reference electrodes, reversible cells, determining electrochemical potentials, spontaneity of cell reaction.
5	CO	To acquire knowledge about concentration cell, cell potential, determination of pH using glass, quinhydrone electrode, electrochemical theory of corrosion and its prevention

Special topics in Chemistry

Course Outcome

The students will be able

1	CO	To apply the fundamentals of stereochemistry, visualize the various elements of symmetry, learn resolution, racemization and asymmetric synthesis.
2	CO	To assign configuration to the isomers, to explain flying wedge, Newmann, Sawhorse projections and their interconversions, various nomenclature like d/l, D/L, erythro/threo, meso/dl, R-S, E-Z., conformational analysis of ethane and cyclohexane derivatives.
3	CO	To define symmetry elements, symmetry operations, point group, to construct multiplication table for C_{2v} point group and to write the symmetry elements for C_{2h} , C_{3v} point groups.
4	CO	To state the laws of photochemistry, definition for quantum efficiency and to derive an expression for quantum yield for photochemical reactions between H_2 and Cl ; H_2 and Br .

5	CO	To predict the various types of rearrangement reaction mechanism with the concept of migratory aptitudes, stereochemistry and their applications.
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Analytical Chemistry - I

Course Outcome

The students will be able

1	CO	To generate analytical data in an appropriate manner.
2	CO	To explain analysis of metals through gravimetry method.
3	CO	To gain expertise in the instrumental methods of chemical analysis at microgram level.
4	CO	To develop the analytical skill in the structural identification of chemical compounds.
5	CO	To apply knowledge in QC laboratory activities at ISO standard.

Thermodynamics and Solutions

Course Outcome

The students will be able

1	CO	To explain the fundamental concepts of system, process and functions, elucidate the relation between C_p and C_v , between enthalpy of reaction with temperature and pressure and Kirchoff's rule.
2	CO	To state the different statements of second law of thermodynamics and apply them to solve problems and to understand the various concepts
3	CO	To state third law of thermodynamics and its exceptions, derive the variation of chemical potential with temperature and pressure.
4	CO	To describe ideal and non-ideal solutions and study the behaviour of binary liquid mixtures, CST, azeotropes, colligative properties, solubility of gases and liquids in liquids, the preparation and properties of colloids and gels.

5	CO	To apply phase rule to find the degree of freedom, draw and interpret phase diagram of one and two component systems, and to apply the knowledge for the removal of silver from lead.
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Chemistry of d and f block elements and Coordination chemistry

Course Outcome

The students will be able

1	CO	To outline the chemistry of transition and inner transition elements.
2	CO	To acquire knowledge on metallurgy and separation of metals.
3	CO	To explain the preparation, properties and applications of various transition and inner transition metal compounds.
4	CO	To write the IUPAC names of coordination complexes and explain theories of coordination complexes.
5	CO	To demonstrate the reaction mechanism in coordination compounds and biological importance of transition metals.

Analytical Chemistry- II

Course Outcome

The students will be able

1	CO	To explain the importance of analytical techniques – Polarography, X-ray, electron & neutron diffraction with the principle, instrumentation and application.
2	CO	To discuss in detail about spectroscopic studies like AAS, UV, Visible, IR with the principle, instrumentation and application.
3	CO	To highlight the importance of Nuclear Magnetic Resonance spectroscopy in structural determination of organic compounds.
4	CO	To study various types of mass spectrometers, principle involved in the technique and extended to application in structure determination of organic and inorganic molecules.

5	CO	To outline about various radio analytical techniques and the role of computers in chemistry.
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Industrial Chemistry

Course Outcome

The students will be able

1	CO	To explain the needs of industrial requirements, types of fuels, waste management system, application of the industrial catalyst like palladium, platinum. titanium and Raney nickel.
2	CO	To acquire knowledge about petrochemicals industry, crude oil, composition of crude oil synthetic petrol process for synthetic petrol.
3	CO	To explain preparation and properties of organic solvents like DMSO, DMF Dioxane and THF.
4	CO	To explain manufacture of Cl ₂ , caustic soda and chlorates of Na and K, oils, synthetic detergents and shampoo.
5	CO	To outline metallurgy of V, Cr, Mn, Pt, U and Th.

Pharmaceutical Chemistry

Course Outcome

The students will be able

1	CO	To identify the common diseases and their cure, understand the pharmacology, pharmacodynamics and pharmacokinetics, Indian medicinal plants.
2	CO	To study the mechanism of drug action, assay and metabolism of drugs.
3	CO	To explain the concept of chemotherapy, anaesthetics, analgesics, acquiring knowledge about antibiotics, treatment of AIDS and cancer.
4	CO	To acquire knowledge about common body ailments – diabetes and cholesterol – hypoglycemic drugs, cardiovascular drugs and psychedelic drugs.
5	CO	To gain knowledge about pharmaceutical industries and their functioning.

Polymer Chemistry

Course Outcome

The students will be able

1	CO	To explain the chemistry behind the various polymers and their preparations.
2	CO	To give the properties of various polymers and their intended applications
3	CO	To have an idea on moulding of polymers , to fabricate innovative shapes.
4	CO	To explain the methods and preparation of commercial polymers
5	CO	To identify biopolymers and biomaterials.

Volumetric Analysis and Inorganic Preparations

Course Outcome

The students will be able

1	CO	To handle analytical balance, standard flask and volumetric pipettes, burette .
2	CO	To prepare solutions of various concentrations.
3	CO	To identify the types of error in the experiments, to calibrate the instruments.
4	CO	To design, carry out, record and interpret the results of volumetric titration.
5	CO	To prepare inorganic compounds and complexes..

Inorganic Qualitative Analysis

Course Outcome:

The students will be able

1	CO	To acquire knowledge on the systematic analysis of Mixture of salts
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2	CO	To identify the acid and basic radicals in the unknown substance.
3	CO	To identify the acid and basic radicals in the soil and water and to test the quality of water.

Analysis and Preparation of Organic Compounds

Course Outcome:

The students will be able

1	CO	To identify the types of reaction (oxidation, reduction, esterification, acetylation, hydrolysis, bromination and nitration) and reagents used in the preparation of organic compounds
2	CO	To calculate theoretical yield and percent yield of the reaction and maintain a detailed record notebook.
3	CO	To identify the nature of organic compounds, special elements (N, S & halogen) functional group and prepare suitable derivatives.
4	CO	To perform common laboratory techniques like reflux, distillation, recrystallization, vacuum filtration and thin-layer chromatography
5	CO	To have an idea about R&D, synthetic chemistry labs in industry.

GRAVIMETRIC ANALYSIS

Course Outcome.

The students will be able

1	CO	To handle the crucibles (both sintered and silica crucible)
2	CO	To estimate the various metal ions gravimetrically.
3	CO	To do organic synthesis which is needed in industry.

15. B.SC COMPUTER SCIENCE PSO:

1	PSO	Analyze and Design real time problems by selecting right data structure and apt algorithmic technique
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2	PSO	Apply basic concepts of problem solving methods to vary applications
3	PSO	Develop small software by selecting appropriate programming C/ Java etc. based on the type of application being developed
4	PSO	Compare and understand the functionalities of OSI and TCP models
5	PSO	Apply suitable Software Engineering methodologies to the problem at hand
6	PSO	Demonstrate basic Computer Architecture and functions of Operating System
7	PSO	Create website using HTML, Java, PHP and VB.NET
8	PSO	Prepare industry ready skills through Python programming and Visual Basic Applications

B.SC COMPUTER SCIENCE CO:

Course Code – 19UCSC301

Course Title - Problem solving using C programming

1	CO	Predict and Analyze problem definition
2	CO	Design and Formulate algorithm for solving problem
3	CO	Design Programming using statements
4	CO	Demonstrate Control flow verification
5	CO	Explain importance function in avoidance of code redundancy
6	CO	Revive Data handling using storage classes
7	CO	Discuss manipulation of Array

8	CO	Design Real time entities through structure
9	CO	Compare static and dynamic allocation using Arrays and Pointers
10	CO	Compute external file data through file handling methods

Course Code - 19UCSC302P

Course Title - Problem solving using C practical

1	CO	Demonstrate calculator through arithmetic operators
2	CO	Illustrate Conditional statements using 'if' statements
3	CO	Demonstrate logical and relational operators using Condition statements
4	CO	Illustrate iteration using 'for, while and do..while 'statement
5	CO	Demonstrate branching statement through 'switch' statement
6	CO	Demonstrate and compute Fibonacci series using function
7	CO	Demonstrate factorial of number using recursive function

Course Code – 19UNME401M

Course Title – Non Major Elective: HTML Practical

1	CO	Design webpage with various text formats
2	CO	Design webpage with ordered and unordered list
3	CO	Build web pages with tables
4	CO	Demonstrate web pages with background and foreground images

5	CO	Build web page with internal and external linking
5	CO	Design applications to view more than one web page in a single window using frame tag
7	CO	Create forms
8	CO	Create Simple websites

Course Code - 19UCSCC03 Course Title - Analysis of Algorithms and Data Structures

1	CO	Discuss design principles and concepts of algorithms and Analyze the efficiency of algorithms using time and space complexity
2	CO	Compare the computational efficiency of various sorting and searching techniques
3	CO	Analyze various static data structures like array implementation of stack and queue
4	CO	Compare static data structures with dynamic data structures such as linked list
5	CO	Demonstrate the data structures tree and graphs and their traversal methods

Course Code - 19UCSC304P Course Title - Analysis Of Algorithms And Data Structures

Using C Practical

1	CO	Illustration of iterative algorithmic technique with insertion sort, bubble sort and selection sort
2	CO	Demonstrate divide and conquer algorithm using quick and merge sort
3	CO	Explain algorithmic technique backtracking using heap sort
4	CO	Implement stack and apply stack for applications like postfix expression and evaluation of expressions
5	CO	Discuss dynamic data structures linked list and doubly linked list and their applications in formulating data structures like trees and graphs

Course Code - 19UNME402M Course Title - Non Major Elective-Visual Basic

Applications Practical

1	CO	Identify Visual Basic applications
2	CO	Analyze how to perform operations and store results.
3	CO	Explain the concept of data-driven program execution flow control in Visual Basic applications
4	CO	Use additional Visual Basic controls
5	CO	Design Macros to implement loops

Course Code -

Course Title - Programming in

Java

1	CO	Recall basic programming constructs
2	CO	Utilize branching and looping for decision making
3	CO	Compare and Revive class through structures of C programming
4	CO	Demonstrate object oriented programming through real time entities
5	CO	Apply string buffer class to provide flexible memory management
6	CO	Explain how multitasking is achieved and processor efficiency is improved by multithreading
7	CO	Create own packages and handle runtime errors by exception handler
8	CO	Compare and analyze I/O streams
9	CO	Create web site

10	CO	Use utility packages
11	CO	Demonstrate GUI through awt controls
12	CO	Design event-driven programming

Course Code -

Course Title - Programming in Java

Practical

1	CO	Revive basic programming like arithmetic operation and decision making statements
2	CO	Apply object oriented concepts class and object
3	CO	Develop programs using recursive method
4	CO	Demonstrate polymorphism through method overloading and method overriding
5	CO	Compare different types of inheritance in Java language
6	CO	Illustrate multithreading
7	CO	Handle runtime errors using Exception handling
8	CO	Create basic applet programs
9	CO	Design web page by using different layouts and awt controls

Course Code -

Course Title - VB.NET Programming and Database Management

System

	CO	Design and construct application using elements in .net framework
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2	CO	Integrate variable and operators for calculations
3	CO	Determine decision structure and iterations
4	CO	Create an vb.net program using functions, menus and toolbars
5	CO	Build vb.net program using MDI form
5	CO	Demonstrate the database and their features
7	CO	Design a database using classes and relational model
8	CO	Illustrate vb.net program with database connection

Course Code -

Course Title - RDBMS with VB.NET Practical

1	CO	Explain the concept of click event and change event
2	CO	Create a web form using tools
3	CO	Demonstrate calculation, input validation using compare validator, request field validator
4	CO	Discuss variables, hyperlink and methods
5	CO	Design and build vb.net program to connect database

Course Code -

Course Title - Operating systems

1	CO	Demonstrate how operating system acts as user interface and various types of Operating systems
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2	CO	Identify components of operating system and their functions
3	CO	Discuss various process management concepts like scheduling
4	CO	Illustrate concurrent processing , mutual exclusion and synchronizations
5	CO	Identify the necessary and sufficient condition for deadlock and how to detect, avoid , prevent and recover Deadlock
6	CO	Elucidate Memory management techniques like paging, segmentation, demand paging
7	CO	Explain file management system

Course Code -

Course Title - Digital Logic and Computer Architecture

1	CO	Evaluate Number systems and number system conversion
2	CO	Acquire the knowledge about basic logic gates and Boolean functions
3	CO	Apply the concepts of combinational and sequential logic circuit design.
4	CO	Demonstrate the structure, function and characteristics of computer systems
5	CO	Identify the elements of instruction sets
6	CO	Achieve knowledge about registers and its types
7	CO	Elucidate various levels of memory hierarchy and stack organization.
8	CO	Rate the concepts of interrupts and its applications
9	CO	Acquire knowledge about central processing unit (CPU), and its various operations

4	CO	Demonstrate simple application to Validate input
5	CO	Design table with constraints
5	CO	Use aggregate functions
7	CO	Demonstrate connecting My-SQL with PHP

Course Code -

Course Title - Interdisciplinary Elective – Internet and its applications

1	CO	Design webpage with different text formats
2	CO	Design webpage with ordered and unordered list
3	CO	Demonstrate web pages with background and foreground images
4	CO	Build web pages with tables
5	CO	Design applications to view more than one web page in a single window using frame tag
5	CO	Create forms
7	CO	Create Simple websites

Course Code -

Course Title - Software

Engineering

1	CO	Identify and define the problem to be solved
2	CO	Plan the development process through software life cycle models
3	CO	Predict and estimate software cost

4	CO	Analyze and prepare software requirement specification
5	CO	Select languages and processors for requirement specification
5	CO	Compare and select software design techniques
7	CO	Fix and review milestones, walkthrough and inspection
8	CO	Implement the software as per standards and guidelines
9	CO	Assure quality of software product
10	CO	Verify and validate software product

Course Code -

Course Title - Python

Programming

1	CO	Use if-else statements and switch-case statements to write programs in Python to tackle any decision-making scenario
2	CO	Explain store and retrieve information using variables
3	CO	Apply how to write loops and decision statements in Python.
4	CO	Identify how to use lists, tuples, and dictionaries in Python programs
5	CO	Determine how to use exception handling in Python applications for error handling

Course Code -

Course Title - Python Programming

Practical

1	CO	Acquire programming skills in core Python.
2	CO	Acquire Object Oriented Skills in Python

3	CO	Develop the skill of designing Graphical user Interfaces in Python
4	CO	Develop the ability to write database applications in Python
5	CO	Develop cost-effective robust applications using the latest Python trends and technologies

Course Code -

Course Title - Data Communication & Networking

1	CO	Explain the concepts of Network Topology and OSI reference models
2	CO	Discuss the concepts of error correction and error detection
3	CO	Analyze the concepts of Multiplexing and Telephone Systems
4	CO	Demonstrate the concepts of circuit switching and Connection and Connection Oriented Services
5	CO	Evaluate the concept of routing algorithms and client/server architecture
6	CO	Illustrate the concepts of Security and types of attacks and the authentication codes

Course Code -

Course Title - Data Mining

1	CO	Demonstrate advanced knowledge of data mining concepts and techniques
2	CO	Identify appropriate data mining algorithms to solve real world problem
3	CO	Compare and evaluate data mining techniques like classification, prediction, clustering and association rule mining
4	CO	Explain the analyzing techniques of various data
5	CO	Evaluate various mining techniques on complex data objects

5	CO	Determine whether a real world problem has a data mining solution
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Course Code -

Course Title - Software Testing

1	CO	Identify software development life cycle models
2	CO	Analyze various testing methods like white box, black box testing and integrated testing
3	CO	Compare various testing methodologies such as system acceptance testing, performance testing and regression testing
4	CO	Apply object oriented system testing
5	CO	Analyze usability and accessibility of testing organizational structure of testing teams
6	CO	Demonstrate the steps involved in planning, managing , executing and reporting test
7	CO	Analyze and compare testing metrics

Course Code -

Course Title - Data Science

1	CO	Demonstrate the tools in data science.
2	CO	Explain data type, control structure and functions
3	CO	Analyze how to collect, clean and prepare a data
4	CO	Explain the method of summarizing the data
5	CO	Evaluate the data science findings

Course Code -

Course Title - Cloud Computing

1	CO	Describe the overall organization of data and storage
2	CO	Explain the concept of cloud computing
3	CO	Analyze the trade-offs between deploying application in the cloud and over the local infra structure
4	CO	Compare the advantages and disadvantages of various cloud computing platforms
5	CO	Analyze the performance of scalability and availability in the underlying cloud technologies and software
6	CO	Solve a real world problem using cloud computing through group collaboration
7	CO	Deploy applications over commercial cloud computing infrastructure

Course Code -

Course Title - Mini Project

1	CO	Address the real world problem and find the required solution
2	CO	Perform requirement analysis and identify design methodologies
3	CO	Apply advanced programming techniques
4	CO	Present technical report by applying different visualization tools and Evaluation metrics
5	CO	Creates a new application using the previously learned concepts

Course Code -

Course Title - Fundamentals Of Multimedia

1	CO	Explore the different roles, skill sets, jobs and equipment associated with the development of digital media.
2	CO	Examine the processes involved in producing content to meet a specific communication goal toward a target audience

3	CO	Define multimedia to potential clients.
4	CO	Identify and describe the function of the general skill sets in the multimedia industry002E
5	CO	Identify the basic components of a multimedia project
5	CO	Identify the basic hardware and software requirements for multimedia development and playback.

Course Code -

Course Title - Android Application Development Practical

1	CO	Install and configure Android application development tools.
2	CO	Design and develop user Interfaces for the Android platform
3	CO	Design and develop user Interface with view displaying pictures and menus
4	CO	Explain data persistence
5	CO	Develop android service and public android application

Course Code -

Course Title - Artificial

Intelligence

1	CO	Demonstrate knowledge of building blocks of AI as presented in terms of intelligent agents
2	CO	Analyze and formulize the problem as a state space, graph and game based techniques to solve them
3	CO	Critique intelligent algorithms for constrain satisfaction problems and also design intelligent systems for game playing
4	CO	Attain the capability to represent various real life problem domains
5	CO	Apply concept of Natural language processing to problems leading to understanding of cognitive computing

CO

Analyze the strength and weakness of AI approaches to knowledge intensive problem solving

16. B.SC INFORMATION TECHNOLOGY PSO:

Students with B.Sc degree in Information Technology will possess the ability to understand, analyze and develop software programs in the areas related to Big Data , Cloud Computing ,R programming , web design, application program, database , graphics and User Interface Programming for efficient design of technology of varying complexity.

B.SC INFORMATION TECHNOLOGY CO:**Course code: 18UBITC01****Course Title: Programming in C & Linux**

CO1	Implement the basic concepts of C programming.
CO2	Practice the use of conditional and looping statements.
CO3	Implement arrays, functions and pointers.
CO4	Gain skills to handle strings and files.
CO5	To provide introduction to UNIX operating system and its File System.
CO6	To provide a comprehensive introduction to Shell Programming, Services and Utilities.

Course code: 18UBITC02**Course Title: Programming in C & Linux LAB**

CO1	Read, analyse and trace the execution of programs written in C language.
CO2	Write programs that perform operations using derived data types.
CO3	Develop conditional and iterative statement to develop c program.
CO4	Implement Programs with arrays, function and perform various arithmetic operations.
CO5	You will be able to run various LINUX commands on a standard LINUX Operating system.
CO6	You will be able to do shell programming on LINUX OS.

Course Code: 16UNME01K**Course Title: Computing Skills**

CO1	Recognize when to use each of the Microsoft Office programs to create professional and academic documents.
CO2	Use Microsoft Office programs to create personal, academic and business documents following current professional and/or industry standards.
CO3	Apply skills and concepts for basic use of computer hardware, software, networks, and the Internet in the workplace
CO4	Solve common business problems using appropriate Information Technology applications and systems.
CO5	Utilize the Internet Web resources and evaluate on-line e-business system.
CO6	Describe the usage of computers and why computers are essential components in business and society.

Course Code: 18UBITC03

Course Title: Programming in Java

CO1	Designs will demonstrate the use of good object-oriented design principles including encapsulation and information hiding.
CO2	Knowledge of the structure and model of the Java programming language.
CO3	Evaluate user requirements for software functionality required to decide whether the Java programming language can meet user requirements.
CO4	Use the Java programming language for various programming technologies.
CO5	Propose the use of certain technologies by implementing them in the Java programming language to solve the given problem.
CO6	Develop software in the Java programming language.

Course Code: 18UBITC04P

Course Title: Programming in Java Lab

CO1	Implement Object Oriented programming concept using basic syntaxes of controls Structures, strings and function for developing skills of logic building activity.
CO2	Identify classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem.

CO3	Demonstrates how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved.
CO4	Develop Java applications with threads and generics classes.
CO5	Demonstrate understanding and use of different exception handling mechanisms and concept of multithreading for robust faster and efficient application development.
CO6	Build Java applications using exceptions and I/O streams.

Course Code: 16UNME02KP

Course Title: HTML Lab

CO1	Implement basic concepts in HTML.
CO2	Insert and format text and create basic web pages.
CO3	Implement a variety of hyperlinks to connect pages and communicate with users via email link.
CO4	Insert and control images on a web page.
CO5	Apply CSS styles to some page elements.
CO6	Create, modify and format a basic layout.

Course Code: 18UBITC05

Course Title: Design and Analysis of Algorithms

CO1	Identify and choose appropriate algorithm design techniques for solving problem.
CO2	Ability to apply algorithm design techniques for developing algorithms.
CO3	Ability to design various searching, sorting and graph traversal algorithms.
CO4	To apply algorithm design for shortest path in multistage graph method.
CO5	To Know how to use depth first and breath-first search of graphs and the analyses of these.
CO6	Classify the different algorithm design techniques for problem solving and Know a variety of greedy methods.

Course Code: 18UBITC06

Course Title: Data Analysis using Spread Sheet

CO1	To know how to group cells and use outlines to manipulate the worksheet; protect data in worksheets and workbooks.
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CO2	To demonstrate the use of advance Excel Formula.
CO3	To analyse the use of If conditions with advance Excel functions.
CO4	Use a variety of data validation techniques and advanced filters to analyze data in a list.
CO5	To Know how to use critical thinking and problem solving skills in designing the spreadsheets for various business problems.

Course Code: 18UBITC07P

Course Title: Data Analysis using Spread Sheet

CO1	Implement Excel basic functions and charts.
CO2	To work with mathematical text and date function.
CO3	Implements sorting and filtering concepts in Excel.
CO4	To work with Pivot tables.
CO5	To share the workbook using VBA Macros.

Course Code: 18UBITC08

Course Title: Operating System

CO1	Describe the important computer system resources and the role of operating system in their management policies and algorithms.
CO2	Identify the process management policies and scheduling of processes by CPU.
CO3	Evaluate the requirement for process synchronization and coordination handled by operating system.
CO4	Describe and analyze the memory management and its allocation policies.
CO5	Identify use and evaluate the storage management policies with respect to different storage management technologies.
CO6	Identify the need to create the special purpose operating system.

Course Code:

Course Title: Python Programming

CO1	Interpret the fundamental Python Syntax and Semantics.
CO2	Express Proficiency in the handling of Strings and Function.
CO3	Determine the method to create and manipulate python program by utilizing the data structure.
CO4	To create python program using object and class

CO5	To explore the mechanism of modular programming using modules and package.
CO6	To explain data science concepts using Python.

Course Code:

Course Title: Database Management System

CO1	Explain the features of database management systems and File Storage.
CO2	Design conceptual models of a database using ER modelling
CO3	Create and populate a database for a real life application, with constraints and keys, using SQL.
CO4	Retrieve any type of information from a data base by formulating complex queries in SQL.
CO5	Analyze the existing design of a database schema and apply concepts of normalization to design an optimal database
CO6	Illustrate the concepts of transaction, Concurrency and Recovery techniques in Database.

Course Code:

Course Title: Python Programming Lab

CO1	Describe the Numbers, Math functions, Strings.
CO2	Express different Decision Making statements and Functions.
CO3	Interpret Object oriented programming in Python.
CO4	To program with the concepts of List, Tuples and Dictionaries in Python.
CO5	Compare and summarize different File handling operations.

Course Code:

Course Title: Word Press

CO1	Create a functional multi-page website using Word Press on a remote server.
CO2	Use basic HTML and CSS to edit content and modify formatting in a Word Press website.
CO3	Installing and configuring plugging and widgets.
CO4	Able to demonstrate effective use of navigation on the site to enhance usability.
CO5	Managing site content using Categories and tags.

CO6	Choose the topic and design a wireframe, set site goals, identify target audience, and create a colour scheme.
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Course Code:

Course Title: Big Data Analytics

CO1	Analyze the key issues in big data management and its associated applications in intelligent business and scientific computing.
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CO2	Acquire fundamental enabling techniques and scalable algorithms like in big data analytics.
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CO3	Interpret business models and scientific computing paradigms, and apply software tools for big data analytics.
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CO4	Achieve adequate perspectives of big data analytics in various applications like recommender systems, social media applications etc.
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CO5	Modelling and design of Social Networking Metrics.
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CO6	Ability to recognize and implement various ways of selecting suitable model parameters for different machine learning techniques.
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Course Code:

Course Title: Data Science Using R

CO1	Recognize and make appropriate use of Matrices, frames and creating vectors.
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CO2	Use R to create sophisticated figures and graphs.
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CO3	Identify and implement multiple elements of list, nested elements.
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CO4	Design and write functions in R and implement simple iterative algorithms.
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CO5	Cleaning and restructuring data using the grammar of data manipulation.
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CO6	Explain and apply function and looping statement in R Programming.
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Course Code:

Course Title: R Programming Lab

CO1	Navigate and optimize the R integrated development environment (IDE) R Studio.
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CO2	Import external data into R for data processing and statistical analysis.
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CO3	Learn the main R data structures – vector and data frame.
CO4	Produce data visualizations with the ggplot package.
CO5	Compute basic summary statistics.

Course Code: _____ **Course Title: Software Project Management**

CO1	Estimate project cost and perform cost-benefit evaluation among projects.
CO2	Perform project scheduling, activity network analysis and risk management.
CO3	Apply schedule and cost control techniques for project monitoring including contract management.
CO4	Apply quality models in software projects for maintaining software quality and reliability.
CO5	Use suitable project organization structure, leadership, decision and motivation styles, proper safety and ethical practices and be responsible to the society.

Course Code: _____ **Course Title: NOSQL**

CO1	Master the basics of SQL efficiently and apply object-oriented features for developing database applications.
CO2	Compare and Contrast NoSQL databases with each other and Relational Database Systems.
CO3	Compute the field, projection queries and apply the aggregation operators.
CO4	Demonstrate the knowledge of Key-Value databases, MongoDB and Relationships.
CO5	Demonstrate competency in selecting a particular NoSQL database for specific use cases.

Course Code: _____ **Course Title: Software Engineering**

CO1	Analyse and demonstrate basic knowledge in software engineering.
CO2	Identify requirements analyze and prepare models.
CO3	Plan, schedule and track the progress of the projects.
CO4	Design & develop the software projects.
CO5	Identify risks; manage the change to assure quality in software projects.
CO6	Apply testing principles on software project and understand the maintenance concepts.

Course Code:**Course Title: UI Programming**

CO1	Identify the structure of an HTML document, HTML elements and attributes.
CO2	Create HTML5 structural semantic markup.
CO3	Create cascading stylesheets (CSS) for device and browser integration.
CO4	Develop basic programming skills using JavaScript.
CO5	Compute java script programming concepts (variable, control structure, loops)

Course Code:**Course Title: UI Programming Lab**

CO1	Analyse and apply the role of languages like HTML, CSS and JavaScript.
CO2	Analyse a web page and identify its elements and attributes.
CO3	Demonstrate the important HTML tags for designing static pages and separate design from content using Cascading Style sheet.
CO4	Utilize the concepts of dialog box and operators in java script.
CO5	Create dynamic web pages using JavaScript control structure and events procedure.

Course Code:**Course Title: Cloud Computing**

CO1	Analyze the Cloud computing setup with its vulnerabilities and applications using different architectures.
CO2	Design different workflows according to requirements and apply map reduce programming model.
CO3	Apply and design suitable Virtualization concept, Cloud Resource Management and design scheduling algorithms.
CO4	Create combinatorial auctions for cloud resources and design scheduling algorithms for computing clouds.
CO5	Assess cloud Storage systems and Cloud security, the risks involved, its impact and develop cloud application.
CO6	Broadly educate to know the impact of engineering on legal and societal issues involved in addressing the security issues of cloud computing.

17. BS.SC MATHEMATICS PSO

I B.Sc (Computer Science) / BCA

COURSE TITLE: ALLIED MATHEMATICS - I

COURSE CODE: 19UMAT333

Upon the successful completion of the course, students will be able to

CO1	Demonstrate knowledge in computing solutions to Summation series involving Binomial, Exponential and Logarithmic Series.
CO2	Compute the eigen values and eigen vectors of a given matrix and apply Cayley Hamilton theorem in computing the integrals powers and also the inverse of a given matrix.
CO3	Knowledge in solving polynomial equations including reciprocal equations and application of Newton's method in finding approximate roots to the polynomial equations.
C04	Compute radius of curvature using Cartesian co-ordinates and also evaluate maxima and minima of functions involving two variables.
C05	Demonstrate skill in the expansion of Trigonometric functions and compute solutions to problems involving Hyperbolic and Inverse hyperbolic functions.

I B.Sc (Computer Science) / BCA

COURSE TITLE: ALLIED MATHEMATICS - II

COURSE CODE: 19UMAT334

Upon the successful completion of the course, students will be able to

CO1	Demonstrate skill in computing integrations containing an integer parameter.
CO2	Identify the concept of difference tables and use them in computing problems involving Newton and Lagrange formulae.
CO3	Knowledge in solving second order differential equations involving constant coefficients.
C04	Skill in computing solutions to partial differential equations of different types.
C05	Identify the basics of Laplace transformation and apply different properties in computing problems.

CO6	Evaluate solution of differential equations using Laplace transformation and it's inverse.
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II B.SC COMPUTER SCIENCE

COURSE TITLE: OPERATION RESEARCH

COURSE CODE: 18UMATA19

Upon the successful completion of the course, students will be able to

CO1	Identify and develop operation research models from the verbal description of the real system. Formulate the Linear Programming Problem Evaluate the LPP using Graphical Method
CO2	Computing the LPP using Big-M method, Two Phase Method, Duality. Conversion of Primal to Dual Problem.
CO3	Develop a report that describes the model and solving transportation, assignment problems using different techniques.
CO4	Demonstrate the method of sequencing problem by n jobs through 2 machines, n jobs through 3 machines
CO5	Use CPM and PERT techniques to plan, schedule and control project techniques.

II B.SC COMPUTER SCIENCE

COURSE TITLE: STATISTICAL METHODS AND THEIR APPLICATIONS

COURSE CODE: 16UMATA26P

Upon the successful completion of the course, students will be able to

CO1	Create the Diagrammatic and graphical representation of data using Simple bar diagram, Multiple bar diagram, sub-divided bar diagram, Deviation bar diagram, Histogram and Pie diagram . calculate the measures of location and measures of dispersion for different types of data
CO2	Convert real-world problems into probability models. Discuss the concepts of probability, conditional probability and Baye's theorem and its applications
CO3	Evaluate correlation between two variables and identify its types. Formulate the simple linear regression equation for a set of data.

C04	Discuss the test of significance based on t, chi-square and F distributions with respect to mean and variance.
C05	Prepare ANOVA table. . Designs of experiments carry them out and analyze the data the yield.

B.Com (A&F)

COURSE TITLE: BUSINESS MATHS & STATISTICS

COURSE CODE: 19UMAT335

Upon the successful completion of the course, students will be able to

CO1	Analyze the relationship between ratio and proportion and to identify the arithmetic progression & geometric progression series and summation of numerical problem and able to solve them.
CO2	Use the assessment of bill to count the discount of bills and to identify , analyze the annual changes of annuities using annuity certain, annuity due, immediate annuity, annuity contingent, perpetual annuity for the present value.
CO3	Evaluate measure of central tendency for mean, median, mode and to measure the dispersion like mean deviation, quartile deviation and standard deviation.
CO4	Compare two variables using correlation and regression lines.
CO5	Discuss various component of time series and compute the trend values for secular and seasonal variation.
CO6	Analyze various method of finding index numbers for weighted and un weighted data.

B.Com (A&F)

COURSE TITLE: BUSINESS MATHS & OPERATIONS RESEARCH

COURSE CODE: 19UMAT337

Upon the successful completion of the course, students will be able to

CO1	Identify the elements of a given set and use the representation of a given set to distinguish membership properties of elements, subsets, operations on sets and relations, functions of sets.
CO2	Able to find all possible ways of doing something using permutation, combination and to evaluate the distribution like binomial and exponential series.
CO3	Identify and develop operational research models to apply the LPP to solve real life situation using graphical method and simplex method.
CO4	Use basic ideas of transportation problems and apply to solve some problems and plan the assigning of work to different people.
CO5	Use CPM & PERT techniques to plan, schedule and control project techniques and also use to Complete the project through the network and finding critical path and project duration.

II B.COM (HONS)

COURSE TITLE: Business Mathematics

COURSE CODE: 17UHONC12

Upon the successful completion of the course, students will be able to

CO1	Analysis and application of set theory through operators and functions
CO2	Identify and utilize Binominal Theorem, Exponential and Logarithmic Series
CO3	Assess limits and continuity. Differentiate polynomial equations. Locally maximize and minimize functions and apply them to cost, revenue and profit functions.
CO4	Identify and evaluate equations through ratios and proportions. Compute possible outcomes through permutations and combinations and its application on real life scenarios.
CO5	Compute basic interests on financial instruments such as bills, loans, savings and annuity. Solve for variables multi-variable equations with matrices.

II B.COM (HONS)

COURSE TITLE: Business Statistics And Operations Research

COURSE CODE: 17UHONSC15

Upon the successful completion of the course, students will be able to

CO1	Identify and compute measures of central tendency of sample visually mean, median and mode and verify empirical relation. Computation measures of dispersion of samples and their coefficients and Infer meaning there hence.
CO2	Identify and compute rank-correlation with correction of repeated ranks. Compute regression equations and estimate value of independent variable and compute correlation coefficient. Testing hypothesis through F chi square test.
CO3	Analysis of Time Series and indices, measurement of trends and perform statistical quality control
CO4	Compute linear programs through graphical and simplex methods
CO5	Compute transportation and assignment problems

B.Com(ISM)

COURSE TITLE: BUSINESS STATISTICS & OPERATIONS RESEARCH - I

COURSE CODE: 16UMATA18

CO1	Create the Diagrammatic and graphical representation of data using Simple bar diagram, Multiple bar diagram, sub-divided bar diagram, Deviation bar diagram, Histogram and Pie diagram
CO2	Evaluate the Measures of Central tendency – Mean, median and mode for the given data.
CO3	Find the measure of Dispersion - Range, Quartile Deviation, Mean Deviation , Standard Deviation – Measures of Skewness for various types of data.
CO4	Compute the Correlation – Karl Pearson’s Coefficient of Correlation – Spearman’s Rank Correlation for the given data and Find the Regression Lines and Coefficients for the given data.
CO5	Outline Operation Research and Formulate the Linear Programming – Formulation - Graphical and Algebraic Solution.
CO6	Discuss Network Analysis using PERT and CPM.

B.Com(ISM)

COURSE TITLE: BUSINESS STATISTICS & OPERATIONS RESEARCH - II

COURSE CODE:18UMATA20

CO1	Discuss about the Time Series Analysis using Secular trend: Graphic or free hand method, Method of semi average, Moving average and
CO2	Explain Method of least squares to fit a straight line-Seasonal variation: Method of simple average.
CO3	Outline 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.
CO4	Discuss about Sampling Techniques, Types of Sample and Sampling procedures – Explain Tests of Significance – t, Chi –square test.
CO5	Formulate LPP to Assignment Problem, and Find the solution of Minimization, Maximization case in assignment problem, unbalanced assignment problem by Hungarian method.
CO6	Formulate LPP to Transportation problem, Evaluate the initial solution using North west corner method, Least cost method and Vogle’s Approximation method.
CO7	Compute the optimal solution for the given Transportation problem using MODI method

I B.SC(IT)

COURSE TITLE: ALLIED MATHEMATICS

COURSE CODE: 19UMAT336

Upon the successful completion of the course, students will be able to

CO1	Compute the eigen values and eigen vectors. Apply Cayley Hamilton theorem
CO2	Solve the Polynomial equations, Reciprocal equations and approximations by Newton’s method numerically
CO3	Solve Algebraic equations numerically by Gauss seidel and Gauss Jordan methods
CO4	Find the inverse of the matrix using Gauss Elimination method
CO5	Evaluate the positive roots of an equation using bisection, False Position and Newton Raphson method.
CO6	Evaluate the integrals numerically by Trapezoidal, Simpson’s 1/3 and 3/8 rule and Weddle’s rule

COURSE TITLE: Operations Research

COURSE CODE: 19UMAT338

Upon the successful completion of the course, students will be able to

CO1	Introduce to LPP, Solve LPP by Graphical and simplex method
CO2	Formulate LPP to Transportation problem, Find initial solution using North west corner method, Least cost method and Vogle's Approximation method. Find optimal solution using MODI method
CO3	Formulate LPP to Assignment Problem, Solve by Hungarian method
CO4	Demonstrate Sequencing Problem and solve n-jobs through 2,3,m machines
CO5	Solve two person zero sum games by Minimax principle, Dominance property.
CO6	Solve 2xm and mx2 games by graphical method
CO7	Draw Networks and discuss the critical path by Floats and PERT techniques

II B.SC(IT)**COURSE TITLE: Allied Statistics-I****COURSE CODE: 18UMATA14**

Upon the successful completion of the course, students will be able to

CO1	Discuss Sampling and types of datas
CO2	Create graphs and diagrams for different types of datas
CO3	Evaluate measures of central value for different types of data.
CO4	Compute Measures of Dispersion like Mean deviation, quartile deviation and standard deviation for different types of data.
CO5	Compare and study the relationship of two variables using correlation and regression lines
CO6	Analyse various methods of finding index numbers for weighted and unweighted variables over two different periods.

COURSE TITLE: Allied Statistics-II**COURSE CODE:18UMATA21**

Upon the successful completion of the course, students will be able to

CO1	Discuss various components of time series. Compute the trend values for secular and seasonal variations.
CO2	Discuss probability ,apply Baye's theorem to problems. Evaluate expectations.

CO3	Identify the different types of probability distributions ,use them to solve real life problems.
CO4	:Explain test of hypothesis ,its significance and various types of statistical tests for one and two samples,uses.
CO5	Test of hypothesis for more than 2 samples using ANOVA

18. B.SC PHYSICS PSO:

Physics is the natural science that involves

PSO1: The study of matter and its motion and behaviour through space and time, along with related concept.

PSO2: The programme tests the validity of Physical theories in a Scientific Method.

PSO3: Using a methodical approach to compare the implications of a theory with the conclusions drawn from its related experiments.

PSO4: Observations are used to test the validity of a theory in a logical, unbiased, and repeatable way.

PSO5: Numerical methods and mathematical approach involved in physics leading to research

B.SC PHYSICS CO:

Semester-I (I Year)

Paper – 01 SUBJECT: MECHANICS AND PROPERTIES OF MATTER

Subject code:

- Understanding the basic mechanism behind collisions and material properties.
- Strength of materials are analysed in terms of their size and shape.
- Detailed fluid dynamics gives the fundamental knowledge over many practical

applications

Semester-II (I Year)

Paper – 02 SUBJECTS: THERMAL PHYSICS AND ACOUSTICS

Subject code: 19UPHY303

- Detailed learning of Heat, different measurement techniques in thermometry, laws of thermodynamics and heat engines.
- Transmission of heat through different media.
- Basic oscillatory motion and measurement of intensity of sound - Acoustics of buildings.

Semester-III (II Year)

Paper – 03 SUBJECTS: OPTICS AND SPECTROSCOPY

Subject code: 16PHYC04

- Detailed study of Geometrical and Physical aspects of light.
- Covers defects associated with the lens and correcting methods
- Basic understanding of UV-IR spectroscopic analysis

Semester-IV (II Year)

Paper 04: SUBJECT: ELECTRICITY AND MAGNETISM

Subject code: 16UPHYCO6

- Glimpse of Electrolysis and thermoelectricity
- DC and AC analysis on different components like resistors and reactors(Inductor and Capacitor)
- Basic properties of ferro magnetic substances and earth's magnetic field

Semester-V (III Year)

Paper – 05 SUBJECT: ATOMIC PHYSICS

Subject code:

- Measurement of specific charge of electron by different methods
- Complete study of atomic structure and emission of spectral lines
- A detailed learning of “Photon to Electron” and “Electron to Photon” through Photo electric effect and X rays

Semester-V (III Year)

Paper – 6 SUBJECT: NUCLEAR PHYSICS AND PARTICLE PHYSICS

Subject code:

- Detailed learning of Nucleus with their empirical models
- Overall view of Nuclear reactions and nuclear reactors with radioactive laws and radiation measuring techniques
- Introduction of elementary particles and their conservation laws

Semester-V (III Year)

PAPER 7: SUBJECT: SOLID STATE PHYSICS AND ELECTRONICS

Subject code:

- Detailed learning of Crystal structure and associated defects.
- Complete study of Dielectrics and Semiconductors
- Understanding of Semiconductor devices and their applications

Semester-V (III Year)

Paper: 08 SUBJECTS: ELECTROMAGNETISM

- Detailed learning of Magnetic effects of current and basic measuring device BG
- Complete study of electromagnetic induction and its applications on electromagnetic machines
- Introduction to electromagnetic theory

ELECTIVE PAPER 1

Semester-V (III Year)

Paper: 09 SUBJECTS: NUMERICAL METHODS

- To learn the methodology involved in computer computations.
- To learn solving of simultaneous equations using matrix method and curve fitting
- To find the solution of an algebraic, transcendental and differential equations.

SEMESTER – VI / CORE PAPER 9

RELATIVITY AND QUANTUM MECHANICS

Subject code: 16UPHYC14

Course Outcome

On completion of the course the students will be able to

- understand the space - time concept through relativity

- arrive at duality through matter waves
- derive time dependent and independent Schrodinger equations
- use different operators in solving quantum mechanical problems
- find eigen values and eigen functions of free particle

MATHEMATICAL METHODS IN PHYSICS

SUB CODE: 16UPHYC15

OBJECTIVE

To familiarize students with essential mathematical methods for solving advanced problems in theoretical physics.

Course Outcome

Upon completion of the course, the student should be able:

- To use advanced mathematical methods and theories on various mathematical and physics problems.
- To develop the skill of problem solving ability.
- Use Matrices to solve simultaneous equations
- Solve quantum mechanical problems using special functions and polynomials.
- Have the knowledge on Fundamental Classical mechanics and statistical mechanics for their higher studies
- Formulate the Lagrangian and Hamiltonian equations for simple mechanical systems

SEMESTER – VI ,

ELECTIVE 2 – code: 16UPHYE02

INTEGRATED ELECTRONICS

Course Outcome:

On completion of the course the students will have:

- Through knowledge on different number systems
- The skill to simplify the logics using Karnaugh map and Boolean algebra
- Detailed knowledge in storing and retrieving a data through mux and demux

- The skill to customize the counters to the need through serial and parallel counters
- The ability to solve simultaneous equations and differential using Operational amplifier
- The Understanding of digital to analog (DAC) and analog to digital (ADC)

SEMESTER – VI

ELECTIVE III – MICROPROCESSOR 8085 AND MICROCONTROLLER 8051

SUB CODE: 16UPHYE03

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

Course Outcome – At the end of each chapter the students will be able to

- Describe the functions of each pin and internal hardware of 8085 microprocessor
- Write simple programs with different logics for specific tasks
- Develop the knowledge of interfacing peripheral devices to 8085 microprocessor
- Distinguish the software of personal computers from 8085 microprocessor
- Appreciate the use of interrupts and switching of program sequence to discharge specific tasks
- Explain the use of microcontrollers in the day to day applications

19. B.SC PLANT BIOLOGY AND PLANT BIOTECHNOLOGY PSO:

PSO 1. Demonstrate an understanding of biology at the level of molecules, cells, systems, organisms and ecosystems

PSO 2. Demonstrate an understanding of key concepts in evolutionary biology, Plant ecology, Plant Anatomy, Plant Taxonomy, cell biology, molecular biology, biochemistry, Plant genetics, Plant Physiology, Economic botany, Plant Embryology

PSO 3. Demonstrate scientific quantitative skills, such as the ability to evaluate experimental design through statistical analysis, read graphs, and understand and use information from scientific papers

PSO 4. Demonstrate skill in communication of scientific data in standard format, the knowledge of plant sciences is essential for development and management of forests, parks, waste lands, sea wealth

PSO 5. To discuss the diversity and other scientific fields like plant explorer, conservationist, ecologist, environment consultant, horticulturist, plant Physiologist, nursery manager, genetics, molecular biologist, taxonomist, plant pathologist, and farming consultant.

PSO 6. Formulate chemical composition from medicinal plants for health problems, disorders and disease of human beings and estimate the phytochemical content of plants which meet the specified needs to appropriate consideration for the public health

PSO 7. Gain Knowledge to use the evidence based comparative botany approach to explain the evolution of organism and understand the genetic diversity on the earth.

B.SC PLANT BIOLOGY AND PLANT BIOTECHNOLOGY CO:

Course Code - 19UPBT301

Course Title – Algae & Bryophytes

1	CO	To explain and identify the basic concepts and life cycle patterns of Algae and Bryophytes
2	CO	Discuss the significances of Algae and Bryophytes in this changing world for future generation.
3	CO	Explain the evidence supporting the evolution of plants from Algae and to acquire knowledge on the morphological and anatomical structure of Bryophytes.
4	CO	Explain the morphological diversity of Bryophytes and to understand the economic importance of the Bryophytes.
5	CO	Familiarise the databases and online resources available for Algae and Bryophytes

Course Code - 19UPBT303

Course Title – Fungi, Plant Pathology and Lichenology

1	CO	Describe the general characteristics of Fungi and Algae and its ultrastructure. Identify advantages and disadvantages of these organisms.
2	CO	Discuss the Biodiversity, Morphological diversity and economic importance of Fungi
3	CO	Explain the prevention and control measures of plant diseases and its effect in agriculture
	CO4	Examine the plant diseases and its pathogens for crop management in agriculture

5	CO	Evaluate the ecological significances of lichens and to gain knowledge on Fruticose lichens
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Course Code - 19UPBT302P Course Title - Algae and Bryophytes Practical

1	CO	Outline the classification of Algae and Bryophytes upto order
2	CO	Discuss the biological significance of the given specimen
3	CO	Identify the morphology and anatomy of Algae and Bryophytes
4	CO	Investigate their significance and relate structure and function, draw and label diagrams of the specimen
5	CO	Compare the cellular drawing
6	CO	Identify and familiarize the specimens during field visit

Course Code - 19UPBT302P Course Title - Fungi, Plant Pathology and Lichenology

Practical

1	CO	Outline the classification of the specimen upto order
2	CO	Discuss the biological significance of the given specimen.
3	CO	Identify the morphology and anatomy of Fungi through dissection
	CO4	Investigate their significance and relate structure and function, draw and label diagrams of the specimen

5	CO	Identify the Plant diseases, sign and symptoms of pathogens and disease, integrated methods of disease management, use of biological and chemicals in disease management.
6	CO	Identify and familiarize the Plant disease, their causative agent during field visit

Course Code - 19UNME401F

Course Title - NME - Nursery and Landscaping

1	CO	Explain the principles of vegetative propagation.
2	CO	Relate theoretical and practical knowledge to establish home gardens scientifically.
3	CO	List and categorize types of soils, chemicals, fertilizers, and Integrated Pest Management.
	CO4	Outline a fundamental understanding of plant identification, selection, use, and maintenance of plant material best suited for conventional and sustainable landscapes.
5	CO	Relate and familiarize with grafting, layering and seedling culture

Course Code - 19UNME402F

Course Title - NME – Mushroom Cultivation

1	CO	Explain cultivation of different types of edible Mushrooms
2	CO	Assess Climatic requirement for Mushroom cultivation
3	CO	Complete the requirement of composting for Mushroom cultivation & different methods of composting
4	CO	Examine the diseases affecting the Mushrooms and develop their control measures. Expertise in harvesting methods of Mushrooms for cultivation

5	CO	Describe the grading, packing and storing methods of Mushrooms and to know about preparation of its value added products
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Course Code - *Course Title -Anatomy, Microtechnique and Embryology of Angiosperms*

1	CO	Discuss the classification of tissues on the basis of structure and function and to gain knowledge in the Primary and secondary anatomical characters and development of Root, Stem, Leaf (Dicot and Monocot).
2	CO	Compare the structural differences among different taxa of vascular plants.
3	CO	Explain the techniques of microscopic slides making, microscopic measurements and methods of identification of some organic compounds in plant cells.
	CO4	Explain the making of temporary microscopic slides, using different cutting techniques and permanent microscopic slides using paraffin method.
5	CO	To Prepare large plant Material through Dry, Wet, and Pressing method detect the presence of different groups of organic compounds in plant
6	CO	Outline on double fertilization and their significance and to know about the Structure and development of dicot and monocot embryos.

Course Code - *Course Title - Pteridophytes, Gymnosperms & Paleobotany*

1	CO	To describe the morphological, reproductive and anatomical structure of Pteridophytes and Gymnosperms.
2	CO	Outline the salient features of stellar evolution and relate the latest trends in classification, vegetative morphology and reproductive biology of Gymnosperms.
3	CO	Describe the features and reproductive adaptations of conifers and other gymnosperms.
4	CO	To explain about fossils and fossilization and to understand about geological time scale.
5	CO	After getting through this paleobotany, students would be able to know about Palynology, its branches and their importance, they would be able to isolate

Palynomorphs from Sedimentary Rock samples through different maceration techniques.

**Course Code - Course Title - Pteridophytes, Gymnosperms
& Paleobotany- Practical**

1	CO	To Identify the Pteridophytes morphology and anatomy of both vegetative and reproductive parts through dissection
2	CO	To Identify the Gymnosperm morphology and anatomy of both vegetative and reproductive parts through dissection
3	CO	To Identify the fossil genera of Pteridophytes and Gymnosperms
4	CO	To Predict the types of fossilization of plants
5	CO	To Identify and familiarize the lower vascular Plants distributed in any ecosystem

**Course Code - Course Title - Anatomy, Microtechnique
and Embryology of Angiosperms
Practical**

1	CO	Identify meristems , tissues , stem, root through permanent slides and photographs.
2	CO	Identify the Structure and development of dicot and monocot embryos through dissection.
3	CO	Examine the steps involved in Smear/Squash Method and from Prepared Slides.
	CO4	Identify the ovule types and developmental stages of embryo sac using permanent slides
5	CO	Identify the Types of endosperm and seed dispersal mechanisms by specimen

Course Code - Course Title - Morphology, Taxonomy of Angiosperm & Economic

Botany

1	CO	Describe the major groups of vascular plants and their phylogenetic relationships.
2	CO	List the basic principles involved in classification, naming and identification of angiospermic plants.
3	CO	To Find the unknown plants to species level with help of Taxonomical tools such as Keys and Monographs
	CO4	Describe morphological and floral characters in technical terms of given Families.
5	CO	To recognize the diverse aspects of human cultural endeavors to plant resources, and to gain a better understanding and perspective of the origins, histories, and roles of important plants and plant products to the development of human culture

Course Code - 16UPBTC07 Course Title - Cell Biology, Molecular Biology and Evolution

1	CO	Describe the level of molecules, cells, systems, organisms and ecosystems
2	CO	Explain structure and function of cell and cell organelles, using Compound Microscope and elucidation of Ultra structure from Electron Microphotographs and to learn the measurement of Cell Size
3	CO	Compare the organization of prokaryotic and eukaryotic cell, structure and function of cell organelles including cell division.
	CO4	Discuss the molecular mechanisms by which DNA controls development, growth or morphological characteristics of organisms and relate gene regulation
5	CO	Define Geological Time Scale and describe phytogeographical Realms
6	CO	Describe the Theory of Evolution considering Darwinism and Modern Synthetic Theory

Course Code -

Course Title - Microbiology

1	CO	To describe diversity of microorganisms, bacterial cell structure and function, microbial growth and metabolism, and the ways to control their growth by physical and chemical means
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2	CO	Explain the practical skills in fundamental microbiological techniques and to gain knowledge on microbial growth and sterilization techniques
3	CO	Classify and apply the scientific method of investigation and hypothesis testing and perform inoculating bacteria with different cultivation technique
	CO4	Investigate the role of microorganisms in production of industrial enzymes, antibiotics, biopolymer
5	CO	To explain the basic genetic systems of bacteria, bacteriophage and plasmids
6	CO	Explain the role of microorganisms in food production and preservation, and their ability to cause food-borne infections

Course Code -

Course Title - Plant Ecology, Phytogeography and Remote sensing

1	CO	Discuss the morphological and anatomical adaptations of hydrophytes, mesophytes and xerophytes .
2	CO	Explain interactions of various environmental factors .Describe ecological succession – causes, process and types of succession
3	CO	Explain biodiversity – thread, cause and conservation of biodiversity (<i>In-situ and Ex –situ</i>) Field visit to familiarize students with ecology of different sites.
	CO4	Describe pollution, types, causes symptoms and remedial measures and to describe the phytogeographical region of India.
5	CO	Compare the natural patterns and relationships between plants and their environment by organizing groups of plant species into functional vegetation categories.
6	CO	Find the role of remote sensing in Forest Management.

Course Code -

Course Title - Morphology, Taxonomy of Angiosperm &

Economic Botany, Cell Biology, Molecular

Biology & Evolution, Microbiology, Plant

Ecology & Phytogeography Practical

1	CO	Identify the anatomical feature of root, stem and leaf in addition to variation or anomalies. To provide knowledge on the structure of anther and ovule
2	CO	Identify observe and sketching the floral parts of the plants belonging to different families.
3	CO	To Find the Economic uses of plants and plant parts.
	CO4	Explain the steps involved in Smear/Squash Method and from Prepared Slides.
5	CO	Identify and familiarize the specimens during field visit
6	CO	Describe the Theory of Evolution considering Darwinism and Modern Synthetic Theory, evolutionary scientists and Geological time scale
7	CO	Demonstrate the process in remote Sensing, types of satellite mapping and vegetation mapping.

Course Code -

Course Title - Horticulture & Mushroom Cultivation

1	CO	Explain the Nursery management and plant propagation
2	CO	To list the horticultural practices and activities of large scale plant production.
3	CO	Explain horticultural skills and knowledge to operate various business entities found in the horticultural industry
	CO4	List a fundamental understanding of landscape construction, irrigation design and constructing conventional and sustainable landscapes
5	CO	List the requirement of composting for Mushroom cultivation & different methods of composting
6	CO	Determine the most important species of mushrooms and knows the basic ways of the cultivation of each of them

Course Code -

Course Title - Genetics, Plant Breeding & Biostatistics

1	CO	To Compare the classical Mendelian genetics, modified Mendelian theories like allelic and gene interactions including epistasis, complementary genes, multiple alleles, quantitative inheritance.
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2	CO	Explain the mechanism of linkage and crossing over, chromosome mapping, sex determination in various organisms, sex linked inheritance, nuclear inheritance, population genetics
3	CO	Outline different breeding techniques and the application of modern amenities for the process like the use of genetic engineering, mutation breeding, heterosis breeding and breeding for resistance
	CO4	Find the plant adaptation that are applicable to agricultural and natural systems.
5	CO	Recognize the importance of data collection and its role in determining scope of inference.

Course Code - Course Title - Plant Physiology & Biochemistry

1	CO	Describe the characteristic features of water which helps in the biological systems, transpiration types, features and mechanisms.
2	CO	Explain the processes related to the ascent of sap, uptake of nutrients and translocation of sugars.
3	CO	Examine photosynthesis- (apparatus, process, regulation and assimilatory powers), Nitrogen fixation- (sites, genetic control and assimilation)
	CO4	List the role of phytohormones in plant growth, development, movement (types and feature), photomorphogenesis, seed germination and seed dormancy.
5	CO	Explain the plant metabolic reactions, components and functioning of Plant chemicals.

Course Code - Course Title - Plant Biotechnology

1	CO	Describe the isolation and cultivation of economically important microbes plant cells.
2	CO	Explain tissue culture methods and study the suitable culture media and its composition.
3	CO	Relate the mechanisms of plant cell signaling and gene regulation.
	CO4	Discuss the different methods for transformation of plants or plant cells, including their specific advantages and applications.
5	CO	Relate plant biotechnology applications within forestry, agriculture, and production of bio products , in pharmaceuticals, tanneries, dairy and bio-fuels
6	CO	Demonstrate the role of transgenic plant in bioprospecting

Course Code - 16UPBTE02 Course Title - Herbal Botany

1	CO	Explain method for identification and authentication of herbal drugs
2	CO	Explain basic principles of traditional medicinal systems with method of preparation and standardization of Ayurvedic, Siddha, Unani formulations
3	CO	Describe benefits of various plants as nutraceuticals in ailments and also the herb-food interaction of various plant drugs
	CO4	Describe about herbs or natural origin drugs as raw materials for preparation of cosmetics, excipients, conventional herbal formulation and novel dosage forms like phytosomes
5	CO	Explain methods for selection, processing of herbal drugs as raw materials for herbal drug preparation
6	CO	Compare and contrast the standardization and quality control methods of herbal drugs preparation

Course Code - 16UPBTE03

**Course Title - Genetics, Plant Breeding &
Biostatistics, Plant Physiology &
Biochemistry, Plant Biotechnology Practical**

1	CO	Discuss the basic principles of genetics, Law of mendel, Gene interaction, Allelic and non- allelic genes.
2	CO	List Genetic Problems related to Transmission and Distribution of Genetic Material.
3	CO	Describe linkage and crossing over of genes, solving gene mapping problems. Identification of DNA in Plant Material
4	CO	Construct a histogram, pie chat and line diagram of plants within the plants.
5	CO	Describe more about the characteristics, techniques, principles and application of plant tissue culture
6	CO	Explain the main techniques of in vitro culture of plant cells &tissues.
7	CO	Discuss the application of vital and physical forces theories on plant physiology most preferably ascent of sap, transpiration, mineral nutrition in plants and phloem transport
8	CO	Identify Glucose and Protein Estimation

9	CO	Find the methods used for the bio-production of plant secondary metabolites.
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Course Code - Course Title - Preservation of Fruits and Vegetables

1	CO	To acquaint with properties and role of various constituents in foods, interaction and changes during processing.
2	CO	Discuss the proper handling technologies of fruits and vegetables to reduce post-harvest losses
3	CO	List the principles and methods of preservation of fruits and vegetables into various products
	CO4	To acquaint with principles of different techniques used in processing and preservation of foods
5	CO	Explain the essentials of Intellectual Property Rights, nutritional security, standard protocol for food quality parameters and control systems, food standards, regulations, specifications.

Course Code - 19UPBTA331

Course Title - ALLIED BOTANY – I

1	CO	Explain the structure and reproduction of certain Cryptogams and Gymnosperms
2	CO	Relate the organization of prokaryotic and eukaryotic cell, structure and function of organelles and cell division.
3	CO	Explain the plant cell, tissues, and internal structures of stem, root and leaves.
4	CO	Comparative study of the different plant groups with representative examples including Virus, Bacteria, Algae, Fungi, Lichens, Bryophytes, Pteridophytes and Gymnosperms
5	CO	Demonstrate the simple tissues from fresh plant material and prepare permanent slides. Study of simple and complex tissues (xylem)

Course Code - 19UPBTA333

Course Title - ALLIED BOTANY – II

1	CO	Describe the major groups of vascular plants and their phylogenetic relationships. Understand the basic principles involved in classification, naming and identification of Angiosperms
2	CO	Explain photosynthesis - (apparatus, process, regulation and assimilatory powers), Nitrogen fixation (sites, genetic control and assimilation)
3	CO	Explain interactions of various environmental factors. Describe ecological succession – causes, process and types of succession
	CO4	Explain the embryo types and anatomy of the embryo and structure of ovule
5	CO	Discuss about the characteristics, techniques, principles and application of plant tissue culture

Course Code -

Course Title - ALLIED BOTANY – I & II

Practical

1	CO	Identify the morphology and anatomy of Algae, Fungi and Bryophytes and to investigate their significance and relate structure and function, draw and label diagrams of the specimen
2	CO	To Identify the Pteridophytes morphology and anatomy of both vegetative and reproductive parts through dissection
3	CO	To Identify the Gymnosperm morphology and anatomy of both vegetative and reproductive parts through dissection
	CO4	Identify meristems , tissues , stem, root through permanent slides and photographs.
5	CO	Identify the Structure and development of dicot and monocot embryos through dissection.
6	CO	Identify observe and sketching the floral parts of the plants belonging to different families.
7	CO	Discuss the application of vital and physical forces theories on plant physiology most preferably ascent of sap, transpiration, mineral nutrition in plants and phloem transport through experiment

20. B.SC VISUAL COMMUNICATION PSO:

Students who graduate with a Bachelor of Visual Communication will:

PSO1: Obtain a significant knowledge on fundamental and advanced aspects of Visual Communication.

PSO2: Gain in-depth knowledge on pre-production, production and post-production process in Film Making.

PSO3: Gain proficiency in studio techniques such as photography, audiography and videography.

PSO4: Grasp the fundamental concepts of Documentary Film Making.

PSO5: Gain insight into the various aspects of script writing, direction and editing.

PSO6: Assimilate technical skills on photography, cinematography, audio editing and video Editing, 2D & 3D Animation and Dubbing.

B.SC VISUAL COMMUNICATION CO:

Course Objective – Introduction to Visual Communication Course Outcome (CO)

CO 1 – Students will be able to understand the various formats of Visual Communication

CO 2- Students will be able to co relate various visual formats with communication through visual

CO3 – Students will be able to explain basic concepts of non verbal communication. Digital arts and designs, moving and still images, web based communication etc.

CO4 -Students will be able to understand the significance of visual communication in relation to human and society

VISUAL ART

Course Objective: The students will gain a control of representational drawing skills, understand and manipulate the proportional relationships from actual objects, manipulating the formal elements and principles to achieve better drawing solutions, Importance and control of good craftsmanship and presentation skills.

Course Outcome: At the end of the course, learners will be able to:

CO1: Have a very good knowledge of basics of drawing and material handling and understanding.

CO2: Understand the light and dark and transition of the total value.

CO3: Understand the usage of positive and negative space in a design composition.

CO4: Gaining the composing knowledge of landscape and cityscape drawing and painting.

CO5: Understand the face and human feature and its measurements.

BASIC PHOTOGRAPHY

Course objective: To understand the process of making pictures more effectively by understanding the elements of camera and techniques. Students will have the orientation over taking different types of photographs with the understanding of internal elements, and external elements. They will learn about photo journalism and pioneers of photography as well. They also tend to gain knowledge in every genres of photography

Course Outcome: At the end of the course, learners will be able to:

CO1: Understand the key role of photography for Communication and also about the characteristics of Light and its principles.

CO2: Acquire the significant knowledge about the internal elements and various functions of different types of camera.

CO3: Assess the external elements that support for taking better photographs.

CO4: Get the basic understandings about the Digital exposing, lights and modifiers.

CO5: Acquire an in-depth knowledge about the exposure, depth-of-field and composition.

CO6: Know the importance of Photo Journalism and about its various fields.

VISUAL LITERACY

Course Objective: To provide literacy and knowledge on visual mediums. To help students understand significance of ethics and values in art. To understand the roles and responsibility on social and cultural values. The students will gain the fundamentals of art and design education, visual determinants, visual realism and life of art. They will be able to identify the target audience and what is global initiative.

Course Outcome At the end of the course, learners will be able to:

CO1: Know about the importance of art and design knowledge.

CO2: Acquire the knowledge about how the Media industry requirement and manage skills accordingly.

CO3: Understand the real/pseudo reality in the media on all aspects.

CO4: Understand about the Media Audience and about the importance of alignment and segmentation.

CO5: Acquire an in-depth knowledge about the culture, sub-culture and culture and practice in current scenario

ELEMENTS OF FILM STUDIES

Course Objective: Students will gain a general knowledge of the history of cinema from its beginning to the present including major international films, artists, and movements and can also understand the key concepts and debates underlying theories of cinema. Engage with multiple cultural perspectives.

Course Outcome: At the end of the course, learners will be able to:

CO1: Students will have critical understanding of the technological and creative processes involved in the writing and production of film works of all types.

CO2: Students will demonstrate that the critical study of cinema inform their filmmaking and that the study and practice of film production enhance their work as film scholars and analysts.

CO3: Students will be able to conduct film research and compose cogent, persuasive, and valid essays about film.

CO4: To begin developing a historical appreciation of film based on a survey of cinematic traditions contained within narrative, documentary, and experimental forms for each student.

CO5: To examine some of the major methodological issues in film production

VISUAL GRAPHICS

Course Objective: Digital image editing using raster image editing and/or image creation software Adobe Photoshop with specific attention to practical applications, including tools and techniques of photo correction, enhancement and editing. Gain experience in correcting, improving and repairing images

Course Outcome: At the end of the course, learners will be able to:

CO1. Photoshop is a powerful and popular image editing software that helps you to apply various effects easily and get consistent results

CO2. It has many features that are hardly available in other photo editing software

CO3. Logo Designing, creative art, blog images and for many other things professionally. CO

CO4. Web banner is a leading business.

CO5. Photo restoration is used for rebuild the old photos

CO6. Boucher, poster & multimedia presentation development

CO7. 3d texture development, Story board development

VISUAL DESIGN

Course Objective: Students will demonstrate proficiency in design principles, design process, theory, history and contemporary design practice. Students will develop an understanding of design process and problem solving methods and explore the effect graphic design has upon the human environment from social responsibility, sustainability and interdisciplinary perspectives.

Course Outcome: At the end of the course, learners will be able to:

CO1: gain knowledge about graphic design - its history and evolution along with its technology, and concepts.

CO2: have a very good knowledge about Principles of Graphic Design.

CO3: understand the relationship of graphic design to other disciplines and to society.

CO4: have a thorough knowledge of creating pattern design.

CO5: have detailed understanding of Typography through principle for typography

MEDIA CULTURE AND SOCIETY

Course objective: Students will be learning about the Media organization and its effect on individual They will be learning the cultural concepts in various aspects. Evolution of culture and society in terms of genders and the system how it projects will be analysed by the students. Effects of social media and their major role in new technologies and how it applies in culture and the changes brought by them will be analysed.

Course Outcome: At the end of the course, learners will be able to:

CO1: Understand the Media culture and the functions of media on individual.

CO2: Cultural approach and studies of culture film, television, Music.

CO3: Understand the Rural and urban culture aspects and the changes happened in Society because of media.

CO4: Role of Media in terms of changes brings in the society.

CO5: Effects on social media and the technology changes in the present scenario

Which was happened is analysed by the students.

TELEVISION PRODUCTION THEORY

Course Objective: To promote, aid, help, encourage, develop, protect and secure the interests of the News Broadcasters in the Television Industrial and awareness about the latest developments in the television industry relating to News Broadcasting and to disseminate knowledge amongst its members and the general public regarding such developments

Course Outcome: At the end of the course, learners will be able to:

CO1: Raising of Professional standards in Television Production.

CO2: Creating awareness about responsive and responsible in TV Production.

CO3: Continuing review of professional codes and ethics set by the professional and regulatory bodis fo Television training.

CO4: Emphasising the need for raising the standards for Television production .

CO5: Understand the ability to effectively apply oral presentation techniques in various communication settings in Television Production.

CO6: Solutions to production problems using the major theories and concepts in their respective disciplines

CO7: Demonstrating proficiency in using the current and evolving hardware and software

applications

DIGITAL ADVERTISING

Course Objective: This course is designed as a comprehensive introduction to the principles and practices of advertising, with some attention to IBP. The role of these persuasive communication tools within the total marketing effort is emphasized. The course is designed for those students who wish to pursue a career in advertising. The primary objective of the course is to provide each student with the background and experience necessary to develop and implement marketing communication

Strategies.

Course Outcome:

CO 1: Understand the nature and scope of Advertising.

CO 2: Plan and implement creative strategy, media strategy, and budgeting.

CO 3: Know the latest trends in advertising.

CO 4: Gain knowledge in Audio-visual commercials.

CO 5: Perceiving Visualization process.

SCRIPT WRITING (PRACTICAL)

Course objective: Understand and explain the key concepts of screenwriting craft; the role and contribution of the

Screenwriter to the filmmaking process and in the film and television industries; and the relationship of the screenwriters' creative choices to the practical aspects of film production. View completed films and identify the screenwriter's contribution and the contribution of others to the construction of the story. Reflect critically on the conventions of film storytelling.

Course Outcome: At the end of the course, learners will be able to:

CO1: Express ideas fluently in standard screenwriting format at an advanced level.

CO2: Craft character-based stories with clear conflicts at an advanced level.

CO3: Analyse film and television structure at an advanced level.

CO4: Workshop creative ideas at an advanced level.

CO5: Students will complete full-length scripts that are geared toward a specific budget (whether

CO6: Hollywood studio fare, student films, or anywhere in between).

PHOTOGRAPHY

COURSE OBJECTIVE: To make students to experience the art of photography. Photography record

contain at least

3 Photographs under each exercise. Each exercise should include all the necessary details (colour, exposure time, lens type etc.). Final practical examination will test student's knowledge on photography (either as a viva or written exam or practical work on fundamentals of photography).

Course Outcome: At the end of the course, learners will be able to

CO1: gain knowledge about handle the camera to shoot Landscape, Monumental Photography and Seascape photography

CO2: gain knowledge about handle the camera to shoot photo Journalism, Photo Feature like any Social issues

CO3: gain knowledge about handle the camera to shoot Fashion Photography, Product photography, Industrial photography, Event Photography

CO4: gain knowledge about handle the camera to shoot Portray Humans and Monuments

CO5: gain knowledge about handle the camera to shoot Silhouette Photography, Special Effects, Freezing Movement Photography, Panorama

VISUAL TEXT ANALYSIS

Course Objective: Students will be learning the visual text the initial stage of communication and how it relates with media and in what aspects. Students will be learning all the theories related to media. Media organization and its agenda process of work, Technical aspect of media and also the role of media. Students will be learning the visual text projection in films and also how

Media plays a major role in political side and the history of politician who used media as a major part for the propaganda purpose.

Course Outcome At the end of the course, learners will be able to:

CO1: Understand the basic concepts on basic visual text and also the media organization in technical, ownership production.

CO2: Understand about the signs and how it works in media as a main element in communication.

CO3: Understand the term psychoanalysis and also the three stages of it and how directors use the term in films in different aspects.

CO4: Political analysis of media will be learnt by them and the approach which was used before centuries for propaganda purpose.

CO5: Understand the Practical application visual text analysis and its criticism.

AUDIO PRODUCTION PRACTICAL

Course Objective: To understand the fundamentals in sound and develop their skills in sound recording and sound mixing in dialogues, music. Developing their skills in the sound production for Media and Films. And being updated with the new sound equipment.

Course Outcome: At the end of the course, learners will be able to:

CO1: Understanding the role of sound in Television and Films

CO2: Exploring the tools for sound recording and designing.

CO3: Explore the selecting of proper equipment to achieve creative objectives.

CO4: Building a foundation for managing the complex audio requirements of Field and Studio Production.

CO5: Understanding the various process of laying sound tracks for films step by step.

MULTIMEDIA

Course Objective: The primary objective of this course is to teach students the essentials of working in 3D Model objects using a variety of techniques Design and apply materials Adjust basic lighting Animate simple objects Build and animate simple, effective environments

Course Outcome: At the end of the course, learners will be able to:

1.3D Architectural rendering

2. Exterior, 3D Interior and 3D Architectural development

3. Design 3D Mechanical modelling

4.3D models and it has great compatibility

5.3D computer graphics program for making 3D animations, models, games and images

6.3D Max has great conceptual modelling tools, large-scale environment creation

7.3D Max is used more for games while Maya is used for film work

MEDIA ETHICS AND LAW

Course Objective: Students will gain a general knowledge of the law of media from its beginning to the and also the role and responsibilities of a media person, and gain knowledge on the participation of media in national defence and security.

Course Outcome: At the end of the course:

CO1: Students will be able to understand the contribution of media towards society.

CO2: Students will be able to uphold the values of Media and take its message forward.

CO3: Students will be able to understand the laws that govern Media Industry.

CO4: Students will be able to understand what is Media Ethics and Responsibilities.

CO5: Students will be able to understand the operational part of the Laws that regulate the Media industry.

TELEVISION PRODUCTION (PRACTICAL)

Course objective: This course aims to provide students with the fundamental knowledge and skills both in practice for content Production, program making, broadcast management and broadcasting in TV and IP based media.

Course Outcome: At the end of the course, learners will be able to:

CO1: Acquire technical knowledge needed for audio visual content production

CO2: Be able to run the work flow of shooting/recording, editing and broadcasting

CO3: Be able to work in multi-camera productions and studio environment

CO4: Be able to work in different stages of program production

CO5: Be able to identify different program and broadcast formats

CO6: Be able to develop and apply a program idea

VISUAL EFFECTS

Course Objective: Create videos containing animation and special effects for graphics-related

projects. Use after Effects to animate, alter, and composite media using various tools and optional plug-ins.

Course Outcome: At the end of the course, learners will be able to:

1. Live Action Effects (Key light)
2. Matte Digital Animation
3. ROTO Paintings
4. Digital & Dynamic Effects (Match-Moving)
5. Advance lighting effect
6. Real time texture.
7. Ad and film industry, corporate demo development.

UNDERSTANDING FILM

Course Objective: This course provides an overview of film history and exposes students to the

various film Movements in cinema. Students will learn about film and its narrative structure. It covers the core concepts of production design and the various phases of production such as concept to script.

Course Outcome

At the end of the course, learners will be able to:

CO1: Know about our Indian Film History and contemporary trends in filmmaking.

CO2: Acquire the significant knowledge about the various film movements.

CO3: Differentiate narrative and non-narrative form in films.

CO4: Understand the production process in detail.

CO5: Acquire an in-depth knowledge about the techniques involved in generating concepts, Developing it as stories and writing effective screenplay.

MEDIA ORGANIZATION

Course Objective: On completion of the course students should be able to describe the principles, need and functions of media management. They will be able to describe the structure and functions of print media organization. They understand the economics of media organisation. They will get to know the set up and practices of media organizations, industries, and they understand the vital role that media play in the production of news, information, and entertainment in a democratic society

Course Outcome:

At the end of the course, learners will be able to:

CO1 : acquire detailed understanding of media organizations and its types.

CO2 : bring out the differences between media as business and media as a social institution.

CO3 : have an in-depth knowledge of how media organizations are managed.

CO4 : gain clear idea of how print media works, its various functions and departments.

CO5 : have a deeper understanding of the relationship between media and its market, the production and revenue aspects, along with the risks involved with the economics of media.

CO6 : also have a thorough knowledge of the strategies, strengths and legal arrangements of media organization.

ADVERTISING PHOTOGRAPHY

COURSE OBJECTIVE: This course is designed to teach students how to direct a product photo shoot. The expected Outcome is for students to learn to direct a team of people in front of and behind the camera in order to create an image that a client would buy to sell their product in the marketplace.

Course outcome: At the end of the course, learners will be able to:

CO1: Have a very good knowledge of various camera operation light meters and film

CO2: Gain knowledge about – use digital camera image recording systems, memory cards

CO3: Have detailed understanding about- to use point light source, wide light sources, light banks, soft boxes, honeycomb, and soft lights

CO4: Understand the outdoor fashion and portrait lighting using Diffuser, reflector, mirror

CO5: Have a thorough knowledge basic colour principles, including line shape hue, texture relationship to composition

CO6: Gain knowledge about tools for the professional photographer advanced retouching manipulation

FILM APPERISCATION

Course objective: In the course, students will gain a working knowledge of the diverse artistic and practical elements that go

Into the making of a film. The overall technical aspects of film production and the creative and artistic application of those Techniques. The course also examines film genre studies, film criticism, the international film scene, and the concept of media literacy

Course Outcome: At the end of the course, learners will be able to:

CO1: Recognize types of films, their impact on society, and their roles in our lives

CO2: Recall the concepts behind storytelling, Mize en Scène, and cinematography

CO3: Identify ways sound contributes to movies

CO4: List the roles of directors and critics in the film industry

CO5: Identify types of movie genres and various editing styles

INTERNSHIP

COURSE OBJECTIVE: Every student are trained and must go for an internship during the fifth semester vacation for a period of 30 days and he/she should submit report along with the certificate in bounded form.

Course outcome: At the end of the course, learners will:

CO1: Giving an opportunity to explore various career possibilities in Visual communication

CO2: Acquire the significant knowledge about the techniques involved in the indoor shoot.

CO3: opportunity to learn those disciplines, skills and attitudes which can best or only be learned on the job, especially self-discipline, team work, responsibility, and initiative.

CO4: Further develops practical skills in a real-world context

CO5: Providing an opportunity to strengthen your portfolio or resume tape with practical experience and projects.

PROJECT

COURSE OBJECTIVE: Every student are encouraged to select any major of interest to produce an profile of their own at end of sixth semester ,to exhibit as proof of excellence learned during the programme

Course outcome: At the end of the course

CO1: students are giving an opportunity to explore various career possibilities in their field of interest

CO2: Acquire the significant and produce an profile for them

CO3: opportunity to learn those disciplines, skills and attitudes which can best or only be learned on the job, especially self-discipline, team work, responsibility, and initiative.

CO4: Further develops practical skills in a real-world context

CO5: Providing an opportunity to strengthen your portfolio or resume tape with practical experience and projects.

CO6: The final outcome of the Programme is seen as the output of the knowledge gained for three years

21. B.C.A PSO:

A. KNOWLEDGE AND UNDERSTANDING

- In the degree of Computer Applications (BCA), it helps a person will gain digitalized knowledge about machines.
- Students will be taught subjects which are related to the technological applications that are required in today's practical work field.
- BCA program courses are designed to bridge the gap between the studies of computers and its applications. The syllabus focuses on the core fundamentals of computer science, but generally undergoes revision according to the industry requirement with the aim of increasing employment opportunities for students
- Students who opt for a Bachelor in Computer Applications (BCA) will get skills and information not only about Computer and Information Technology but also in communication, organization and management. One also get to learn programming languages such as Java, C++, HTML, SQL, etc. Information about various computer applications and latest developments in IT and communication systems is also provided.
- BCA Program Course helps a Student Develop the Programming Skills, Networking Skills, Learn Application Packages, Programming Languages, Modern Techniques of IT.
- The BCA program covers the basic and advance knowledge about different types of accounts. So they will acquire knowledge and their applications about the same.

- The BCA program also covers different mathematical papers and Operations research. So the students also gain knowledge and their applications about the same.

- The BCA program covers the hardware oriented papers like digital logic fundamentals, computer architecture, etc. This knowledge helps to student for assemble the PC.

- The BCA program covers the Microprocessor fundamentals. It is used to assemble a PC enhancing an assembly language programs.

- If you are an average student which is having to do something in software engineering, development or research

B. INTELLECTUAL SKILLS

- The course aims at inculcating essential skills as demanded by the global software industry through interactive learning process. This also includes team-building skills and personality development programmes.

- The programme enhances analytical and communication skill besides inculcating the virtues of self-study.

- The Curriculum has been designed to cater to the ever changing demands of information technology along with necessary inputs from the Industry.

- It prepares the students to obtain the positions as System Analysts, Systems Designers, Programmers and IT Managers in any field related to information technology.

- This course develop skilled manpower in the various areas of information technology like C, C++, Java (Core and Advanced), ASP .NET, Visual Basic, Web technologies, XML, JavaScript, JSP and PHP, Cloud computing. It prepares graduate who will be successful professionals in industry, government, academia, research, entrepreneurial pursuit and consulting firms and contribute to the society as broadly educated, expressive, ethical and responsible citizens with proven expertise.

C. PROFESSIONAL AND PRACTICE SKILLS

- The program is designed to bridge the gap between the studies of computers and its applications. This aims to shape computer professionals with right moral and ethical values and can prepare students to face the challenges and opportunities in the IT industry by building strong foundations.

- Use appropriate tools and implement effective design to develop software application in a responsible manner.

- Implement testing and debugging for good working principle.

D. GENERAL SKILLS

The general skills for a program should reflect the aims of the provisions that the students are expected to acquire during the program.

- The aims of a program in providing a student with a thorough grounding in the basics of a subject.
- Develop competent technical writing skills so as to enable the graduate to communicate business ideas to senior management and general public.
- The necessary technical, scientific as well as basic managerial and financial procedures to analyze and solve real world problems within their work domain.
- Clarity on both conceptual and application oriented skills in commerce, Finance & Accounting and IT Applications in Business context.
- Improved communication and business management skills, especially in providing tech support.
- Awareness on ethics, values, sustainability and creativity aspects.
- The ability and the mindset to continuously update and innovate.
- Analyze their own thinking in terms of clarity, accuracy, relevance, logic and fairness.
- Aided in aligning the learning experiences and assessment tasks that lead to those outcomes.
- Develop a clearly articulated argument to support a view and use it to justify one or more conclusions.
- Effective communication with diverse audiences in a variety of ways for different purposes.
- Collaboration and cooperation to complete an effective performance in group situations, using interpersonal skills.
- As team members will reveal their commitment to the team through effective use of group problem-solving techniques.
- Ability to control their own thought process and behavior including self-regulation, critical thinking, and creative thinking.

B.C.A CO:

PROGRAMMING IN C

Upon successful completion of this course, students will be able to

CO 1: Understand the basic terminology used in computer programming

CO 2: Write, compile and debug programs in C language.

CO3: Use different data types in a computer program.

CO4: Design programs involving decision structures, loops and functions.

CO5: Explain the difference between call by value and call by reference

CO6: Understand the dynamics of memory by the use of pointers and Structures.

CO7: Use different data structures and create/update basic data files.

C PROGRAMMING LAB

Upon successful completion of this lab Course, student will be able to

CO1: Understand the basic concept of C Programming, and its different modules that includes conditional and looping expressions, Arrays, Strings, Functions, Pointers, Structures and File programming

CO2: Acquire knowledge about the basic concept of writing a program.

CO3: Role of constants, variables, identifiers, operators, type conversion and other building blocks of C Language.

CO4: Use of conditional expressions and looping statements to solve problems associated with conditions and repetitions.

CO 5: Role of Functions involving the idea of modularity.

COMPUTING SKILLS – Practical

CO1: Introduction to computers covers the basics of computers, classification of computers, hardware, software and uses of computers.

CO2: Word processing covers, how to manipulate a text document, such as resume or a report. ... Creating, editing, saving and printing documents. Copying, pasting, moving and deleting text within a document. Formatting text, such as font type, bolding, underlining or italicizing.

CO3: The file management covers, how to manipulate a folder such as create a folder, sub folder and perform the basic operations related to windows.

CO4: The spreadsheet covers, to create budgets, produce graphs and charts, and for storing and sorting data and also used to forecast future performance, calculate tax, completing basic payroll, producing charts and calculating revenues.

CO5: The Networks covers the basics of browsing and E-mail creation, sending and receiving a message.

DIGITAL LOGIC FUNDAMENTALS & MICROPROCESSOR

CO1: A thorough understanding of the fundamental concepts and techniques used in digital electronics.

CO2: To understand and examine the structure of various number systems and its application in digital design.

CO3: The ability to understand, analyze and design various combinational and sequential circuits.

CO4: Ability to identify basic requirements for a design application and propose a cost effective solution.

CO5: The ability to identify and prevent various hazards and timing problems in a digital design.

CO6: To develop skill to build, and troubleshoot digital circuits.

MICROPROCESSOR LAB

CO1: Write programs to run on 8086 microprocessor based systems.

CO2: Design system using memory chips and peripheral chips for 16 bit 8086 microprocessor.

CO3: Understand and devise techniques for faster execution of instructions, improve speed of operations and enhance performance of microprocessors.

CO4: You will learn a microprocessor programming model at a level that enables you to write assembly language programs for the processor meeting given specifications.

CO5: You will learn concepts associated with interfacing a microprocessor to memory and to I/O devices.

CO6: You will learn how to control components of a microprocessor based system through the use of interrupts.

HTML LAB

After you complete this lab, you will be able to

CO1: HTML is basically used for designing purposes; it is used to design webpages, interfaces for various mobile applications and web applications.

CO2 : The HTML programs used manipulate Text such as bold, italic, superscript, subscript, size font style etc.

CO3: The HTML programs implement Multimedia tools like images, audio, and video,

CO4: The HTML programs to connect various web pages easily through various tags.

CO5: The HTML programs used connect the databases through linking tags. It also split the screen and displays various outputs.

DATA STRUCTURE & ALGORITHMS

Upon successful completion of this course, students will be able to

CO1: Demonstrate familiarity with major algorithms and data structures.

CO2: Analyze performance of algorithms and choose the appropriate data structure and algorithm design method for a specified application.

CO3: Determine which algorithm or data structure to use in different scenarios and be familiar with writing recursive methods.

CO4: Demonstrate understanding of the abstract properties of various data structures such as stacks, queues, lists, trees and graphs and Use various data structures effectively in application programs.

CO5: Demonstrate understanding of various sorting algorithms, including bubble sort, insertion sort, selection sort, heap sort and quick sort.

PROGRAMMING IN C++

Upon successful completion of this course, Student will be able to

CO1: Gain the basic knowledge on Object Oriented concepts.

CO2: Ability to develop applications using Object Oriented Programming Concepts

CO3: To demonstrate the differences between traditional imperative design and object-oriented Design

CO4: To explain class structures as fundamental, modular building blocks

CO5: To understand the role of inheritance, polymorphism, dynamic binding and generic structures in building reusable code

CO6: To write small/medium scale C++ programs with simple graphical user interface Understand the file handling and error handling mechanisms in C++

DATA STRUCTURES USING C++ LAB

Upon successful completion of this course, students will be able to

CO1: Apply object-oriented programming features to program design and implementation

CO2: Understand object-oriented concepts and how they are supported by C++

CO3: Understand implementation issues related to object-oriented techniques.

CO4: Demonstrate the ability to analyze, use, and create functions, classes, to overload operators.

CO5: Demonstrate the ability to understand and use inheritance and Pointers when creating or using classes and create templates

CO6: Demonstrate the ability to understand and use Exception handling and file handling mechanism.

OPERATIONS RESEARCH

Upon completion of this course, Student will be able to:

CO1: Formulate a real-world problem as a mathematical programming model

CO2: Understand the theoretical workings of the simple method for linear programming and perform iterations of it by hand

CO3: Understand the relationship between a linear program and its dual, including strong duality and complementary slackness

CO4: Perform sensitivity analysis to determine the direction and magnitude of change of a model's optimal solution as the data change

CO5: Solve specialized linear programming problems like the transportation and assignment problems

CO6: Solve network models like the shortest path, minimum spanning tree, and maximum flow problems

FINANCIAL ACCOUNTING

Upon successful completion of this course, the students will be able to

CO1: Understand the role of accounting and its limitations.

CO2: Prepare financial statements in accordance with Generally Accepted

Accounting Principles.

CO3: Demonstrate knowledge of each step in the accounting cycle

CO4: Support at a basic level the recording and reporting of financial information for business

CO5: Demonstrate an understanding the tally in accounts

PERSONALITY ENRICHMENT

CO1: The process of self-disclosure involves many decisions, including what, when, where, and how to disclose. Students affect for the content, contribute to perceptions of instructor credibility increased.

CO2: Recognize their ethical responsibilities to their community, society, discipline, and profession based on various perspectives and associated standards of ethical communication.

CO3: Demonstrate the ability to analyze a problem and devise a solution in a group.

CO4: Demonstrate the ability to research, analyze, and reason from evidence to reach an effective conclusion or outcome.

JAVA PROGRAMMING

Upon successful completion of this course, student will be able to

CO1: Understanding of the principles and practice of object oriented analysis and design in the construction of robust, maintainable programs which satisfy their requirements;

CO2: Ability to implement, compile, test and run Java programs comprising more than one class, to address a particular software problem.

CO3: Demonstrate the principles of object oriented programming;

CO4: Demonstrate the ability to use simple data structures like arrays in a Java program.

CO5: Understand the concept of package, interface, multithreading and File handling in java.

CO6: Ability to make use of members of classes found in the Java API (such as the Math class).

COMPUTER ARCHITECTURE

After studying this course, student should be able to

CO1: Students will understand the sequence and execution of microinstructions.

CO2: Students will understand Input and output peripheral devices and their communication with the rest of the computer components.

CO3: Students will understand the major components of a computer including CPU, Memory, I/O and storage.

JAVA PROGRAMMING LAB

Upon successful completion of this course, students will be able to

CO1: Understand programming language concepts, particularly Java and object-oriented concepts.

CO2: Write, debug, and document well-structured Java applications

CO3: Implement Java classes from specifications and effectively create and use objects from predefined class libraries

CO4: Understand the behavior of primitive data types, object references, and arrays

CO5: Apply decision and iteration control structures to implement algorithms

CO6: Write simple recursive algorithms

CO7: Implement interfaces, inheritance, and polymorphism as programming techniques and apply exceptions handling

COST AND MANAGEMENT ACCOUNTING

CO1: Understand the cost and management accounting techniques for evaluation, analysis and application in managerial decision making;

CO2: Compare and contrast marginal and absorption costing methods in respect of profit reporting;

CO3: Apply marginal and absorption costing approaches in job, batch and process environments.

R PROGRAMMING LAB

CO1: This course gives practical exposure to the basics of R – Programming.

CO2: To provide an overview of a new language R used for data science.

CO3: To introduce students to the R programming environment and related eco-system and thus provide them with an indemand skill-set, in both the research and business environments

CO4: To introduce the extended R ecosystem of libraries and packages

CO5: To demonstrate usage of as standard Programming Language.

CO6: To familiarize students with how various statistics like mean median etc. can be collected for data exploration in R.

ENVIRONMENTAL STUDIES

Upon successful completion of this course, students will be able to

CO1: Know the importance of environmental studies and methods of conservation of natural resources.

CO 2: Describe the structure and function of an ecosystem.

CO 3: Identity the values and conservation of bio-diversity.

CO 4: Explain the causes, effects and control measures of various types of pollutions.

CO 5: Select the appropriate methods for waste management.

CO 6: Get knowledge about various disaster management methods

CO7: Recall social issues and legal provision.

RELATIONAL DATABASE MANAGEMENT SYSTEM

Upon successful completion of this course, students will be able to

CO 1: To analyze Data Base design methodology.

CO 2: Acquire knowledge in fundamentals of Data Base Management System.

CO 4: Be able to analyze the difference between traditional file system and DBMS.

CO 5: Able to handle with different Data Base languages.

CO 6: Draw various data models for Data Base and Write queries mathematically.

OPERATING SYSTEMS

Upon successful completion of this course, students will be able to

CO1: Understand the difference between different types of modern operating systems, virtual machines and their structure of implementation and applications.

CO2: Understand the difference between process & thread, issues of scheduling of userlevel processes / threads and their issues & use of locks, semaphores, monitors for synchronizing multiprogramming with multithreaded systems and implement them in multithreaded programs.

CO3: Gain knowledge about the concepts of deadlock in operating systems and how they can be managed / avoided and implement them in multiprogramming system.

CO4: Demonstrate the design and management concepts along with issues and challenges of main memory, virtual memory and file system.

CO5: Understand the types of I/O management, disk scheduling, protection and security problems faced by operating systems and how to minimize these problems.

RDBMS LAB

After successful completion of this course, the students should be able to

CO1: Design and implement a database schema for a given problem domain.

CO2: Populate and query a database using SQL DDL/DML commands.

CO3: Program in PL/SQL including stored procedures, stored functions, cursors, packages.

CO4: Design and build a GUI application

VALUE EDUCATION

After successful completion of this course, the student would able to:

CO1: Inculcate the value system in their real life scenarios.

CO2: Implement the role of culture and civilization, roles and responsibilities in the society.

CO3: Effectively follow Salient values for life such as forgiveness, ability to sacrifice, self esteem, teamwork and creative thinking.

CO4: Reflect the human rights, social values and welfare of the citizen.

CO5: Consider the relation between values and personal behavior affecting the achievement of sustainable future.

CO5: Bind man and nature to preserve the environment.

CO6: Overcome and try to evacuate social evils from the society.

PHP SCRIPTING LANGUAGE

Upon successful completion of this course, a student should be able to:

CO1: Use a PHP editing program.

CO2: Develop functional PHP script.

CO3: Understand the use of PHP with HTML.

CO4: Understand the ability to post and publish a PHP website.

CO5: Debug script. and develop Web Applications.

SOFTWARE ENGINEERING

Upon successful completion of this course, students will be able to

CO 1: Select and implement different software development process models

CO 2: Extract and analyze software requirements specifications for different projects

CO 3: Develop some basic level of software architecture/design

CO 4: Apply standard coding practices

CO 5: Define the basic concepts and importance of Software project management concepts like cost estimation, scheduling and reviewing the progress.

CO 6: Identify and implement of the software metrics

CO 7: Apply different testing and debugging techniques and analyzing their effectiveness.

MINI PROJECT

CO1: Acquire knowledge about the software development stages such as analysis, design, coding, testing and maintaining the project.

CO2: Students can able to design an effective software using various application

DATA COMMUNICATION AND NETWORKING

CO1: To understand the fundamental concepts of computer networking and provide the knowledge of different protocols at different layers of models.

CO2: To understand the techniques used to share network bandwidth among the multiple users and provide the depth knowledge of DLL fundamentals.

CO3: Learn how the data is transferred between the computers over the network.

PHP LAB

CO1: This course introduces the basic concepts of PHP Scripting Language.

CO2: To develop web applications using basic PHP elements such as delimiters, control structures, operators, variables, arrays, and functions.

CO3: To debug and improve code for better reusability and scalability.

ELECTIVE – I: VISUAL PROGRAMMING

CO1: Design, create, build, and debug Visual Basic applications.

CO2: Explore Visual Basic's Integrated Development Environment (IDE).

CO3: Implement syntax rules in Visual Basic programs.

CO4: Explain variables and data types used in program development.

CO5: Apply arithmetic operations for displaying numeric output.

CO6: Write and apply decision structures for determining different operations.

CO7: Write and apply loop structures to perform repetitive tasks.

CO8: Write and apply procedures, sub-procedures, and functions to create manageable code.

CO9: Create one and two-dimensional arrays for sorting, calculating, and displaying of data.

CO10: Write Visual Basic programs using object-oriented programming techniques including classes, objects, methods, instance variables, composition, and inheritance, and polymorphism. Write Windows applications using forms, controls, and events.

UNIX PROGRAMMING

Upon completion of this course ,the student will be able to:

CO1:Create a file

CO2:Access a file using the relative pathname

CO3:Access a file using the absolute pathname

CO4:Erase or delete a file

CO5:Copy a file

CO6:Move a file

CO7:Cut columns of data from a file

CO8:Paste / concatenate files

CO9:Rename a file

CO10:Create a directory

CO11:Display the contents of a directory

CO12:Display the user initialization files

CO13:Change the working directory

CO14:Return to the home directory

CO15:Remove a directory

DATAMINING

Upon completion of this course, the student will be able to:

CO1:Understand the functionality of the various data mining and data warehousing component

CO2: Analyzing techniques of various data

CO3: Understand different methodologies used in data mining and data ware housing.

CO4: Compare different approaches of data ware housing and data mining with various technologies.

ELECTIVE – II :IDE – PRACTICAL INTRODUCTION TO WEB DESIGNING(HTML

& CSS)

Upon successful completion of this lab course, students will be able to

CO1: Understand the principle of Web page designing

CO2: Understand the basics in web design

CO3: visualize the basic concept of HTML

CO4: recognize the elements of HTML

CO5: Understand the basic concepts of CSS.

E-COMMERCE

Upon completion of this course ,the student will be able to:

CO1: understand the foundations and importance of E-commerce

CO3: analyzing branding and pricing strategies

CO4: determining the effectiveness of market research

CLIENT/SERVER COMPUTING

Students who complete this course successfully are expected to:

CO1:Understand the basics and evolution of c/s computing

CO2:Understand about the c/s applications and operating systems

CO3:Learn the client hardware and software and GUI environment

CO4:Understand about the types of servers and network managing environment

CO5: Learn the platform independence transaction processing, testing and diagnostic

Tools and backup & recovery mechanisms

ELECTIVE – III :CLOUD COMPUTING

Students who complete this course successfully are expected to:

CO1: gain a clear understanding of the concepts that underlie distributed computing systems along with design and implementation issues.

CO2: understand key mechanisms and models for distributed systems including logical clocks, causality, vector timestamps, distributed hash tables, consistent global states, election algorithms, distributed mutual exclusion, consistency, replication, fault tolerance, distributed deadlocks, recovery, agreement protocols

CO3: learn how to design and implement distributed algorithms

SOFTWARE TESTING

CO1:To learn the fundamentals and principles of software testing.

CO2: To learn techniques of testing and models of testing

CO3: To understand the significance of testing and data flow testing strategies

CO4: To learn the essentials of metrics and test cases

DISTRIBUTED COMPUTING

CO1:To understand the concept of distributed database,security,distributed processing

CO2:To learn the concepts of hardware, network operating systems,distributed systems and Their design issues

CO3:To understand the communications in distributed systems

CO4:To learn about the synchronization in distributed systems and thread implementations

CO5:To gain knowledge about distributed file systems

22. M.A ECONOMICS PSO:

23. M.S.W PSO:

PSO 1: To impart education and training in professional social work in order to provide manpower in social welfare, development and allied fields capable of working at various levels of micro, meso and macro systems

PSO 2: To help students develop knowledge, skills, attitudes and values appropriate to the practices of social work profession.

PSO 3: To enable students develop creative thinking and ability to apply theoretical knowledge in practice of social work.

PSO 4: To facilitate interdisciplinary approach for better understanding of social problems, situations and issues of development.

M.S.W CO:

Semester 1

Social Work Profession

1	CO	Demonstrate professional social work values, principles and ethics at their workplace effectively.
2	CO	Create customized social work tools and techniques and plan effectively addressing social issues.
3	CO	Identify themselves with Professional Social Work forums at Regional, National and International levels.
4	CO	Analyze the social situation clearly and assert the rights for each individual in society .
5	CO	Will practice Rights based Approach in all the Social Work interventions.

Social Work with Individuals

1	CO	Apply case Work Values and Principles while working with Individuals.
2	CO	Identify the Client's Problems and provide appropriate solutions.
3	CO	Equip the skills relevant for Social Case Work.
4	CO	Plan the Case Work Process.
5	CO	Formulate appropriate intervention techniques.
6	CO	Use effective communication techniques to identify the issues of the client.

7	CO	Identify various settings and practice based on the social contexts of the country.
8	CO	Predict the social contexts effectively and apply social case work techniques.

Social Work with Groups

1	CO	Will use values and principles of group work at their workplace.
2	CO	Compile the group work session reports effectively.
3	CO	Utilize the individual resources/strengths of the group members and design the intervention process effectively.
4	CO	Apply basic ideas, tools and techniques in solving group issues and bringing development to the group.
5	CO	Constantly evaluate the groups sessions to conduct the group work process effectively.
6	CO	Plan and design each group work session based on the different social work setting.

Sociology

1	CO	Constantly analyze the institutions and their influence on individuals in the society.
2	CO	Design strategies to address social issues in a scientific organized manner.
3	CO	Critically analyze policies and schemes among the poor.
5	CO	Compare and understand issues with reference to current global trend in terms of Liberalization, Globalization and Privatization.

Psychology

1	CO	Use the basics of Psychology while practicing Social Work.
2	CO	Effectively identify the Psychology functions in human.

3	CO	Evaluate the different problems at different stages of life effectively.
4	CO	Assess the client using various personality theories
5	CO	Identifying the concept of Mental Health and various Mental Disorders.
6	CO	Analyze abnormal behavior of the clients effectively.
7	CO	Apply stress Management Technique

Semester II

Social Work with Communities and Social Action

1	CO	Apply knowledge of concepts needed to work with communities.
2	CO	Demonstrate community organization skills while addressing local and regional issues.
3	CO	Apply various models of community organization to bring social change.
4	CO	Use various social action techniques and strategies while addressing social.
5	CO	Critically analyze social problems and design appropriate strategies to address social issues.

Social Work Research and Statistics

1	CO	Analyse social issues using scientific knowledge and methods both empirically and conceptually.
2	CO	Use participatory research methodology effectively while initiating new development projects.
3	CO	Will formulate and do many action research to address social issues.
4	CO	Apply research skills while working with civil societies, government and international organizations.
5	CO	Create new research tools effectively.

Social Welfare Administration

1	CO	Demonstrate good administrative skills at workplace and in society.
2	CO	Create and administer social welfare organizations especially non-governmental organizations effectively.
3	CO	Demonstrate good financial administration skills at workplace and in society.
4	CO	Compute the financial administration system in an organization.
5	CO	Plan strategies for Co-ordination and co-operation between voluntary and government welfare agencies.

Social Policy and Social Legislation

1	CO	Will use knowledge of social legislations and policies while working with the grassroots and subaltern communities.
2	CO	Scientifically analyze the policies and legislation of the state.
3	CO	Will demonstrate good citizenship values propagated by the state in their families and workplace especially on the development of women and subaltern communities.
4	CO	Apply values and ethics in all the development projects that they work.
5	CO	Will evaluate social issues and use constitutional remedies for protection of Human Rights in India.

Counselling

1	CO	Apply Counseling skills at workplace.
2	CO	Use various Counseling skills required and Counseling process.
3	CO	Design Counseling techniques based on the social background of the client.
4	CO	Using Counseling as a tool for managing changes and situations.

5	CO	Demonstrate ethics in counseling.
Semester III		
Rural Community Development (CD)		
1	CO	Assess internal and external resources of the communities.
2	CO	Apply ideological perspective while working with communities.
3	CO	Design and work on poverty eradication programs with international accepted scales.
4	CO	Critically analyze political structure in the rural areas.
5	CO	Use participatory tools (PRA) to do social research among rural communities.
Labor Legislation (HRM)		
1	CO	Apply labor legislations at International, National and Regional levels.
2	CO	Use appropriate skills for practicing labor law at factory, shops and establishments and the information technology sector.
3	CO	Demonstrate suitable attitudes for the practice of labor laws at national and regional levels.
4	CO	Evaluate Labour standards at workplace effectively.
5	CO	Constantly compare the Labour standards at regional and global level.
Mental Health and Psychiatric Disorders (MPSW)		
1	CO	To apply the phenomenology , symptomology and treatment of common mental disorders.
2	CO	Evaluate the client using various mental health assessment tools and taking Case History
3	CO	Effectively identify Mental Disorders and overview of classification of Mental Disorders

4	CO	Compare the various classification of mental disorders.
5	CO	Use legislation appropriate to Mental Health related issues.

Development Economics (CD)

1	CO	Critically analyze the Indian economy and various issues related to development economics
2	CO	Predict the role of agriculture and industries in the development of our country.
3	CO	Design appropriate programs to address the sustainable development goals of the United Nations in India.
4	CO	Apply scientific strategy for food security among the poor.
5	CO	Emphasize and recognize the role of women in the rural and urban economy.
6	CO	Compare global and regional development standards constantly.

Human Resource Management (HRM)

1	CO	Compare the different functional areas of HRM & HRD.
2	CO	Demonstrate effective managerial skills.
3	CO	Will predict emerging trends in the field of HR.
4	CO	Will design organizational policies and human resource planning.
5	CO	Constantly assess changes and challenges happening in the global human resource management.

Public Health in India (MPSW)

1	CO	Apply multidimensional approach to Health.
2	CO	Plan appropriate Preventive, Primitive and Rehabilitative health care program.
3	CO	Compare the administration of various health care systems in country.
4	CO	Utilize the National Health Programmed and Health Policies while working among communities..
5	CO	Formulate health care programs with Human Rights perspective

Working with Children and Youth (CD)

1	CO	Effectively assess the problems of children in Urban and Rural Communities.
2	CO	Plan appropriate programs and strategies to address the social problems of the youth and children in Indian society.
3	CO	Effectively assess the need, plan projects , evaluate national and international projects for the development of children.
4	CO	Use appropriate strategies while working for the children under difficult circumstances like children affected by natural disaster, displacement and in conflict affected zones, etc.
5	CO	Identify the factors leading to alcoholism and substance intake and plan appropriate programs to address it.
6	CO	Formulate best programs involving in planning programs with NGOs, Civil Societies and the Government for the deprived children and youth.
7	CO	Formulate research hypothesis and systematic research tools to do action research to constantly study the problem of children and youth.

Employee Relations and Welfare (HRM)

1	CO	Use knowledge on the industrial relation system in India.
2	CO	Apply Industrial Relations techniques in trade union.
3	CO	To formulate effective programs for the welfare of the staff working in organized and unorganized sector

4	CO	Evaluate the implementation of social security systems at the workplace for the welfare of the staff.
5	CO	Create appropriate grievance redressal systems for the welfare of the staff.

Medical Social Work (MPSW)

1	CO	Demonstrate ethical Medical Social Work practice.
2	CO	Create appropriate systems to for the effective administration of Medical Social Work practice.
3	CO	Apply all the methods of social work in hospital setting.
4	CO	Constantly evaluate the need of the health programs among urban and rural poor.
5	CO	Formulate community based rehabilitation strategies while working with disability.

International Social Work (CD and MPSW)

1	CO	Analyze poverty using international scales, especially that of the World Bank.
2	CO	Identify the needs scientifically to plan appropriate programs in international crises situations like Refugees, Migration etc.
3	CO	Apply skill in addressing emergency situations due to Natural calamities like floods, earthquake, tsunami, etc.
4	CO	Use Project Cycle Management Skills in development projects.
5	CO	Design participatory planning, designing and monitoring skills while working among the poor deprived communities.

Strategic HR Management (HRM)

1	CO	Compare local and International trends and strategic in Human Resource Management and evolve better systems.
2	CO	Constantly revise job changes and employee retention .
3	CO	Assess job worth and develop employee wage structures in companies.

4	CO	Apply performance appraisal tools and techniques of strategic human resource management.
5	CO	Design creative programs and exercises for employee motivation.
6	CO	Identify potential areas/clients/partners of HR consultancy and HR outsourcing

Social Entrepreneurship (CD and MPSW)

1	CO	Mobilize the community to utilize the projects and schemes of development banks such as NABARD, DICS, SSCS etc.
2	CO	Training youth and women entrepreneurs in effective marketing skills.
3	CO	Training women and young entrepreneurs in EDP skills.
4	CO	Design projects for rural communities in incubating new social enterprise to address social issues in the communities.
5	CO	Apply participatory research and needs assessment skills in setting up new social enterprise there by reducing vulnerability among the community.

Quality Management (HRM)

1	CO	Design appropriate quality management systems comparing various international standards.
2	CO	Use latest quality function deployment techniques for the benefit of the management.
3	CO	Demonstrate leadership qualities and ethics at workplace.
4	CO	Formulate effective quality control tools like check sheet, pareto chart, affinity diagram.
5	CO	Communicate effectively the quality management systems to the staff.

Semester IV

Urban Community Development (CD)

1	CO	Design action research to constantly understand of the issues of the slum dwellers and pavement dwellers.
2	CO	Plan appropriate program for the development of communities living in urban slums.
3	CO	Create awareness among community to utilize the state and central government projects for the welfare of Urban Poor. Eg. CMDA, IAY etc.
4	CO	Demonstrate leadership skills and become agents of social change among the slum dwellers.
5	CO	Design perfect strategies and programs for the developement of the urban poor.

Organizational Behaviour (HRM)

1	CO	Compare the dynamics of organizational behavior at international, national and regional levels and adopt relevant systems.
2	CO	Constantly analyze the characteristics influencing human behavior in organizations.
3	CO	Assess micro and meso perspective of staff team in an organization.
4	CO	Design appropriate exercises for stress management and team work.
5	CO	Apply techniques and tools for motivation among staff for the better productivity.

Psychiatric Social Work (MPSW)

1	CO	Compare international Psychiatric Social Work standards and adopt suitable standards.
2	CO	Apply methods of social work among psychiatric patient, family and people withmental illness.
3	CO	Create the Mental Hospital as a social system.
4	CO	Demonstrate high knowledge and skill as Psychiatric Social Worker.
5	CO	Formulate and design community mental health programs to address issues of mental health among community.

Dalit and Tribal Development (CD)

1	CO	Identify needs and issues Dalits and Tribal communities in South Asian region.
2	CO	Capacitate the communities to utilize the schemes and facilities provided by the government and civil societies for the development of the Dalits and Tribal communities
3	CO	Apply strategies for resilience of the Dalit and Tribal community from economic and social vulnerabilities using constitutional backup.
4	CO	Effectively plan micro and macro projects for the development of the Dalit and Tribal communities.
5	CO	Formulate strategies to promote Trade for the art and craft work produced by the tribal communities enhancing their livelihood sustainability.

Organizational Development (HRM)

1	CO	Design strategies and guidelines for development of the organization.
2	CO	Revise organization policies adopting international standards.
3	CO	Analyze group process approaches and use appropriate strategies for conflict management.
4	CO	Plan appropriate strategies to address organizational issues effectively instead of avoiding them.
5	CO	Evaluate organization systems from time to time and restructure the organization.

Therapeutic Interventions in Social Work Practice (MPSW)

1	CO	Use appropriate techniques for Therapeutic intervention in Social Work.
2	CO	Identify the role of social worker in clinical practice and help accordingly.
3	CO	Apply indigenous therapeutic techniques.

4	CO	Plan appropriate programs for the treatment of HIV/AIDS, de addiction, diabetics, coronary heart disease.
5	CO	Predict current trends in healing practice adopt at workplace.
6	CO	Apply Transactional Analysis Therapeutic intervention.

Women Development (CD)/

1	CO	Demonstrate and promote gender sensitive values in professional and personal life.
2	CO	Students will be able to plan in order to work on the education and development of women in an equity perspective.
3	CO	Design projects for the government and civil societies to address the practical and strategic needs of the women.
4	CO	Apply better managerial skills in women development projects of the government like ICDS, NRHM etc.
5	CO	Utilize the skills applied in order to work for the development of women in line with the National Women's Commission, CWDA Convention etc.

Human Resource Development (HRM)

1	CO	Apply the concepts and functions of Human Resource Development at workplace .
2	CO	Formulate new policies and systems adopting emerging trends in the field of HRD.
3	CO	Demonstrate attitude and skills required for employment in the field of Human Resource Development
4	CO	Design tools to manage discipline, maintain work – life balance and how to handle Grievance in an organization.
5	CO	Use appropriate tools to evaluate the function of the staff.

Hospital Administration (MPSW)

1	CO	Create appropriate systems for effective management of hospitals.
2	CO	Compiling the roles and responsibilities of the Governing Board, Executive Board, Advisory Board, Nursing Staff and other staff.

3	CO	Use IT as a tool to maintain records and systems in hospital administration.
4	CO	Compare and evaluate the current issues in health care services.
5	CO	Identify various dimensions of health.

**Corporate Social Governance and Corporate Social Responsibility
(CD, MPSW and HRM)**

1	CO	Constantly evaluate the company based on the Triple Bottom Line Approach .
2	CO	Demonstrate and advocate for ethical business and corporate social responsibility.
3	CO	Compare international standards in business establishments and evolve policies and systems at workplace.
4	CO	Design gender sensitive systems in Business Environment.
5	CO	Create CSR programs for the development of the communities around the factories and industries.

24. M.B.A PSO:

Students with MBA degree may be employed at the managerial level in various sectors in different departments like finance, marketing, HR, administration, production, operations management, etc. This course makes the student ready to start and run their own venture in the most effective manner. They create employment opportunities and thereby they spur the economic growth of the country.

M.B.A CO:

Course Code: 15PMAN301

Course Title: Management Principle and Business Ethics

C01	To highlight the management evolution and connect how it will affect future managers
C02	To impart the role of planning in making business decisions
C03	To familiarise and practice the organizing function leading to efficiency

C04	To convey the fact that co-ordination is essential for survival and success
C05	To reach out the importance of behavioral code and moral values in business

Course Code: 15PMAN302

Course Title: Quantitative and Research Methods in Business

C01	Introduction to basics of probability, probability distribution and decision-making in business
C02	Understanding the different applications of calculus in business economy
C03	Obtaining basic knowledge on research methods
C04	Understanding the different applications of data analysis
C05	Obtaining knowledge in report writing and format

Course Code: 15PMAN303

Course Title: Organisational Behaviour

C01	To make assessment of potential effects on organizational behaviour
C02	To develop a basic understanding of individual behavior and its issues
C03	To analyse the behavioural problems in team management and offer solutions
C04	To observe and evaluate the different leadership styles to adapt an appropriate one
C05	To apply organizational behaviour concepts, models and theories to real life management situations through case analysis

Course Code: 15PMAN304

Course Title: Accounting For Managers

C01	To define the general purpose and functions of financial accounting
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C02	To explain the concepts and procedures of financial reporting, including income statement, statement of retained earnings, balance sheet, and statement of cash flows
C03	The impact of alternative accounting methods on financial statements
C04	To examine the cost according to the level of business operations and schedule it to differentiate
C05	To analyse how marginal cost affects profitability

Course Code: 15PMAN305

Course Title: Managerial Economics

C01	To understand the role of managers and fundamentals concepts that affects decision making
C02	To analyse the demand and supply conditions and make sales forecasting
C03	To explain the theories of production and figure out the different costs of production and how they affect short and long run decisions
C04	To interpret the four basic market models of perfect competition, monopoly, monopolistic competition, and oligopoly, and how price and quantity are determined in each model
C05	To demonstrate the key macroeconomic indicators affecting business such as fiscal policies, monetary policies etc

Course Code: 15PMAN3E1

Course Title: Innovation and Entrepreneurship

C01	To demonstrate the skills of entrepreneurship, including opportunities
C02	To evaluate the opportunities for business in present environment
C03	To enumerate the importance of innovation and creativity in development and managing growth of business
C04	To prepare a comprehensive business plan for an original product or service that justifies potential profitability and sustainability of the business model

C05	To articulate their ideas on small business model in an organized and persuasive manner
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Course Code: 15PMAN306

Course Title: Legal Systems in Business

C01	To have an overview the basic rules of commercial law including breach of contract, the tort of negligence, liability for unsafe products, etc
C02	To explain an advanced understanding of the nature and relevance of sales law
C03	To demonstrate comprehensive and accurate knowledge and understanding of those areas of company law
C04	To develop competence in industrial disputes and application of the law
C05	To analyse and assess the need for consumer protection and outline the areas covered by consumer protection laws

Course Code: 15PMAN307

Course Title: Applied Operations Research

C01	Understanding Operations Research and Linear programming problem
C02	Gaining knowledge on Transportation and Assignment problems
C03	Understanding Network analysis and project scheduling
C04	Understanding the basics of queuing theory and sequencing
C05	Gaining knowledge on Game theory and Replacement policies

Course Code: 15PMAN308

Course Title: Human Resource Management

C01	To provide a strong foundation on basic HRM knowledge and skills
C02	To enable implementation, and evaluation of employee recruitment, selection, and retention plans and processes
C03	To develop, implement, and evaluate employee orientation, training, and development programs

C04	Facilitate and communicate the human resources component of the organization's motivating plan
C05	To administer and contribute to the design and evaluation of the performance management program

Course Code: 15PMAN309

Course Title: Marketing Management

C01	To identify core concepts of marketing and the role of marketing in business
C02	Ability to develop marketing strategies based on product, price, place and promotion objectives
C03	To evaluate the proper sales promotion method with suitable channel of distribution
C04	To examine the factors influencing buyer behavior
C05	To understand the role and importance of digital marketing

Course Code: 15PMAN310

Course Title: Operations Management

C01	Introduction describe the boundaries of an operations system
C02	To recognise its interfaces with other functional areas within the organisation and with its external environment
C03	To manage manufacturing and service operations efficiently
C04	Provide a sound understanding of the key concepts relating to warehouse management in terms of both information and physical aspects of control
C05	To know the techniques of MRP, Inventory control, work study and time study

Course Code: 15PMAN311

Course Title: Financial Management

C01	To understand both the theoretical and practical role of financial management in business corporations
C02	To apply financial management concepts and tools to the decisions faced by a manager in finance

C03	To evaluate on the various investment and dividend decisions
C04	To understand the different forms of long term financing
C05	Evaluate the comparative working capital management policies and their impact on the firm's profitability, liquidity, risk and operating flexibility

Course Code: 15PMAN3E2

Course Title: International Business

C01	To understand the global business environment
C02	Gaining knowledge in differences in political economy and culture
C03	To provide an overview on international trade theories
C04	To create awareness on foreign direct investments and global monetary systems
C05	Understanding the International business strategy and EXIM policy

Course Code: 15PMAN312

Course Title: Strategic Management

C01	Understand the role of strategy and its process
C02	Identify the forces impacting and designing corporate policy
C03	Environmental Analysis :Explain the importance of social, economic ,political forces; and technological factors
C04	Be critically aware of factors involved in strategy making
C05	Assess the resources and constraints for strategy making in a business context

Course Code: 15PMAN313

Course Title: Management Information System

C01	To describe the role of information technology and information systems in business
C02	To have a broad understanding of database concepts and database management system software
C03	Apply Management Information Systems knowledge and skills learned to facilitate the acquisition, development, deployment, and management of information systems
C04	Effectively communicate strategic alternatives to facilitate decision-making through technology
C05	Students are expected to demonstrate the ability to identify computer and network security threats

Course Code: 15PMAN3EH1

Course Title: Performance Management

C01	Introduction to the basics of performance management system
C02	Understanding the approaches and process followed in performance evaluation
C03	Gaining knowledge on components and objectives of performance analysis process
C04	To bring out the importance of performance review through mentoring and coaching
C05	To provide knowledge on managing team performance and implementation of performance management system

Course Code: 15PMAN3EH2

Course Title: Human Resource Development

C01	Demonstrate the knowledge and skills needed to effectively manage human resources
C02	To understand the digitalization of HRM activities in an organisation
C03	To have clear idea to manage cross cultural team in work place
C04	To give an overview of developing career and competency

C05	To demonstrate a commitment to lifelong learning by participation in professional development activities through coaching and counseling
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Course Code: 15PMAN3EH3

Course Title: Organisational Development

C01	Understanding the basic organisation structure and its lifecycle
C02	Gaining knowledge on organisational culture and its role globally
C03	To provide knowledge on work group behaviour and career stage model
C04	To manage stress at work and suggest prevalent stress management techniques
C05	Understanding change and interventions in an organisation

Course Code: 15PMAN3EH4

Course Title: Industrial Relations and Labour Welfare

C01	Analyse the importance of harmonious relationship in industries
C02	To examine of the role of the state and law in managing conflicts in workplace
C03	To provide useful practical knowledge for workplace safety which helps identification, evaluation, and control of hazards
C04	To provide a knowledge on the provisions of employee welfare in Indian context
C05	To understand the importance of labour laws and its usefulness

Course Code: 15PMAN3EF1

Course Title: Merchant Banking & Financial Services

C01	To provide an overview of merchant banking activities in India
C02	To gain knowledge on the legal and regulatory framework, SEBI and stock exchanges operating in India
C03	To understand the issue management process
C04	Gaining knowledge on concepts like mergers, acquisitions, portfolio management services, leasing and hire purchases, etc
C05	Basic understanding on the other financial services

Course Code: 15PMAN3EF2

Course Title: Corporate Finance

C01	To enumerate the role of finance in the development of industries
C02	Analyse the corporate financing decisions
C03	To evaluate the short term working capital management policies and their impact on the firm's profitability, liquidity, risk and operating flexibility
C04	To explain the concepts and procedures of financial reporting, including income statement, statement of retained earnings, balance sheet, and statement of cash flows
C05	To explain and analyse the interrelationship between finance and governance

Course Code: 15PMAN3EF3

Course Title: Security Analysis and Portfolio Management

C01	To understand the basics of security analysis and its evaluation
C02	Basic introduction on fundamental and technical analysis
C03	To provide knowledge on objective, measures and evaluation of securities
C04	To create awareness on derivatives and mutual funds
C05	Gaining knowledge on portfolio analysis

Course Code: 15PMAN3EF4

Course Title: Banking & Insurance

C01	Introducing the Indian financial system and its regulations
C02	Gaining knowledge on the basics of banking
C03	To introduce various electronic banking avenues and marketing of banking services
C04	Introducing the concept Insurance and its regulations
C05	Gaining knowledge on the different insurance schemes

Course Code: 15PMAN314

Course Title: Retail Marketing

C01	Basic introduction to retail marketing and its growing importance
C02	Understanding consumer behaviour in retail buying process
C03	To provide knowledge on store layout and merchandising
C04	Gaining knowledge on retail marketing mix
C05	To provide knowledge on consumerism and ethics in retailing and understand the future of retailing

Course Code: 15PMAN315

Course Title: Services Marketing

C01	Basic introduction to service sector and its characteristics
C02	Gaining knowledge on the 7ps of services marketing mix
C03	To provide effective management of services marketing through proper strategy
C04	To gain knowledge on service quality gaps and techniques to resolve it
C05	To provide an overview on services marketing in various sectors

Course Code: 16PGSLS06

Course Title: Managerial Skills

C01	Negotiation skills
C02	Interpersonal and persuading skills
C03	Kinesics
C04	Business Etiquettes
C05	Personal Grooming and Interview Skills

Course Code: 16PMBAC14

Course Title: Project work & Viva-Voce

C01	Develops scientific approach in solving a problem
C02	Identification of research problem
C03	Knowledge on collection and tabulation of data
C04	Using the right tools for the analysis of data
C05	Correct interpretation of data and effective decision making

Course Code: 16PGSLS03

Course Title: Spoken and Presentation Skills

C01	General Language Knowledge and Presentation
C02	Special Language Knowledge and Presentation
C03	General communication Skills for Presentation
C04	Professional communication Skills for Presentation
C05	Social communication Skills for Presentation

Course Code: 16PGSLS01

Course Title: Language and communication skills

C01	Twinning functions of listening and speaking
C02	Twinning functions of Reading and writing
C03	Individual communication
C04	Intermediary communication
C05	Social communication

Course Code: 16PGSLS05

Course Title: Contemporary Awareness

C01	Awareness on Recent Developments in science and Technology including development in Space, Telecommunication and computers.
C02	Knowledge on Environmental issues, Human resources and related issues , Role of national Institutions.
C03	Preparedness on International Affairs and Institutions/Organisations related to it.
C04	Indian Politics and Economy
C05	Geographical facts about India and the world

Course Code: 16PINT401

Course Title: Internship

C01	Integrate theory and practice.
C02	Assess interests and abilities in their field of study.
C03	Develop work habits and attitudes necessary for job success.
C04	Build a record of work experience.
C05	Acquire employment contacts leading directly to a full-time job following graduation from college.

25. M.COM PSO:

After completing the Master of Commerce (M.Com.) Course, students are able to

1. Impart the ethical values and norms required for facing the challenges of growing Trade and Industry.
2. Expertise in handling tax filing systems, GST and required accounting standards for business environment.
3. Equip themselves with required managerial and accounting skills to face the challenges of business in special circumstances.
4. Empower themselves in the Research field with their acquired knowledge to meet the societal needs.
5. Update the international business practices by obtaining skills pertaining to Innovation and Technology.
6. Accomplish their ambition by the acquisition of necessary communicative Skills, Managerial skills and Marketing skills.
7. Enable themselves in managing Costs, Revenue, Pricing and budgetary techniques for effective financial management of business.
8. Construct a complete business profile as a professional or as an entrepreneur globally.

M.COM CO:

Course Code - 17PCOMC01

Course Title –ADVANCED CORPORATE

ACCOUNTING AND ACCOUNTING STANDARDSI

1	CO	Justify the importance of the rules of Double entry system in issue of shares.
2	CO	Solve problems relating to valuation of goodwill and shares by using different methods.
3	CO	Explain the concept of alteration of Share Capital, Amalgamation, Absorption and Reconstruction

4	CO	Illustrate the accounting procedure with respect to Liquidation of Companies
5	CO	Discuss the various provisions relating to mandatory Accounting Standards
6	CO	Develop skills in the preparation of accounting statements and in their analysis.

Course Code –17PCOMC02

Course Title –FINANCIAL

MANAGEMENT

1	CO	Examine the role of financial management in investment and dividend decisions
2	CO	Assess the various costs related to Capital .
3	CO	Justify the financing decisions relating to capital structure.
4	CO	Analyse the significance and computation of leverages
5	CO	Apply the working capital management strategies and its determinants
6	CO	Develop the required skills in financial analysis and decision making

Course Code –17PCOMC03

Course Title-

ORGANISATIONAL BEHAVIOUR

O 1	Examine the Various Organisational Behaviour models.
O 2	Compare and contrast the Individual as well as Group Behaviour
O 3	Evaluate the Transactional analysis on Quality of Work Life

O 4	Examine the various dimensions of Conflicts Management.
O 5	Create and maintain organizational culture and climate.
O 6	Impart knowledge on organizational dynamics.

Course Code –17PCOMC04

Course Title-

MANAGERIAL ECONOMICS

1	CO	Analyse the approaches of Managerial economics for managerial decision making
2	CO	Forecast the business through Demand Analysis.
3	CO	Assess the cost as well as the capital investment analysis
4	CO	Inspect the market structure for pricing and output determination.
5	CO	Design Pricing objectives, methods and approaches
6	CO	Synthesize the expertise on the application of economic theories and concepts to business decisions

Course Code –17PCOME01

Course Title–ACCOUNTING FOR

SPECIALISED INSTITUTIONS

and S	Examine the proceedings for preparation of Profit and Loss Account and Balance Sheet of Holding and Subsidiary Companies.
	Assess the different schedules of Banking Companies on loans and advances.
Companies.	Facilitate the students relating to generation of revenues and claims of General and Life Insurance Companies.

Analyse the procedures on accounting system of Electricity and Non-Electrical companies

Familiarize with different types of packages and containers in packaging and shipping company

Categorize accounting practices of various specialized institutions and to update the knowledge of accounting standards

Course Code –17PCOMC05

Course Title– ADVANCED COST AND

MANAGEMENT ACCOUNTING

1	CO	Examine the essentials of costing system and its installation.
2	CO	Prioritize the assessment of process costing towards normal and abnormal losses and gains
3	CO	Design budgets and evaluate through effective budgetary control.
4	CO	Assess the preparation and interpretation of financial statement analysis
5	CO	Construct the cash flow and fund flow analysis.
6	CO	Develop the skills of students in preparation of cost and management accounting statements.

Course Code –17PCOMC06

Course Title–MARKETING OF

SERVICES

1	CO	Analyze the nature and classification of services in marketing implications.
2	CO	Assess the marketing strategies for different service firms
3	CO	Examine the product support and pricing of services.
4	CO	Evaluate the Financial services and marketing of non-profit firms

5	CO	Design Customer Relationship Management and relationship marketing towards customer satisfaction
6	CO	Construct specialized knowledge on marketing skills and marketing practices of service sector.

Course Code –17PCOMC07

Course Title–ADVANCED BUSINESS

STATISTICS

1	CO	Assess the Times Series and Trend Analysis
2	CO	Prioritize the Index numbers and cost of living index
3	CO	Measure the usage of Probability distributions
4	CO	Compare and contrast Probability binomial and poisson distribution
5	CO	Analyse the different sampling techniques and distributions
6	CO	Construct expertise in statistics methods and applications for statistical analysis.

Course Code –17PCOMC08

Course Title–INCOME TAX LAW AND

PRACTICE

1	CO	Examine the Income exempt from taxes, commutation of pension and provident funds
2	CO	Assess the income from house property and compute income from business or profession.
3	CO	Rate the capital gains and its computation under income from other sources
	CO4	Endorse to club their income and set-off of their losses with other heads of income

5	CO	Inspect the power and duties of Central Board of Direct Taxes and IT assessing officers.
6	CO	Construct the practical acquaintance on income tax provisions

Course Code –17PCOME02

Course Title–KNOWLEDGE

MANAGEMENT

1	CO	Assess the Knowledge Management Strategies to analyse the benefit of knowledge economy
2	CO	Create knowledge architecture based on tacit and explicit knowledge
3	CO	Identify the knowledge culture enablers and tools for collaborative platforms
	CO4	Evaluate the Knowledge culture change and enhancement programs
5	CO	Plan the knowledge careers and organizational knowledge role classification
6	CO	Construct policies for managing human resources in organization inclusive of knowledge Management tools.

Course Code - 17PCOMC09

Course Title–RESEARCH

METHODOLOGY

1	CO	Examine the Research Design of various types of research.
2	CO	Compare and contrast the different methods of data collection and its presentation
3	CO	Complete the analysis of Correlation and Regression to arrive inferences.
	CO4	Create the formulation of Hypothesis and testing of Hypothesis
5	CO	Construct the Research Reports based on the analysis.
6	CO	Analyse the research problems through systematic research methodology

Course Code –17PCOMC10

Course Title–FUNDAMENTALS OF

INFORMATION TECHNOLOGYI

1	CO	Justify the implications of information Technology in business.
2	CO	Categorize the Operating Systems and ICT Tools
3	CO	Assess the Hardware and Software requirements of Internet and Network Topologies
	CO4	Examine the extrapolations of word documents and Excel sheets.
5	CO	Create business reports in Ms-Access and design Presentation using comprehensive tools.
6	CO	Inspect the usage of computer applications in business.

Course Code – 17PCOMC11

Course Title–ACCOUNTING FOR

MANAGERS

1	CO	Compare and contrast the pricing decisions under special circumstances.
2	CO	Investigate into Differential costing in managerial decision making
3	CO	Assess the various Capital Investment Decisions
	CO4	Examine the Transfer pricing and performance measurement
5	CO	Compose the cost and management analysis on activity based
6	CO	Apply advanced managerial accounting concepts in order to make more effective decisions in simulated and actual business situations

Course Code – 17PCOMC12

Course Title–INDIRECT TAXES

1	CO	Analyse the Emphasis on contribution to Government revenues through taxation.
2	CO	Investigate into the levy and collection of Customs Duty.
3	CO	Highlight the implementation of Goods and Services Tax in India.
	CO4	Examine the Registration process and provisions in GST
5	CO	Inspect the challenges for the Government regarding the implementation of GST..
6	CO	Implement the practical exposure on filing of GST returns.

Course Code – 17PCOME03

Course Title–INDUSTRIAL RELATIONS

AND LABOUR WELFARE

1	CO	Investigate into industrial relations problems in Public Sector.
2	CO	Identify availability of Government Machinery to attain industrial peace to solve industrial disputes.
3	CO	Analyse the various labour welfare measures and funding schemes.
	CO4	Examine the safety and security measures taken to implement labour welfare
5	CO	Categorize the different types of labour and analyse their problems and solutions.
6	CO	Compose knowledge on managing industrial relations .

Course Code – 17UPOMC13

Course Title–CHANGE MANAGEMENT

Course Code – 17PCOMC14

Course Title–

ADVERTISEMENT AND SALESMANSHIP

11	COO	Discuss the importance of Change Management and its impact
22	COO	Equip with the present and objective, budgeting and identification of Management
33	COO	Equip to manage the multiple strategies changes and resistance to change.
	CO4	Mapping the professional relationship to change and its resistance
55	COO	Investigate the different models for systems approach towards change management. Explain the International advertising strategy
66	COO	Enable the students to compete in the marketing environment through advertisement. Manage the business in the changing business environment.

Course Code – 17PCOMC15

Course Title– PROJECT

PLUS VIVA VOCE

1	CO	Apply the Research Methodology into Projects
2	CO	Collection of Literature Review and identification of research gap
3	CO	Prioritize the nature of data and its collection
	CO4	Application of Statistical tools to infer the findings
5	CO	Prepare the Project reports
6	CO	Suggest the solutions for the tribulations of research study

Course Code – 17PCOME04

Course Title–

COMPUTERIZED ACCOUNTING

1	CO	Introduces TALLY software and integrate with financial accounting
2	CO	Creation of Accounts and Inventory Masters
3	CO	Preparation of financial and inventory statements
	CO4	Position the voucher entries into real time business
5	CO	Construct the technology oriented modules for financial records.
6	CO	Manage the business transactions effectively and accurately

27.M.Sc MATHEMATICS PSO:

PSO:1 Develop specific knowledge in main subfields of pure and applied mathematics to apply them independently to solve problems of real life situations.

PSO:2 Demonstrate an understanding of Abstract Algebra, Analysis, Differential, Difference Equations, Topology, Geometry .Graphs, Fuzzy concepts ,Stochastic Processes, Number Theory, Decision Making and Programming.

PSO:3 Demonstrate skills in analyzing concepts and solving given problems at a high level of abstraction.

PSO:4 Initiate students to write review articles of research papers which infuses to do Research further.

PSO :5 Create ability to apply mathematical methodologies in various sectors like banking, IT, TNPSC, UPSC, etc.

PSO :6 Inculcate knowledge in basics of each subject which makes students of different performing levels to learn with ease.

PSO : 7 Transform students to become motivated Teachers , Professors and Researchers in the fields of mathematical sciences globally .

M.Sc MATHEMATICS CO:

Core paper-I

Subject Algebra– I (17PMATC01)

Staff Name: Mr. T. HARIKRISHNAN

Outcomes

CO1. Discuss of equivalence relation on finite set , equivalence class , order of equivalence class and using it find the results about finite group and study the Sylow's theorem and the application of Sylow's theorem.

CO2. Formulate a new group using a given group and one of its automorphisms, Discussion of the structure of an arbitrary finite abelian group such as fundamental theorem on finite Abelian group.

CO3. Analyze the canonical forms, triangular forms and nilpotent transformations.

CO4. Compute the Jordan form, rational canonical form and companion matrix of the polynomial on finite dimensional vector space V over F and linear transformation T .

CO5. Discuss Trace, Transpose, Hermitian, Unitary and Normal of linear transformation, solving the problems.

Core paper-II

Subject- Real analysis – I (17PMATC02)

Staff Name: Mr.T.HARIKRISHNAN&Mr. E. THILAKRAJ

Outcomes

CO1. Explain the functions of bounded variation and class of functions closely related to monotonic functions.

CO2. Discuss the Riemann-Stieltjes integral and its properties and related problems.

CO3. Analyzing the Riemann integral and its properties and related problems.

CO4. Explain the sequence of functions and related problems.

CO5. Identify the pointwise convergence and uniform convergence.

Core paper-III

Subject- ORDINARY DIFFERENTIAL EQUATIONS (16PMATC03)

Staff Name: Dr. K. MANIKANDAN

Outcomes

CO1. Demonstrate the second order homogeneous equations-Initial value problems-Linear dependence and independence-Wronskian and a formula for Wronskian.

CO2. Use knowledge the homogeneous and non-homogeneous equation of order n –Initial value problems-Annihilator method to solve non-homogeneous equation.

CO3. Build up the initial value problems -Existence and uniqueness theorems – Solutions to solve a non-homogeneous equation.

CO4. Communicate the second order equations with regular singular points –Exceptional cases – Bessel equation.

CO5. Apply the ODE with variable separated – Exact equation – Method of successive approximations – the Lipschitz condition – Convergence of the successive approximations and the existence theorem.

Core paper-IV

Subject- Graph Theory (17PMATC04)

Staff Name: Mrs. M. SHANTHI

Outcomes

CO1. Demonstrate Graphs, Sub graphs and Trees which helps in real-life to track the path or know the direction of the road using GPS.

CO2. Demonstrate Cut Vertices and Edge Connectivity and Vertex Connectivity which is a vital component in designing Networks.

CO3. Demonstrate Euler Tours, Hamilton Cycles and Edge Chromatic Number that aids to create circuits and in geographical map coloring.

CO4. Demonstrate Independent Sets, Cliques and Vertex Colorings.

CO5. Demonstrate Plane, Planar Graphs and to study related Theorems on it.

Elective paper- I

Subject-Fuzzy Sets and their Applications (16PMATE01)

Staff Name: Ms.V. SRIMATHI

Outcomes

CO1. Fuzzy sets and various operations on fuzzy sets are introduced.

CO2. Fuzzy graph, fuzzy relations and fuzzy subset induced by a mapping are learnt.

CO3. Similitude, Dissimilitude, order relations are discussed.

CO4. Reduced polynomial forms and composition of intervals are introduced.

CO5. Fuzzy groupoids, Fuzzy monoids and Fuzzy groups are analyzed.

Semester – II

Core paper-V

Subject- Algebra – II (16PMATC05)

Staff Name: Mrs. M. SHANTHI

Outcomes

CO1. Establish the relation of one field to another and the degree of extension field.

CO2. Determine the root of a given polynomial $p(x) \in F[x]$ on extension field K over F .

CO3. Study the Galois group associated with a polynomial $p(x) \in F[x]$ and the relationship between roots of a polynomials and its Galois group.

CO4. Determine all possible finite fields and many of their important properties and discussion of Wedderburn's theorem, Finite division rings on finite fields.

CO5. Contemplate the solvability by radicals and solve the problems by using it, derivation of Galois groups over the rational.

Semester – II

Core paper-VI

Subject- Real analysis – II (16PMATC06)

Staff Name: Mr.T.HARIKRISHNAN& R. RAJA RAJESWARI

Outcomes

CO1. Discuss about a class of measurable sets on the real line and the measurable functions and related problems.

CO2. Explain the approximation to measurable sets by intervals or by open sets lead to results on approximation to the integral of a measurable function and compare the lebesgue and Riemann integrals.

CO3. Evaluate the Fourier series and Fourier integrals and related problems.

CO4. Compute the Directional derivative and the total derivative and related problems.

CO5. Discuss an Implicit functions and Extremum problems and related properties.

Core paper-VII

Subject- PARTIAL DIFFERENTIAL EQUATIONS (16PMATC07)

Staff Name: Dr. K. MANIKANDAN

Outcomes

CO1. Demonstrate the comprehensive knowledge to classification of Second Order PDE – Canonical Forms.

CO2. Recognize the importance of Occurrence of the Laplace and Poisson Equations.

CO3. Plan and execute the Occurrence of the Diffusion Equation –Boundary Conditions and problems.

CO4. Apply the Occurrence of the Wave Equation – Derivation of One-dimensional Wave Equation – solution of One-dimensional Wave Equation by Canonical Reduction – The Initial Value Problem.

CO5. Core competencies the Green's function for Laplace equation – the methods of Images – the eigenfunction method.

Core paper-VIII

Subject- Probability Theory (16PMATC08)

Staff Name: Dr. K. MANIKANDAN

Outcomes

CO1. Knowledge on Random Events, Random Variables Distributions and Distribution Functions.

CO2. Recognize the importance of Parameters, Order Parameters of the Distribution and Two types of Regression.

CO3. Apply Characteristic Functions and its Properties.

CO4. Build up on various Probability Distributions.

CO5. Execute on Limit Theorems and Laws of Large Numbers.

Elective paper- IISubject - PROGRAMMING IN C++ AND NUMERICAL METHODS(16PMATE02)

Staff Name: Ms. V. SRIMATHI

Outcomes

CO1. To discuss about Tokens, Expressions, Control Structures and Functions in C++.

CO2. To study about Classes and Objects, Constructors and Destructors, Operator Overloading and Type conversions

CO3. To brief about Inheritance, Pointers, Virtual Functions and Polymorphism.

CO4. To discuss about The solution of Nonlinear Equations $f(x)=0$ and Interpolation and Polynomial Approximation

CO5. We study about Curve fitting and Solution of Differential Equations.

Semester – III

Core paper-IX

Subject- COMPLEX ANALYSIS - I (16PMATC09)

Staff Name: Mrs. M. SHANTHI

Outcomes

CO1. Establish the Cauchy's Integral Formula - The Integral formula - Higher derivatives.

CO2. Demonstrate the general form of Cauchy's Theorem: Chains and cycles- Simple Connectivity – Homology.

CO3. Evaluate Definite Integrals and Harmonic Functions and related problems.

CO4. Contemplate Harmonic Functions and Power Series Expansions and exercise problems.

CO5. Demonstrate Partial Fractions and Entire Functions.

Core paper-X

Subject- Topology (16PMATC10)

Staff Name: Mr. T. HARIKRISHNAN

Outcomes

CO1. Explain the topological space, open and closed sets, limit points and continuous functions are introduced as natural generalizations of the real line and Euclidean space.

CO2. Apply the connectedness and compactness to the related problems.

CO3. Discuss the countability and separation axioms and related exercises.

CO4. Compute the problems for product topology and Tychonoff theorem.

CO5. Explain the concept of homotopy of paths and fundamental group.

Core paper-X

Subject- Operations Research (16PMATC10)

Staff Name: Ms. V. SRIMATHI

Outcomes

CO1. Make decision under various decision making environments and determine the expected value of perfect information, expected opportunity loss and expected monetary value associated with any decision.

CO2. Make the determination of the time schedule (Start and completion dates) for the activities of a construction project, find the shortest route between two cities etc... by network models.

CO3. Understanding the meaning of inventory control as well as various forms and functional role of inventory, use the economic order quantity (EOQ) to minimize the inventory cost, compute the reorder level (ROL).

CO4. Understand various components or parts of a queuing system, Identify and examine situation that general queuing problems, understand distinct among several queuing models and derive performance measures for each of them.

CO5. Realize the need to study replacement and maintenance analysis techniques, Make distinctions among various types of failures, Apply replacement policy for items whose efficiency deteriorates with time and for items that fail completely.

Core paper-XII

Subject- Mechanics (16PMATC12)

Staff Name: Dr. K. MANIKANDANAN

Outcomes

CO1. Demonstrate the Generalized Co-ordinates, Virtual Work, Energy and Momentum.

CO2. Apply the Lagrange's equation for holonomic, non holonomic systems, Ignorable coordinates, Routhian function are learnt. Differential equations of motion are derived using the above methods.

CO3. Knowledge on Hamilton's Principle, Equations and Other Variational Principles.

CO4. Build up Hamilton-Jacobi form and Stackels conditions are derived.

CO5. Analysis the Differential Forms, Generating Functions, Special Transformations and Lagrange and Poisson Brackets

Elective paper – III Subject - Number theory and Cryptography(16PMATE03)

Staff Name: Dr. K. MANIKANDANAN & Mr. E. THILAKRAJ

Outcomes

CO1. To discuss about Elementary Number Theory, Time Estimates for doing arithmetic, divisibility and Euclidean algorithm, Congruence, Application to factoring and related problems.

CO2. We study about Introduction to Classical Crypto systems, some simple crypto systems, Enciphering matrices DES and related problems.

CO3. To discuss about Finite Fields, Quadratic Residues and Reciprocity and related problems.

CO4. We study about the Public Key Cryptography, The idea of public key Cryptography, RSA, Discrete log, Knapsack, Zero-knowledge protocols & oblivious transfer and related problems.

CO5. To discuss about the 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 convergence and uniform convergence and related problems.

Semester – IV

Core paper-XIIISubject - Complex Analysis - II(16PMATC13)

Staff Name: Mrs. M. SHANTHI

Outcomes

CO1. Demonstrate Riemann Zeta Function and Normal Families, Product development – Extension of $\zeta(s)$ to the whole plane, the zeros of zeta function, Equicontinuity, Normality and compactness, Arzela's theorem and Families of analytic functions.

CO2. Demonstrate Riemann mapping Theorem, Boundary Behaviour, Use of the Reflection Principle. Conformal mappings of polygons, Schwarz-Christoffel formula, Mapping of a rectangle, Harmonic Functions, Functions with mean value property and Harnack's principle.

CO3. Comprehend Elliptic functions, simply periodic functions and doubly periodic functions.

CO4. Impart knowledge on Weierstrass Theory, Weierstrass p-function, functions $\wp(s)$ and $\zeta(s)$, The differential equation, modular equation $\wp(\omega)$, The Conformal mapping by $\wp(\omega)$ and related problems.

CO5. Elaborate Analytic Continuation, The Weierstrass Theory, Germs and Sheaves, Sections and Riemann surfaces, Analytic continuation along Arcs, Homotopic curves, The Monodromy Theorem and Branch points and related problems.

Core paper-XIV

Subject- DIFFERENTIAL GEOMETRY (16PMATC14)

Staff Name: Dr. K. MANIKANDANAN & R. RAJA RAJESWARI

Outcomes

CO1. Knowledge of the Curves, parametrisation, arc length, level curves, curvature, plane and space curves and related problems.

CO2. Recognize the importance of the patches, smooth surfaces, tangents, normals, orientability, Examples of surfaces, Lengths of curves on surfaces, the first fundamental form, isometries, surface area and related problems.

CO3. Demonstrate the second fundamental form, Curvature of curves on a surface, normal, principal, Gaussian and mean curvatures, Gauss map and related exercises.

CO4. Apply on geodesics, geodesic equations, Geodesics as shortest paths, geodesic coordinates and related problems.

CO5. Analysis the theoremaEgregium, isometries of surfaces, Codazzi - Mainardi Equations, compact surfaces of constant Gaussian curvature and related exercises.

Core paper-XV

Subject- Functional Analysis (17PMATC15)

Staff Name: Mr.T.HARIKRISHNAN

Outcomes

CO1. Discuss about the Normed spaces, Continuity of linear maps, Hahn-Banach Theorems, Banach Spaces and related problems.

CO2. Explain the Uniform boundedness principle, Closed Graph and Open Mappingtheorems, Bounded Inverse Theorem, Spectrum of a bounded operator.

CO3. Apply the concept of Duals, Transposes, Weak and weak *convergence and Reflexivity problems.

CO4. Formulate the Inner Product Spaces, Orthonormal sets, Best approximation, Projection and RieszRepresentaion theorems and related problems.

CO5. Discuss the Bounded operators and adjoints, Normal, unitary and self adjoint Operators, Spectrum and Numerical range and related exercises.

Elective paper-IV

Subject-Mathematical Statistics (16PMATE04)

Staff Name: Ms. V. SRIMATHI

Outcomes

CO1. Student t-distribution, chi-square distribution, Fishers Z distribution are learnt.

CO2. Various significance tests are introduced.

CO3. Various methods of estimations are learnt.

CO4. One way and two way classifications of Analysis of variance are learnt.

CO5. Sequential analysis is learnt.

Elective paper-V

Subject- Stochastic processes (17PMATE05)

Staff Name: Mr. T. HARIKRISHNAN

Outcomes

CO1. State the defining properties of various stochastic process models.

CO2. Sample on a computer any type of continuous or discrete time stochastic process.

- CO3.** Identify appropriate stochastic process model(s) for a given research or applied problem.
- CO4.** Provide logical and coherent proofs of important theoretic results.
- CO5.** Apply the theory to model real phenomena and answer some questions in applied sciences.

29. M.C.A PSO:

1	PSO	Define and discuss about the Computer Hardware, Networks, Operating systems, latest technologies, Database Management Systems, important concepts of Software Engineering, developing Algorithms, utility and efficiency of popular Programming languages, basic concepts of Software Testing, Quality Assurance and Project Management.
2	PSO	Analyze the problem requirements, prepare and use appropriate architectural and detailed designs to build software components using Object Oriented Analysis and UML diagrams.
3	PSO	Create Applications (Software) as per the Programming standards for the given Problem requirements in C, Advanced Java, PHP, Python etc.. Create necessary Database Schemas in MySQL, Oracle etc and integrate with the application.
4	PSO	Discuss and analyze basic concepts and applications of Data Science, Big Data, Data Analytics, Artificial Intelligence, Machine Learning, User Interface Design, Cloud Computing, Information Security, Robotic Process Automation,
5	PSO	Develop an ability to apply knowledge in the Computing discipline. Be acquainted with the contemporary issues, latest trends in technical development and thereby innovate new ideas and solutions to existing problems. Identify, Explain and Deploy current technologies in the IT industry.

M.C.A CO:

Course Code – 19PMCA301

Course Title - Problem Solving and

Programming in C

O 1	Understand the fundamental concepts of Problem solving
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O 2	Analyze the given problem statement with appropriate programming standards
O 3	Construct C application using control statements, Arrays, Structures, Union and Functions
O4	Identify the usage of Pointers, functions, dynamic memory allocation and implement them in program
O5	Demonstrate Graphics using various drawing objects

Course Code - 19PMCA30

se Title – Computer Communication and

Networking

O 1	Recognize Computer Networks, Topology, categories of networks and OSI layers
O 2	Explain about Data Link Layer, Error Detection and handling, protocols
O 3	Describe about Network Layer, Switching types, Connection oriented and connection less services, Routers and Routing algorithms.
O4	Interpret LAN protocols, Token rings, Token bus, Addressing and frame format, LAN Security, Threats etc
O5	Recognize TCP/IP Networking, Architecture, Internetworking, Network characteristics, Network Addressing and Routing

Course Code - 19PMCA303

Course Title- Open Source

Technologies

O 1	Describe the basics of Open Source software and Linux Operating System
O 2	Demonstrate files in Unix environment with file Attributes and permissions
O 3	Experiment with vi editor. Execute basic Unix Commands to filter, sort
O4	Paraphrase Regular Expressions and utilize the concept in programming

O5	Classify Processes- Parent, child, foreground, background and implement them in programs
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Course Code - 19PMCA304

Course Title- Software

Engineering

O1	Explain about the Software Product and Software Process characteristics. Differentiate the Software Process Models like Linear Sequential Model, Evolutionary Process models etc., and identify the situations in which they should be followed.
O2	Illustrate how to Elicit Requirements, Validate requirements and Analyze them and Create model for Function-oriented and Object – Oriented software development.
O3	Sketch and model software components following Design Concepts and Principles using UML Diagram. Create Architectural design of Software. Examine User Interface design Component based design concepts and Design metrics
O4	Defend the purpose, types, approaches and levels of testing and types of bugs. Explain Flow / Graphs and Path testing concepts. Demonstrate Transaction flow Testing techniques, Data flow Testing strategies and metrics for Testing
O5	Interpret W5HH principle, Project Management techniques, and Decomposition techniques. Understand Software Measurement and Metrics used. Experiment the methodology of Project Estimation, Project Scheduling, Risk Assessment and Mitigation

Course Code - 19PMCA305P

Course Title -

PRACTICAL – Programming in C

O1	Analyze the given problem
O2	Formulate Algorithm for solving the given problem
O3	Construct C program based on the algorithm
O4	Evaluate the correctness of syntax and debug errors if any.
O5	Examine the output to verify correctness of the logic

Course Code - 19PMCA306P

Course Title – PRACTICAL

– Open Source Technologies

O1	Analyze the given problem
O2	Formulate Algorithm for solving the given problem
O3	Construct shell program based on the algorithm
O4	Evaluate the correctness of syntax and debug errors if any.
O5	Examine the output to verify correctness of the logic

Course Code - 19PMCA307

Course Title – Data Structures

and Algorithms

O1	Sketch programs using abstract data types, complexity analysis, arrays, linked lists and its types, stacks and queues.
O2	Explain Binary trees, tree traversal, , searching , graphs- implementation and traversal, and Minimum cost spanning trees
O3	Demonstrate algorithms like Sorting, Searching.
O4	Appraise 8-Queens, Job sequencing and knapsack problems solving
O5	Discriminate Backtracking, Greedy Method, Divide and conquer methodologies to formulate algorithm

Course Code - 19PMCA308

Course Title – Advanced Internet

Technologies

O1	Discuss about HTML5 and CSS3, Creating and viewing a webpage.HTML document and Structure – using Text and List , tables in HTML, Experimenting with forms , Images and managing media in HTML.
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O2	Illustrate webpage using Style Sheets
O3	Create Webpage using Java script.
O4	Develop Webpage using VB script
O5	Recognize XML elements, DTD types

Course Code - 19PMCA309

Course Title – Operating Systems

O1	Describe the basic concepts in Operating systems like Multiprogramming, Time Sharing, Services, System calls, System programs, Process , Concurrent Processes. Explain CPU scheduling and differentiate Scheduling algorithms
O2	Realize about Process Synchronization done by Operating System, Explain Classical problems in Synchronization, Inter process communications, Deadlocks and Deadlock handling
O3	Appraise and discriminate Storage Management methodologies like Swapping, Paging and Segmentation, Virtual memory, Page Replacement Algorithms, Free Space Management, Disk Scheduling, allocation methods, performance and reliability improvements
O4	Explain Files, their protection, operations, access methods, File system organization and directory structure.
O5	Recognize Protection and security provided by an Operating System and realize the security problems. Examine intrusion detection and cryptography.

Course Code - 19PMCA310

Course Title – Advanced Java Programming

O1	Apply concepts of Java servlet and create efficient applications that use Java Servlet.
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O2	Apply concepts of Java Server Pages and create efficient applications that use Java Server pages
O3	Employ RMI and create efficient applications
O4	Experiment with EJB and create efficient applications that use EJB
O5	Recognize Spring Framework and Beans

Course Code - 19PMCA311P

Course Title –

PRACTICAL – Advanced Internet Technologies

O1	Construct interactive web pages using HTML, CSS
O2	Demonstrate programming knowledge in VBScript
O3	Demonstrate programming knowledge in Java Script
O4	Evaluate the correctness of syntax and debug errors if any.
O5	Examine the output to verify correctness of the logic

Course Code - 19PMCA312P

Course Title – PRACTICAL- Advanced Java

Programming

O1	Create interactive web application using HTML and Servlet
O2	Create interactive web application using HTML and JSP
O3	Create interactive web services using RMI

O4	Evaluate the correctness of syntax and debug errors if any.
O5	Examine the output to verify correctness of the logic

Course Code – 16PMCAC11

Course Title – Java Programming

O1	Discuss basics of Object Oriented concepts, Java programming language- Classes, Objects, Constructors, overloading.
O2	Employ Inheritance, Interface, exception handling, overriding, multithreading, Deadlock to create efficient Java applications..
O3	Demonstrate I/O streams, String handling, Wrapper classes.
O4	Develop Applets, Event handling, Use windows, graphics, AWT package and create Java Application
O5	Experiment JDBC, implementation, Database handling and Networks basics

Course Code - 16PMCAC12

Course Title – Computer

Communication and Networking

O1	Recognize Computer Networks, Topology, categories of networks and OSI layers
O2	Explain about Data Link Layer, Error Detection and handling, protocols
O3	Describe about Network Layer, Switching types, Connection oriented and connection less services, Routers and Routing algorithms.
O4	Interpret LAN protocols, Token rings, Token bus, Addressing and frame format, LAN Security, Threats etc
O5	Recognize TCP/IP Networking, Architecture, Internetworking, Network characteristics, Network Addressing and Routing

Course Code - 16PMCAC13

Course Title – Web developing using PHP & MYSQL

O1	Examine Apache, MySQL, PHP, and Open Source. Explain the Overview of PHP Structure and Syntax
O2	Recognize and demonstrate fundamentals of PHP language like variable, constants, control statements, built in functions, cookies and sessions
O3	Experiment PHP with Arrays of Data and files..
O4	Examine Form elements, form manipulation, and table manipulation..
O5	Integrate and examine PHP With MySQL Server

Course Code - 16PMCAC14
Management

Course Title – Software Engineering and Project

Course Code - 16PMCAC15
Computer Graphics

Course Title –

O1	Explain Video display unit, Computer Graphics
O2	Discuss Output primitives and their attributes. Demonstrate line-Drawing and circle drawing algorithms and area filling.
O3	Differentiate 2D Transformations and other transformations. Explain clipping algorithms

O1	Explain the Software Product and differentiate Software Process models.
O2	Demonstrate Requirement Elicitation, Analysis, and Specification. Experiment Object-oriented software development, Use case Modeling.
O3	Describe the Software Design Process, Design Concepts and Principles, Software Modeling and UML. Distinguish and appraise Architectural Design, User Interface Design, Function-oriented Design
O4	Interpret Software Analysis and distinguish different approaches, types and levels of Software Testing.
O5	Describe and Discuss Software Maintenance & Software Project Measurement, Software Configuration Management (SCM), Software Change Management, Version Control, Change control and Reporting, Program Comprehension Techniques, Project Management Concepts.
O4	Describe Interactive Input Methods, Three-dimensional concepts and viewing. Differentiate Parallel and Perspective Projections and Depth Cueing
O5	Discuss 3D Transformations. Explain Viewing Pipeline and Coordinates- Demonstrate Transformation from World to Viewing Coordinates. Compare Hidden Surface and Hidden Line Elimination Methods.

Course Code - 16PMCAC16P

Course Title – PRACTICAL – Programming in Java

Lab

O1	Analyze the given problem with Object Oriented approach
O 2	Formulate Algorithm for solving the given problem
O3	Construct Java program based on the algorithm

O4	Evaluate the correctness of syntax and debug errors if any.
O5	Examine the output to verify correctness of the logic

Course Code - 16PMCAC17P

Course Title – PRACTICAL –

PHP & MYSQL Lab

O1	Construct interactive web pages using HTML, CSS, JavaScript, VBScript & PHP
O 2	Design responsive website using HTML, CSS
O3	Create rich and efficient Online application
O4	Construct a dynamic website that integrates PHP program and MYSQL database
O5	Deploy web application for the given problem

Course Code – 16PMCAC18

Course Title – Advanced Java

Programming

O1	Apply concepts of Java servlet and create efficient applications that use Java Servlet.
O2	Apply concepts of Java Server Pages and create efficient applications that use Java Server pages
O3	Employ RMI and create efficient applications
O4	Experiment with EJB and create efficient applications that use EJB

O5	Recognize Spring Framework and Beans
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Course Code – 17PMCAC19P

Course Title – PRACTICAL -

J2EE-RDBMS Lab

O1	Create interactive web application using HTML and Servlet
O2	Create interactive web application using HTML and JSP
O3	Create interactive web services using RMI
O4	Create Interactive web applications with Oracle as backend
O5	Create Web applications that execute stored procedures in the backend.

Course Code – 16PMCAC20

Course Title – Python

Programming

O1	Describe Python Programming language – data types, constants
O2	Demonstrate String manipulations in applications.
O3	Experiment control statements in Python applications
O4	Examine Functions in Python applications
O5	Create a full fledged Python application to solve the given Problem.

Course Code – 16PMCAC21P Course Title – PRACTICAL - Python

Programming

O1	Analyze the given problem with Object Oriented approach
O2	Formulate Algorithm for solving the given problem
O3	Construct Python program based on the algorithm
O4	Evaluate the correctness of syntax and debug errors if any.
O5	Examine the output to verify correctness of the logic

Course Code – 17PMCAC22

Course Title – Advanced Database

Management System

O1	Discuss basic concepts, need, advantages and characteristics of Database and Relational Database Management systems
O2	Design Entity Relationship diagram for the given Problem requirements using the appropriate notations.
O3	Create, Alter, Normalize and Delete Database Tables. Examine Transaction Control Language commands. Understand Database Administrator's tasks and User Privileges.
O4	Examine data in a database precisely. Illustrate usage of Commands like, Select, Insert, Update and Delete.
O5	Explain basics of PL/SQL. Create and appraise Database objects like Store Procedures, Functions and triggers. Handle Exception conditions efficiently.

Course Code – 16PMCAC23

Course Title – Software Testing and

Quality Assurance

O1	Explain Software Testing Fundamentals. Differentiate between Bug types. Discuss about Testing life cycle, Test plan, and Test cases
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O2	Compare and contrast Black Box Testing, White Box Testing, Experiment Syntax testing, path coverage, branch coverage, statement coverage, Boundary Value Analysis etc
O3	Distinguish and compare Different types and levels of Testing such as Performance, Load, Stress, Security testing and Unit Testing , Integration Testing , System Testing.
O4	Explain Reviews, its types. Discuss about Review Meeting, Review Reporting & Record keeping, Examine Review guidelines and Data flow analysis
O5	Describe and Discuss Software Quality Assurance Fundamentals

Course Code – 16PMCAE03

Course Title –

Cloud Computing

O1	Discuss basics, advantages and needs of Cloud Computing.
O2	Explain Cloud Services, web based applications, web services, Development services, tools, different clouds.
O3	Illustrate cloud usage in day-to-day requirements like to-do lists, contact lists etc.
O4	Experiment cloud services for needs like collaborating calendars, schedules, task management etc
O5	Demonstrate Collaboration via Web-Based Communication Tools, to Evaluate Web Mail Services and evaluate Web Conference Tools

Course Code – 16PMCAC24

Course Title –

.NET Technologies

O1	Describe and appraise .NET Technologies such as Scripts, Server side technologies, platform of .NET and .NET Framework Components.
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O2	Experiment VB.NET IDE and examine building blocks of VB.NET such as Forms, properties window, Solution Explorer, Keywords, data types, control statements.
O3	Describe programming features, concepts and experiment application development using VB.NET
O4	Discuss OOP concepts and experiment its deployment in VB.NET. Examine Web Application Development
O5	Discuss and experiment ADO.NET, ADO.NET Connectivity, ADO.NET classes, ADO.NET namespaces, Interfacing VB.NET application with ADO.NET

Course Code – 16PMCAC25P

Course Title –

PRACTICAL - .NET Lab

O1	Create VB.Net Console application
O2	Construct user friendly Windows application using tools
O3	Create application to demonstrate Database connectivity
O4	Evaluate the correctness of syntax and debug errors if any.
O5	Examine the output to verify correctness of the logic

Course Code – 16PMCAC26P

Course Title –PRACTICAL -

Mini Project

O1	Identify the problem requirements of an Organization and document them.
O2	Analyze the problem requirements and document them.

O3	Develop appropriate architectural and detailed designs to build software components using Object Oriented Analysis and UML diagrams.
O4	Construct an Application based on the design made by them.
O5	Evaluate the Application in all aspects

Course Code – 16PMCAE04

Course Title – Big

Data Analytics

O1	Apply features of R language to perform data operations. Execute applications in Hadoop environment..
O2	Describe file system of HDFS. Analyze data with R in Hadoop. Identify problem, design data requirement, preprocess data and perform analytics to visualize data.
O3	Import and export from various databases. Explain data files and install R
O4	Deploy data in MongoDB . Apprehend Machine Learning Concepts Differentiate Supervised and Unsupervised Machine Learning algorithms and utilize appropriate algorithms.
O5	Apply Linear Regression and Logistics Regression using R . Perform clustering operations using R

Course Code – 16PMCAE05

Course Title – Object Oriented Analysis

and Design

O1	Describe Objects, Object Oriented System development, Patterns and Frameworks
O2	Analyze Objects, identify their attributes, methods, relationships, responsibilities

O3	Design classes based on Design Axioms, Describe about Object Storage and Object Interoperability.
O4	Design User Interface, View Layer classes and View layer interface
O5	Define basic concepts of UML and create Use Case Diagrams, Sequence Diagrams, State Chart Diagrams, Class Diagrams, Component Diagrams, Deployment diagrams using UML editor Star UML.

Course Code – 16PMCAE06

Course Title – Information Security

O1	Define and Discuss Security, Attacks, Computer criminals, Secure programs, Non-malicious programs errors, viruses and method of defense program security
O2	Compare Operating System Security like methods of protection, memory protection, Access control, File Protection and Authentication.
O3	Define and discuss about Database security, security control, Reliability, Integrity and multilevel databases.
O4	Explain Network security, security control, threats, Firewalls, Intrusion detection and Cryptography.
O5	Examine Security planning, Risk Analysis, ethical issues in Computer security, Protecting programs .and ethical issues.

Course Code – 16PMCAC27P

Course Title –

Project and Viva Voce

O1	Analyze the problem requirements of the Organization in which they do the project and document them.
O2	Develop appropriate architectural and detailed designs to build software components using Object Oriented Analysis and UML diagrams.

O3	Construct a Real Time Application based on the design made by them.
O4	Evaluate the Application in all aspects
O5	Deploy them in Client Environment.

32. HINDI PSO:

HINDI CO:

SEMESTER-I

Prose, Functional Hindi & Translation

- To enhance the knowledge of various hindi prose forms like satire, essay, reports, memoir.
- To identify and formulate the situation of natural disasters and identify the issues related to it.
- To learn and develop language skills through English Hindi translations and vice-versa.
- To improve knowledge of technical words
- To practice letter writing skills
- To motivate to demonstrate human values in different life situations
- To discuss the elements of one act play and demonstrate the same.

SEMESTER-II

Short Stories, Novelette and Creative Writing

- To analyze and evaluate the current social, cultural & political scenario of the country.
- To Prepare Newspaper and magazines report and to enhance creative skills and presentation skills.

- To plan and execute the framework of jingles creation and presentation thereby enhance the creative skills and improve language skills.
- To develop communication skills through discussions on short stories and novels.
- Identify the social problems of the current society.
- To improve critical thinking by assessment of situations and apply it to real life situation.
- To demonstrate human values learnt from short stories.
- To develop gender equality approach in students.
- To improve the emotional and ethical quotient of students.
- To motivate in creation of advertisements.

SEMESTER-III

Ancient and Medieval poetry, History of Hindi literature

- To enhance knowledge of medieval Indian society's social political and cultural mellow
- To outline the basic structure of history of Hindi literature
- To identify the various poets of medieval era
- To assess and explain the impact of hindi poets on society
- To critically evaluate the poems in political and social context
- To revise and analyze the poems of bakhti kal
- To apply bhaktikaleen concept in modern context
- To demonstrate the growth of hindi literature over the centuries

SEMESTER-IV

Modern poetry and Hindi literature

- To assess the impact of Indian Freedom struggle on Indian Hindi literature
- To formulate Modern political and social ideas based on poems
- To identify the new words and phrases that came into force after the introduction of khadi boli

- To identify and compile the growth and worth of khadi boli in 19th century
- To discuss the various forms of poems
- To compare the different eras of modern hindi literature
- To analyze the various elements of stories and novels

36. ENGLISH PSO:

ENGLISH CO:

FIRST SEMESTER - PRELIMINARY LEVEL

CO1: Inculcate the values of life such as being Optimistic, Conservation of Nature and Confidence Building.

CO2: Appreciate and associate the aesthetics of the English Language as seen through Figures of Speech, Rhymes Scheme, Diction and Syntax found in poems.

CO3: Analyse the different characters in different times and situations and apply that in real- life situations through the reading of Short Stories and Novella.

CO4: Apply the knowledge of the basic Parts of Speech learned through Grammar to communicate effectively.

CO5: Develop the ability to write fluently with grammatically acceptable sentences and construct Paragraphs through Functional English.

SECOND SEMESTER - TRANSITIONAL LEVEL

CO1: Sensitize about the right choice of career to cherish forever, explore the common Psychological and Socio-economic problems faced by Indians, learn about the historical heritage of Indian monuments.

CO2: Demonstrate tolerance in the midst of racial or any other differences, live with love and peace, glorify life and have moral faith in the creator through the reading of the poems.

CO3: Identify and explore the real intentions of characters around through Short Stories. The students apply conversational skills with others which they learned through One-Act-Plays.

CO4: To be effective in communication, knowledge of Tense and Aspect, Voice, Reported Speech, Degrees of Comparison facilitates the confidence of the learners.

CO5: Knowledge of Language Skills including Synonyms, Antonyms, Affixes, Spelling, and Noun-Number, help the learners apply in competitive examinations.

THIRD SEMESTER - INTERMEDIARY LEVEL

CO1: Evaluate the difference between Personal and Professional life, Right to Education, Protection of Children and Women's Rights through Prose Lessons.

CO2: Apply the roles in life with compassion and individual responsibilities and assess the innumerable sacrifices made in the past to transform our lives for the better through poems.

CO3: Analyse the odd as well as the exemplary characters in life through stories.

CO4: Explore the eccentric human actions and their consequences through Drama.

CO5: Use the grammatical structures like different Questions, Clauses and Kinds of Sentences.

CO6: Prepare Formal Letters with CV, Resume and Various Report, Maintain Diary of Event through Functional English.

FOURTH SEMESTER - ADVANCED LEVEL

CO1: Apply the increased proficiency at the Advanced Level for the Professional Development through Prose Lessons.

CO2: Formulate future life with integrity and assess the intentions of individuals through poems.

CO3: Use of the proper knowledge of facts, importance of the eWomen's Writings, humour in mistaken Identity through stories.

CO4: Apply the knowledge of Creative Writing like stories, Reports and Features in Journals and Newspapers.

CO5: Formulate Circulars and Invitations; Prepare Welcome Address and Vote of Thanks.

CO5: Use of Flawless Sentences, idioms and phrases, Foreign Expressions, British/American words through Language Skills.