



Dr. C.S.N. DEGREE & P.G. COLLEGE

BHIMAVARAM - 534 203, W.G.Dt., A.P., INDIA

Recognised by APSCHE, Approved by AICTE, AISCHE Code- C-23946

Affiliated to Adikavi Nannaya University, Rajamahendravaram

PROGRAM

OUTCOMES AND COURSE

COMES



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DEPARTMENT OF B.COM(Vocational Computers)

PROGRAM OUTCOMES

PSO 1: To understand the nature, scope and concepts of Accounting, Business Operations and Management.

PSO 2: To enable the students to understand the concepts of computer software and its applications in business operations.

PSO 3: To equip the students with business analytics and e-commerce skills.

PSO 4: To develop the students with communication, leadership and entrepreneurial skills.

PSO 5: To make them learn the latest technologies and their application in modern business operations.



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COURSE OUTCOMES

INCOME TAX

CO1: recall various concepts of costing and costing methods

CO2: analyze the various elements of costing.

CO3: explain the labour wage payment system

CO4: outline the cost under process costing system

CO5: examine operational costing and reconciliation of cost and financial statements.

E-COMMERCE AND WEB DESIGNING

By the end of the course, the students will be able to:

CO1: recall the tools and animation options.

CO2: implement the animation techniques

CO3: compare the animation techniques in flash

CO4: select the appropriate software/tools for animation

CO5: describe flash and 3ds max interface



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Business Organization & Management

CO-1: Understand dynamics of business organisations and management practices with respect to stakeholders.

CO-2: Understand varied perspectives related to business environment and entrepreneurship

CO-3: Analyze how organisations adapt to an uncertain environment and decipher decision making techniques managers use to influence and control the internal environment.

CO-4: Analyze the relationship amongst functions of management i.e. planning organizing, directing and controlling.

CO-5 :Appreciate the change in working pattern of modern organisations

DSC 2 B- BUSINESS ECONOMICS

CO-1:To study and understand business economics concepts and their application in business firm.

CO-2: To understand dynamics s of consumers buying behavior and their implications in taking business decisions.



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CO-3: To be able to forecast the consequences of a change in determinants of demand on revenue

CO-4: To study and understand production and cost functions, pricing under various Market structures.

CO-5: To understand macro concepts: national income and economic systems. To study and understand structural reforms.

FINANCIAL ACCOUNTING

By the end of the course, the students will be able to:

CO1: To equip the students with the skill of preparing accounts and financial statements of various types of business units other than corporate undertakings

CO2: To introduce single entry system of accounts

CO3: To enable students with the skills to prepare royalty accounts,.

CO4: To understand the system of preparing consignment accounts

CO5: To familiar with the procedure involved in the farm accounts.

DSC 1 C - Corporate Accounting



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CO-1 Develop an understanding of accounting for share capital and debentures.

CO-2: Prepare financial statements of a company.

CO-3: Develop understanding of cash flow statements.

CO-4: Understand the accounting for amalgamation of companies.

CO-5: Prepare consolidated balance sheet for Holding company.

DSC 2C - Business Statistics

CO-1: Acquire proficiency in using different mathematical tools (matrices, calculus and mathematics of finance) in solving real life business and economic problems.

CO-2: Develop an understanding of the various averages and measures of dispersion to describe statistical data.

CO-3: Understand the relationship between two variables through correlation and regression.

CO-4: Understand the construction and application of index numbers to real life situations.



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CO-5 :Understand the trends and tendencies over a period of time through time series analysis.

Information Technology

CO-1: Understand the basic concepts about hardware and software components K1 and data retrieval from various areas of business.

CO-2: Recall and remember the different types of computers available in K1 business industries

CO-3: Aware of different programming and machine level languages and steps K2 to develop computer programmes.

CO-4: To gain knowledge about e-commerce, internet and extranet understand K2 the uses of world wide web applications.

CO-5: Create the applications of computer information system in various K2 business fields.

BUSINESS LAWS.

CO-1: Understand basic aspects of contracts for making the agreements, contracts and subsequently enter valid business propositions.



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CO-2: Handle the execution of special contracts used in different types of business

CO-3 :Learn legitimate rights and obligations under The Sale of Goods Act.

CO-4: Acquire skills to initiate entrepreneurial ventures as LLP.

CO-5: Understand the fundamentals of Internet based activities under The Information Technology Act.

ADVANCED ACCOUNTING

CO-1: Understand the different methods of depreciation

CO-2: Solve the problems of branch accounts, hire purchase and installment system.

CO-3: Know the single entry system and statement of affairs method using K2 conversion method

CO-4: To gain knowledge on Partnership Accounts, Division of Profits, Fixed and K3 Fluctuating Capital, Admission and Retirement of partners

CO-5: Understand Dissolution of Partnership and Insolvency of Partners



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PROGRAMME WITH C++

CO-1: Compare the different types of languages and find the importance of object-oriented programming language.

CO-2: Know and understand the C++ statements and motivate the students to K3 make use of the statements

CO-3: Identify the class structure and develop the program.

CO-4: Develop the program by applying the concept of OOPs

CO-5: Apply the data file operation technique and evaluate the program in a practical manner

SOFTWARE SOLUTIONS TO ACCOUNTING

CO-1: Understand the concept on client and server

CO-2: To gain the knowledge on IDE

CO-3: Understand the concept on user defined data types

CO-4: To gain knowledge on working with controls in VB

CO-5: Understand on data controls

Database Management Systems (DBMS)

CO-1: Differentiate between database systems and file systems.

CO-2: Describe the features of database management systems.



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CO-3: Analyze the problem and arrive at an information model in the form of an er diagram.

CO-4: Normalize a database.

CO-5: Transform an er model into a relational database schema.

ADVANCED CORPORATE ACCOUNTING

Co-1: Construct consolidated balance sheet of holding companies using provisions of AS 21.

Co-2: Use Double accounting system for electricity companies.

Co-3: Prepare LIC final accounts as per IRDA provisions.

Co-4: Prepare general insurance as per IRDA provisions.

Co-5: Appraise the need, pros and cons of human resource accounting in India.

ADVERTISING AND MEDIA PLANNING

CO-1: To explain the concept of Media Planning, Strategy and Management with reference to current business scenario

CO-2: Learners will absorb the information related to the basic characteristics of all media to ensure most effective use of advertising budget.



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CO-3: To deliver an insight on Media Planning, Budgeting, Scheduling and Evaluating the Different Media Buys

CO-4: To explain different media planning and buying metrics with respect to international marketing.

MANAGEMENT ACCOUNTING

CO-1: Understand thoroughly the conceptual framework of Management Accounting; different forms of accounting—Financial, Cost and Managerial; types of costs for decision making and cost control; cost control and cost reduction.

CO-2: Understand the concept of marginal cost and marginal costing; preparation of income statements using absorption and variable costing; learning of cost-volume-profit analysis and break-even analysis using mathematical and graphical approaches; and their application in businesses.

CO-3: Understand the concept of relevant cost and make decisions related to different business situations using marginal costing and differential costing techniques.

CO-4: Understand preparation of various types of budgets and budgetary control system as a tool of managerial planning and control; Ability to understand standard costing system as a tool of managerial control; calculation of variances in respect of each element of cost and sales; control ratios.



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CO-5: Have basic understanding of techniques of performance measurement such as Responsibility Accounting, Divisional Performance Measurement and Transfer Pricing

AUDITING

Co-1: The end of the course, the student will be able to: Understanding the meaning and necessity of audit in modern era

Co-2: Comprehend the role of auditor in avoiding the corporate frauds.

Co-3: Identify the steps involved in performing audit process.

Co-4: Determine the appropriate audit report for a given audit situation

Co-5: Apply auditing practices to different types of business entities.

STOCK MARKETING

Co-1 : Understand various concepts and theories of marketing management to apply them in marketing context.

Co-2: Demonstrate a sound knowledge of conventional and latest marketing ideas, and of the theories on which these ideas are based.

Co-3: Able to understand and find the market segments.

Co-4: Estimate the effectiveness of marketing mix activities



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E -Commerce

Co-1: provide exposure to the students about information technology, networks and internet.

Co-2: To provide them with the fundamental knowledge of the use of computers in business.

Co-3: to understand the various concepts of e-commerce.

Co-4: to understand the methodology for online business dealing using e-commerce infrastructure.

Mobile Application Development

CO-1: Apply essential Android Programming concepts.

CO-2: Develop various Android applications related to layouts & rich uses interactive interfaces

CO-3: Develop Android applications related to mobile related server-less database like SQLITE

CO-4: student will be able to write simple GUI applications

CO-5: use built-in widgets and components, work with the database to store data locally, and much more.

SALES PROMOTION AND PRACTICE

Co 1 :Analyse various sales promotion activities

Co 2 :Get exposed to new trends in sales Promotion



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Co 3: Understand the concepts of creativity in sales promotion

Co:4Enhance skills to motivate the salesperson to reach their targets

Co:5Develop the skills of designing of sales promotion events

Cyber security and malware analysis

Co : 1 Analyze and evaluate the cyber security needs of an organization.

Co :2Determine and analyze software vulnerabilities and security solutions to reduce the risk of exploitation.

Co : 3 Measure the performance and troubleshoot cyber security systems.

Co : 4 Implement cyber security solutions and use of cyber security, information assurance, and cyber/computer forensics software/tools.

Co : 5 Comprehend and execute risk management processes, risk treatment methods, and key risk and performance indicators

Logistics application development

Co 1: Have an understanding on speech sounds in English coupled with a first hand knowledge on stress, intonation, weak forms, strong forms etc

Co 2 :Communicate effectively with a first hand knowledge on basics of English Grammar.

Co 3 :Develop well matured Listening Skills that will help in all the ways of life.

Co 4 : Present viewpoints exceptionally well in Group Discussions, Public Speaking, ConversationSkillsetc with the aid of gained fluency in English speaking skills



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Co 5 :Improve vocabulary and comprehensive skills that will pave way to build commendable reading capacity.

Cost control techniques

Co 1 :Apply the essential concepts of accounting, budgets and finance

Co 2 :Apply the use of unit cost measurements in performance-based budgeting

Co 3:Maintain strategic cost control.

Co 4:Appreciate the importance of reducing unnecessary costs

CO 5:Identify appropriate outputs for an organizational unit or program component

REAL TIME GOVERNANCE SYSTEM

Co 1 :Understand the terms regarding Governance, E-Governance and RTGS

CO 2: Learn about E-Governance Infrastructure

CO 3: Understand the E-Governance implementation in several countries

CO 4: Understand the E-Governance implementation in several Indian states

CO 5: Understand the applications of RTG

LIFE INSURANCE WITH PRACTICE

CO 1: This Course aims at familiarizing the students with the Principles and practices of Life Insurance starting from designing of product to settlement of claim



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CO 2: This includes both theoretical and practical inputs on all functions/ operations carried but by Life insurance companies.

CO 3: Understand the Features of Life Insurance , schemes and policies and insurance companies in India

CO 4: Analyze various schemes and policies related to Life Insurance sector

CO 5: Choose suitable insurance policy for given situation and respective persons

MULTI MEDIA TOOLS AND APPLICATIONS

CO 1: Understand the basics of Multimedia

CO 2: Understand the basic things of Computers

CO 3: Understand about Digital Media

CO 4: Understand about digital media streaming in current situation

CO 5: Understand about New Media Technologies



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DEPARTMENT OF BCOM

PROGRAM OUTCOMES

PSO 1 : To understand the nature, scope and concepts Accounting, Business Operations and Management.

PSO 2 : To analyse the relationship between Accounting, Auditing and Taxation.

PSO 3 : To understand the application of Corporate Accounting Principles and Practices in real time business situations.

PSO 4 : To equip the students with leadership skills and knowledge in computing skills.

PSO 5 : To enable the students to understand the legal environment and its effect on business, industry, commerce and management.



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COURSE OUTCOMES

HUMAN VALUES AND PROFESSIONAL ETHICS

CO1: To help the students appreciate the essential complementarity between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations of all human beings.

CO2: To facilitate the development of a Holistic perspective among students towards life, profession and happiness, based on a correct understanding of the Human reality and the rest of existence. Such a holistic perspective forms the basis of Value based living in a natural way.

CO3: To highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually satisfying human behaviour and mutually enriching interaction with Nature.

CO4: It ensures students sustained happiness through identifying the essentials of human values and skills.

CO5: It facilitates a correct understanding between profession and happiness



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Accounting-I

By the end of the course, the students will be able to:

CO1: Build an understanding of theoretical framework of accounting and be able to prepare financial statements.

CO2: Explain and determine depreciation and inventory value

CO-4: Analyze the relationship amongst functions of management i.e. planning organizing, directing and controlling.

CO-5 :Appreciate the change in working pattern of modern organisations

SC 2 B- BUSINESS ECONOMICSD

CO-1:To study and understand business economics concepts and their application in business firm.

CO-2: To understand dynamics s of consumers buying behavior and their implications in taking business decisions.

CO-3: To be able to forecast the consequences of a change in determinants of demand on revenue



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CO-4: To study and understand production and cost functions, pricing under various Market structures.

CO-5: To understand macro concepts: national income and economic systems. To study and understand structural reforms.

ACCOUNTING-2

By the end of the course, the students will be able to:

CO1: Build an understanding of theoretical framework of accounting and be able to prepare financial statements.

CO2: Explain and determine depreciation and inventory value

CO3: Develop understanding of accounting for hire purchase transactions and lease transactions.

**CO4: Understand branch and departmental accounting
CO5**

CO5: develop the skill of preparation of trading and profit and loss account and balance sheet using



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computerized accounting or prepare accounts for dissolution of a partnership firm.

DSC 1 C - Corporate Accounting

CO-1 Develop an understanding of accounting for share capital and debentures.

CO-2: Prepare financial statements of a company.

CO-3: Develop understanding of cash flow statements.

CO-4: Understand the accounting for amalgamation of companies.

CO-5: Prepare consolidated balance sheet for Holding company.

DSC 2C - Business Statistics

CO-1: Acquire proficiency in using different mathematical tools (matrices, calculus and mathematics of finance) in solving real life business and economic problems.



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CO-2: Develop an understanding of the various averages and measures of dispersion to describe statistical data.

CO-3: Understand the relationship between two variables through correlation and regression.

CO-4: Understand the construction and application of index numbers to real life situations.

CO-5 :Understand the trends and tendencies over a period of time through time series analysis.

BANKING THEORY AND PRACTICE

CO-1: To discuss and evaluate the theories relating to the role of banks as financial intermediaries

CO-2:To discuss and explain how bank-based systems differ from market-based system

CO-3: To Understand the role of transaction costs and informational asymmetries in the operation of the banking system

CO-4: To discuss and evaluate the theories relating to the role of banks as financial intermediaries



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BUSINESS LAWS

CO-1: Understand basic aspects of contracts for making the agreements, contracts and subsequently enter valid business propositions.

CO-2: Handle the execution of special contracts used in different types of business.

CO-3 :Learn legitimate rights and obligations under The Sale of Goods Act.

CO-4: Acquire skills to initiate entrepreneurial ventures as LLP.

CO-5: Understand the fundamentals of Internet based activities under The Information Technology Act.

ACCOUNTING FOR SERVICE ORGANISATION

CO-1:To Understand the fundamental concepts underlying accounting, finance, management and marketing.

CO-2: To Utilize the Accounting Information in the business processes and practices, such as problem analysis and decision making.



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Income Tax Law & Practice

CO-1: Understand the basic concepts in the law of income tax and determine the residential status of different persons.

CO-2: Identify the five heads in which income is categorised and to compute income under the heads 'Salaries' and 'Income from House Property'.

CO-3: Compute income under the head ' Profits and gains of business or profession', 'Capital gains' and 'Income from other sources'.

CO-4: Understand clubbing provisions, aggregate income after set-off and carry forward of losses, and deductions allowed under the Income Tax Act.

CO-5: Compute tax liability of individuals and firms and understand the provisions of filing return of income.

TAXATION

CO-1: To provide working knowledge of framework of taxation system in India.

Co-2: To familiarize and educate the students with the concepts of Income Tax in India.



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Co-3: To enable the students acquire an understanding of the Terminologies of direct

taxation laws, determining residential status of individuals & Basis for charging tax.

Co-4: To develop knowledge in computing Income from various heads, Exemptions and deductions applicable with reference to resident individual.

COST ACCOUNTING

CO-1: Understand conceptual framework of Cost Accounting.

CO-2: Understand in detail the accounting and control of material and labour cost.

CO-3: Understand classification, allocation, apportionment and absorption of overheads in cost determination.

CO-4: Calculate the cost of products, jobs, contracts, processes and services.

CO-5: Have basic understanding of cost accounting book keeping systems and reconciliation



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MANAGEMENT ACCOUNTING

CO-1: Understand thoroughly the conceptual framework of Management Accounting; different forms of accounting— Financial, Cost and Managerial; types of costs for decision making and cost control; cost control and cost reduction.

CO-2: Understand the concept of marginal cost and marginal costing; preparation of income statements using absorption and variable costing; learning of cost-volume-profit analysis and break-even analysis using mathematical and graphical approaches; and their application in businesses.

CO-3: Understand the concept of relevant cost and make decisions related to different business situations using marginal costing and differential costing techniques.

CO-4: Understand preparation of various types of budgets and budgetary control system as a tool of managerial planning and control; Ability to understand standard costing system as a tool of managerial control; calculation of variances in respect of each element of cost and sales; control ratios.

CO-5: Have basic understanding of techniques of performance measurement such as Responsibility Accounting, Divisional Performance Measurement and Transfer Pricing



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AUDITING

CO-1:SETo provide working knowledge of the framework of auditing system in India.

CO-2: To familiarize and educate the students with the concepts of auditing in India.

CO-3:To enable the students acquire an understanding of the tools, techniques and procedure of audit.

CO-4: To develop an understanding of the duties, responsibilities and liabilities of a company auditor

MARKETING

Co-1 :Understand various concepts and theories of marketing

management to apply them in marketing context.

Co-2: Demonstrate a sound knowledge of conventional and latest marketing ideas,and of the theories on which these ideas are based.



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Co-3:Able to understand and find the market segments.

Co-4: Estimate the effectiveness of marketing mix activities4

MARKETING FINANCIAL SERVICE

CO-1: To provide working knowledge of functioning of services offered by the financial services institutions operating in India

CO-2: TO familiarize and educate the student with the concepts of leasing,mutual funds and venture capital

Co-3: To enable the students acquire an understanding of the terminologies of securitization , credit rating and foctoring.



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FINANCE SERVICE

CO-1: Explain the nature, scope and objective of financial management, along with Time Value of Money, Risk & Return.

CO-2: Analyze Capital Budgeting Process and Techniques including NPV, IRR and Profitability Index.

CO-3: Examine various Capital structure theories and estimating cost of capital.

CO-4: Critically examine basic Theories and policies of Dividend.

CO-5: Estimate working capital along with an overview of cash receivables and inventory



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B.Sc - Botany, Zoology, Chemistry (B.Z.C)

Programme Specific Outcomes

PSO 1: To understand principles of origin of life and its evolutionary trends, Microbial

diversity, chemical theory related to origin of life

PSO 2: To analysis the taxonomic range of various life forms as per their external characters

and internal chemical constitutions (chemo taxonomy)

PSO 3: The knowledge About of ecological and phyto geographical studies related in

environmental biodiversity with biotic and abiotic factors

PSO 4: Skills to study the principles of tissue culture techniques in biology leads to various

diversity of life forms (hybrids) by using chemically synthesised growth hormones.

PSO 5: Ability to design the evolution of drugs form the biological sources and its

applications without any side effects in nature.



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COURSE OUTCOMES

ZOOLOGY

ANIMAL DIVERSITY - NONCHORDATES

CO1	To instill knowledge across different Areas of Invertebrates.
CO2	To be familiarized with the life cycles and mode of reproduction in different invertebrates Animal groups.
CO3	To understand the systemic and functional morphology of various groups of Invertebrates.
CO4	To study their economic importance, affinities and adaptations

ANIMAL DIVERSITY - CHORDATES

CO1	To instill knowledge across different Areas of chordates
CO2	To acquire knowledge on the life cycles and mode of reproduction in different vertebrates



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CO3	To understand the systemic and functional morphology of various groups of chordates,
CO4	To study their economic importance, affinities and adaptations

CYTOLOGY, GENETICS AND EVOLUTION

CO1	To know the different types of cells
CO2	To be able to Name the cell organelles, List of cell organelles
CO3	To Know MENDAL LAWS The inter-relationship between Organisms in population and communities
CO4	To understand and communicate the major evolutionary innovations in animal groups and describe the functional Significance of associated morphologies and behaviours.

EMBRYOLOGY, PHYSIOLOGY AND ECOLOGY

CO1	To study the concepts of Digestion, Respiration and other physiological activities of mammals and Reproduction
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CO2	To Know The inter-relationship between Organisms in population and communities
CO3	To study the population dynamics and Population control Propagate and follow environment friendly practices.
CO4	To study the concepts of zoogeography and, zoogeographical importance Of Indian subcontinent.

ANIMAL BIOTECHNOLOGY

CO1	To study the concepts of Digestion, Respiration and other physiological activities of mammals
CO2	To Know MENDEL LAWS The inter-relationship between Organisms in population and communities
CO3	To Understand and communicate the major evolutionary innovations in animal groups
CO4	To Understand the organic evolution



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Elective VII-A Immunology

CO1	To Learn about Immunogloblins and Types
CO2	To understand the Immunological disorders
CO3	To understand the Innate and acquired immunity
CO4	To learn about oncology

CLUSTER ELECTIVE VIII-B-1

AQUACULTURE

SEMESTER-VI :

CO1,2,	To gain knowledge, understanding and skills required to apply theoretical AQUACULTURE & To understand the aquaculture systems
CO3,4	To know the principles of fishery management, aquaculture and fish Biology in industry. & Aquaculture in india and world

CLUSTER ELECTIVE VIII-B-2

AQUACULTURE MANAGEMENT



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CO1,2,	To improve scientific, technical and vocational skills required in the area of employment in the fisheries industry & Aquaculture Management
CO3,4	To improve practical skills such as fish surveying, fish husbandry, identification and treatment Of diseases and Prevention methods

CLUSTER ELECTIVE VIII-B-3

POSTHARVEST TECHNOLOGY

CO1	To learn about Handling and principles of fish preservation
CO2	To gain knowledge about Processing of Fish products
CO3	To understand the importance of sanitation and Quality control
CO4	To raise knowledge on Quality assurance and management and certification



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Course outcomes

BOTANY

FUNDAMENTALS OF MICROBES AND NON - VASCULAR PLANTS

CO1	Demonstrate the techniques of use of lab equipment, preparing slides and identify the material and draw diagrams exactly as it appears.
CO2	Observe and identify microbes and lower groups of plants on their own
CO3	Demonstrate the techniques of inoculation, preparation of media etc.
CO4	Identify the material in the permanent slides etc.

FUNDAMENTALS OF MICROBES AND NON VASCULAR PLANTS

CO1	Demonstrate the techniques of use of lab equipment, preparing slides and identify the material and draw diagrams exactly as it appears.
CO2	Observe and identify microbes and lower groups of plants on their own.
CO3	Demonstrate the techniques of inoculation, preparation of media etc..



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CO4	Identify the material in the permanent slides etc.
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PLANT TAXONOMY AND EMBRYOLOGY

CO1	To acquire knowledge to maintain botanical garden worldwide.
CO2	To acquire the knowledge of classification of the plants and the comparison, origin and evolution of angiosperms which are the most important species in our daily life.
CO3	To acquire the knowledge of the development of embryo and structure.
CO4	To know the pollination and fertilization methods to develop with new genetically combinations leading to new varieties.

Plant Physiology and Metabolism

CO1	To Know the Process of various metabolic activities in plant body
CO2	To Know the process of photosynthesis and respiration
CO3	to know the importance of phyto hormones
CO4	To know the process of stress physiology



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Cell Biology, Genetics and Plant Breeding

CO1	To gain knowledge regarding the unit of life that is cell, types, functions of the various organelles of the cell.
CO2	The know the DNA Structure which is very useful at molecular levels of genes in various aspects of life quality of genetical characters and forensic methods of the society etc.
CO3	To have the knowledge of elements of environment.
CO4	To understand the importance of Climatic factors like light, temperature, in related to growth of plant.

PLANT ECOLOGY& PHYTOGEOGRAPHY

CO1	To Know the Process of various metabolic activities in plant body
CO2	To know about variuos methods in tissue culture
CO3	To know the importance of tissue culture and biotechnology
CO4	To know the applications of bio technology.

Cluster Electives, CLUSTER–B

Biological instrumentation and Methodology

C.O.1	Students are able to understand about Culturing and
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	Microscopic Methods.
C.O.2	Students will gain knowledge on Biochemical and Immulological Methods.
C.O.3	Students are able to understand about Sterility testing for Pharmaceutical Products.
C.O.3	At the end of the course, the students will have sufficient scientific understanding of the basic concepts in instrumentation used in Biotechnology.

CLUSTER ELECTIVE -2-B

Mushroom Culture and Technology

CO1	Gain the knowledge of cultivation of different types of edible mushrooms
CO2	Manage the diseases and pests of mushrooms. Identify edible types of mushroom
CO3	Packaging, Storing and grading of mushroom; post harvest procedure
CO4	Develop research aptitude. Develop competency in self-employment and income generation



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COURSE OUTCOMES

CHEMISTRY

Inorganic & Organic Chemistry

CO1	To Describe the trends in the physical and chemical properties of group 13 to group 17 elements. Know the Chemistry of some important compounds of Boron, Carbon, Silicone etc.
CO2	To Identify and judge the structure, type of reaction, mechanism and chemical behavior of an organic compound during its transformation from reactants to products.
CO3	To identify the reason for the aromaticity of various organic compounds that are used in the manufacturing of many products.
CO4	To understand the importance of Structural theory in the organic chemistry which provides a strong basic knowledge for the students that helps in their further studies.

PHYSICAL CHEMISTRY

CO1	To Understand the formation of bonds and interactions between the atoms, molecules, ions crystals and other stable substances that are used in attaining the best knowledge about future
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	projects like quantum mechanics. Rationalize the existence of compounds and properties, structures and uses of various molecules.
CO2	To understand the spatial arrangement of atoms that determine the structure of a compound which is fundamental study all the concepts of organic chemistry with the help of Stereochemistry
CO3	To gain the knowledge about various synthetic techniques and synthesized products that helps a lot while working in manufacturing companies. Learn about various techniques for the conversion of different states of a substance (Liquefaction of gases, condensation, distillation etc.,) that are used in daily life
CO4	To identify a type of reaction involving in the formation of a product .The practical knowledge is very essential for the identification of various ions and elements.

INORGANIC & ORGANIC CHEMISTRY

CO1	To understand the ways in which mono, di and unsaturated carboxylic acids are easily prepared by at industrial level. knowing about the active methylene compounds Studying about oxidizing and reducing Reagents, reactions and their mechanisms are very useful for the establishment of small industries and also for their self employment
CO2	To study d block elements which is useful in determination of colored complex formation in Dye industry and formation alloys which are essential for the manufacture of utensils and vessels



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	that are used in daily life
CO3	To Various theories studied by the students involved in bonding in metals is very useful in gaining knowledge about thermal and electrical conductance of metals.
CO4	To gain the knowledge of conductors, insulators and semi conductors will help the students in building their career in battery industry

SPECTROSCOPY & PHYSICAL CHEMISTRY

CO1	To be able to generate an Electric Current in an Electro Chemical Cell. This is the basis of all batteries and Fuel Cells.
CO2	To gain command on Dilute Solutions, Elevation of B.P. & depression of Freezing point, osmotic pressure, colligative properties
CO3	To gain command on Phase rule, components and degrees of freedom, eutectic point, Pb-Ag system, NaCl system and freezing mixtures.
CO4	To know about Spectroscopy, electromagnetic spectrum, Electronic, IR spectroscopies, selection rules applications and NMR s-pectroscopy, chemical shift, m spin-spin coupling.



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INORGANIC, ORGANIC & PHYSICAL CHEMISTRY

CO1	To gain knowledge of the laws of physical chemistry such as chemical equilibrium, law of thermochemistry, distribution law, etc. can be deduced from law of thermodynamics. Moreover, it can predict the feasibility of a process and extent of yield of the product obtain.
CO2	To understand chemical kinetics which deals with the measurement of rates of reactions proceeding under given conditions, hence study of this topic help them to locate favorable conditions to speed up a reaction, there by getting the products in a short time.
CO3	To understand the laws of photochemistry and to know about a number of applications of photochemical process which are useful in daily life such as fluorescence, phosphorescence, photosensitization etc.
CO4	To gain knowledge on carbohydrates which constitutes one of the most important group of natural products. By their study of classification, structural elucidation, properties, and their interconversions are useful to understand about important foodstuffs and other forms of carbohydrates. Amino acids are another important natural products as they are building units of other natural products like enzymes, peptides, proteins etc. their study is necessary to understand structure of various substances present in living organisms.

INORGANIC CHEMISTRY



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CO1	To Describe the trends in the physical and chemical properties of group 13 to group 17 elements. Know the Chemistry of some important compounds of Boron, Carbon, Silicone etc.
CO2	To Identify and judge the structure, type of reaction, mechanism and chemical behavior of an organic compound during its transformation from reactants to products.
CO3	To identify the reason for the aromaticity of various organic compounds that are used in the manufacturing of many products.
CO4	To understand the importance of Structural theory in the organic chemistry which provides a strong basic knowledge for the students that helps in their further studies.

CLUSTER-A-1

POLYMER CHEMISTRY

CO1	To be able to recognize different polymeric materials commonly seen in our environment and their applications.
CO2	To explain the general reaction course and reaction mechanism of free radical, ionic and Zeigler – Natta Polymerization.
CO3	To know the method of calculating the degree of polymerization and molecular weight of polymers by Viscometry, Osmometry, and light scattering methods.
CO4	To determine glass transition temperature and various factors effecting it. Also the free volume theory and WLF equation is



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learnt. Describe the effect of addition of various polymer additives to enhance the properties of polymeric materials.
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CLUSTER ELECTIVE – VIII-A-2

INSTRUMENTAL METHODS OF ANALYSIS

CO1	To acquire fundamental knowledge of spectroscopy and chromatographic techniques.
CO2	To understand the instrumentation and application of spectroscopy through U.V, I.R, N.M.R, for the quantitative and qualitative analysis of organic compounds (molecules) useful in analysis of drugs (pharmacy industry).
CO3	To acquire the knowledge of handling sophisticated instruments like spectrophotometer which are used to identify functional groups (I.R)
CO4	To learn about atomic absorption, emission and fluorescence spectroscopies, electro analytical methods and radio chemical methods.

CLUSTER-A-2

INSTRUMENTAL METHODS OF ANALYSIS



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CO1	To gain knowledge about various forms, formulation and therapeutic uses of drugs. Can identify different modes of administration of drugs which helps in creating awareness while using medians.
CO2	To learn about the structures, preparation methods and analysis of various basic drugs which will be very helpful if they chose the field of pharmaceuticals in their career.
CO3	To identify various elements or substituents present in the food material that are often consumed in daily diet and also useful in some manufacturing industries.
CO4	To know about the major diagnostic methods which can be useful in creating awareness among themselves and also the people around them.



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B.Sc - Mathematics, Physics, Chemistry (M.P.C)

Programme Specific Outcomes

PSO 1: Understand the theoretical concepts of physical and chemical properties of materials and the role mathematics with them in a quantitative way.

PSO 2: Analyse the concepts of mathematics, physics and chemistry and understand the relation among them like chemistry, mathematical modeling of physics and chemistry problems

Skills needed to handle instruments and adopt lab procedures to study physical chemical properties of materials

PSO 3: Mathematical, numerical techniques required to model them.

PSO 4: Ability to interlink the skills and knowledge in mathematics, physics and chemistry and develop an aptitude to address the problems in biophysics, stock market analysis.



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COURSE OUTCOMES

MATHS

DIFFERENTIAL EQUATIONS

CO1	To Understand how to differentiate linear and non-linear differential equations.
CO2	To Apply different methods for solving differential equations of first order but not of first degree.
CO3	To find the solution of higher-order linear differential equations with constant coefficients.
CO4	To Use the method of "variation of parameters" to find the solution of higher-order linear differential equations with variable coefficients and solve the Cauchy-Euler equations

SOLID GEOMETRY

CO1	To understand geometrical terminology for angles, triangles, quadrilaterals and circles, measure angles using a protractor, use geometrical results to determine unknown angles.
CO2	To find the areas of triangles, quadrilaterals and circles and shapes based on these
CO3	To Define parallel lines, Recognize and create parallel lines on graphs and with equations, define perpendicular lines, Recognize and create graphs and equations of perpendicular lines



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CO4	To recognise line and rotational symmetries and the applications of spheres
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ABSTRACT ALGEBRA

CO1	To be able to assess properties implied by the definitions of groups
CO2	To be able to use various canonical types of groups (including cyclic groups and groups of permutations)
CO3	To be able to analyze and demonstrate examples of subgroups, normal subgroups and quotient groups
CO4	To be able to use the concepts of isomorphism and homomorphism for groups

REAL ANALYSIS

CO1	To Understand the concepts of limits, Continuity, Discontinuity, Uniform Continuity
CO2	To Use the definitions of convergence as they apply to sequences, series, and functions
CO3	To apply the Mean Value Theorem and the Fundamental Theorem of Calculus to problems in the context of real analysis
CO4	To identify Riemann Integral functions

RING THEORY & VECTOR CALCULUS



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CO1	To be able to compute and analyze the vector-valued functions of a real variable and their curves and in turn the geometry of such curves including curvature, torsion and the Frenet-Serre frame and intrinsic geometry
CO2	To gain the ability to compute and analyze integral curves of vector fields and solving differential equations to find such curves
CO3	To be able to compute and analyze the differential ideas of divergence, curl, and the Laplacian along with their physical interpretations, using differential forms or tensors to represent derivative operations
CO4	To acquire the knowledge to compute and analyze the integral ideas of the functions defined including line, surface and volume integrals - both derivation and calculation in rectangular, cylindrical and spherical coordinate systems and understand the proofs of each instance of the fundamental theorem of calculus

LINEAR ALGEBRA

CO1	To recognize the concepts of the terms span, linear independence, basis, dimension and apply these concepts to various vector spaces and subspaces
CO2	To use matrix algebra and the related matrices to linear transformations,
CO3	To be able to Compute and use eigenvectors and eigenvalues
CO4	To Determine and use orthogonality



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ELE1CTIVE–VII-(B)

NUMERICAL ANALYSIS

CO1	To analyze and detect different form of errors and also will be able to solve Algebraic and Transcendental equations using different methods.
CO2	To Interpolate the functions within the range using equally and un equally spaced points
CO3	To understand the Least Squares Method and be able to curve fit data using several types of curves (straight line, second degree parabola, power curve, exponential curve)
CO4	To solve the solution of a linear system of equations using direct or iterative methods. • To solve the selected class of differential equations using Taylor, Picards, Euler's, RungeKutta, Adams and Milne's method.

ELECTIVE– VII-(C)

NUMBER THEORY

CO1	Will be able to derive numerical methods for approximating the solution of problems of continuous mathematics
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CO2	To obtain numerical approximations to the first and second derivatives of certain functions • Calculate a definite integral using an appropriate numerical method
CO3	To implement a variety of numerical algorithms using appropriate technology
CO4	To Compare the viability of different approaches to the numerical solution of problems arising in roots of solution of non-linear equations, interpolation and approximation, numerical differentiation and integration, solution of linear systems



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COURSE OUTCOMES

PHYSICS

MECHANICS & PROPERTIES OF MATTER

CO1	To learn about Scalar vector fields, Curl, Divergence, gradient concepts, Line, surface and volume integrals. They would also learn about Stokes, Gauss, Green's theorems and their applications.
CO2	To gain knowledge on motion of variable mass system, Collisions in two and three dimensions, Rutherford scattering problem.
CO3	To understand the concepts of rotational kinematics of rigid body, Moment of inertia tensor, Euler equations, Precision of top, equinoxes and Gyroscope. Students would also learn about types of beams, load analysis in various configurations and mechanics of cantilever.
CO4	To gain understanding on conservative forces, relation between conservative force and potential, equation of motion under central forces, Kepler's laws and Coriolis force. They would also learn about Galilean-Lorentz frames of references, Lorentz transformations, Michelson-Morley experiment, Postulates of special theory of relativity, length contraction, time dilation, addition of masses, mass energy relation and 4 vector notation.



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Waves & Oscillations

CO1	To learn about physical properties of Simple Harmonic Motion (SHM), Torsional pendulum, Compound pendulum and their applications, Lissajous figures.
CO2	To be able to solve the differential equations for forced harmonic oscillator and damped harmonic oscillator and compare the results with simple harmonic oscillator. They would also learn about Fourier series analysis of various wave forms.
CO3	To know the gravitational potential due to hollow and solid spheres and circular disks. They would also learn about the basics of seismic waves, seismographs, epicenter, focus determination and applications of seismology.
CO4	To solve the wave equation for vibrating strings and study various parameters like modes, overtones, energy transport, transverse impedance etc. They would also learn about basics of ultrasonics, production detection of ultrasonics, measurement of frequency and velocity of ultrasonics and the applications of ultrasonics.



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WAVE OPTICS

CO1	To learn about the matrix methods in optics, matrices for translation, refraction, image formation by spherical surfaces and coaxial optical systems. They would also learn about various monochromatic and chromatic aberrations and their removal techniques.
CO2	To understand the principle of superposition, coherence, Interference by division of wavefront and amplitude, Fresnel's bi-prism, Lloyd's mirror, thin film interference, wedge shaped film interference, Newton's rings, Michelson's interferometer and their applications to sodium D lines and thickness of thin film.
CO3	Students would learn about Fresnel and Fraunhofer diffraction, Fraunhofer diffraction due to circular aperture, single slit, double slit, N-slit, grating. They would also learn about Fresnel's half period zones, zone plate, phase reversal zone plates, comparison of zone plate & convex lens, interference & diffraction.
CO4	To learn about methods of polarization, Brewster's law, Malus law, Nicol prism, Quarter wave plate, half wave plate, Babinet's compensator and optical activity analysis by Laurent's half shade polarimeter. They would also learn about principles of LASER, Einstein coefficients, He-Ne laser, Ruby laser, applications of laser, Principles of optical fiber communication, classification of optical fibers, applications of optical fibers, principles of holography, limitations of Gabor's hologram and applications of holography.



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Thermodynamics & Radiation Physics

CO1	To learn about Maxwell's distribution law, Tooth wheel experiment, viscosity of gases, thermal conductivity and diffusion of gases.
CO2	To learn about reversible, irreversible processes, Carnot's theorem, Carnot's engine, Kelvin's scale, entropy, disorder, T-S diagram and other applications of entropy.
CO3	To understand thermodynamic potentials, Maxwell equations, Clausius-Clayperon's equation, C_p/C_v , C_p-C_v for perfect gas, J-K effect, J-K coefficient for perfect and Vanderwall gases. They would also learn about Joule Thomson cooling, liquification of helium, Adiabatic demagnetization, principle of refrigeration, airconditioning, effects of CFC gases, applications of low temperature physics.
CO4	To learn about Wein's law, Rayleigh-jeans law, Planks theory of radiation, various types of pyrometers, determination of solar constant and effective temperature of temperature. To learn about concepts of ensembles, M-B, B-E, F-D statistics comparison, Applications of FD statistics to white dwarfs and Neutron stars.



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Electricity, Magnetism and Electronics

CO1	To understand the concepts of electric field and electric potential due to point charge, solid sphere, cylinder. These concepts will enhance the student towards the problems come across in the real life.
CO2	To learn about the concept of capacitance. Various types of capacitors. How can we store energy in the electric capacitor and the applications of capacitors in various applications
CO3	To learn about the concepts of Hall effect, using this we can find the charge particles in the given material. Also to learn about the particle accelerators like cyclotron, synchrotron and cyclotron and their working principles
CO4	To be able to learn about the concepts of Biot-Savart's law, Faraday's law and its applications. Students are also able to learn the network theorems like Thevenin's theorem – Norton's theorem for circuit analysis

Modern Physics

CO1	To be learn about the concepts of atomic models and their drawbacks. Students would also learn about Stern & Gerlach experiment. Vector atom model, this model gives the existence of spin of an electron. Study of fine spectra and Zeeman effect on various elements.
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CO2	To learn about the concepts of molecular spectra like rotational spectra,vibrational spectra.students would also learn raman spectra and its applications like determination of structure of the given molecule
CO3	To understand the importance of Quantammechanics,study the basic concepts invloved in the origin of quantammechancis like uncertainty principle,debrogli matter waves,photo electric effect,Students also study the Davison and Germerexperiment,it conforms the particle nature of the electron.
CO4	To be able to learn about the importance of Heisenberg's uncertainty principle for position and momentum. To be able to learn Schrodinger time independent and time dependent wave equations. To understand the significance of Wave function properties, Basic postulates of quantum mechanics



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COURSE OUTCOMES

CHEMISTRY

Inorganic & Organic Chemistry

CO1	To Describe the trends in the physical and chemical properties of group 13 to group 17 elements. Know the Chemistry of some important compounds of Boron, Carbon, Silicone etc.
CO2	To Identify and judge the structure, type of reaction, mechanism and chemical behavior of an organic compound during its transformation from reactants to products.
CO3	To identify the reason for the aromaticity of various organic compounds that are used in the manufacturing of many products.
CO4	To understand the importance of Structural theory in the organic chemistry which provides a strong basic knowledge for the students that helps in their further studies.

PHYSICAL CHEMISTRY

CO1	To Understand the formation of bonds and interactions between the atoms, molecules, ions crystals and other stable substances that are used in attaining the best knowledge about future projects like quantum mechanics. Rationalize the existence of compounds and properties, structures and uses of various
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	molecules.
CO2	To understand the spatial arrangement of atoms that determine the structure of a compound which is fundamental study all the concepts of organic chemistry with the help of Stereochemistry
CO3	To gain the knowledge about various synthetic techniques and synthesized products that helps a lot while working in manufacturing companies. Learn about various techniques for the conversion of different states of a substance (Liquefaction of gases, condensation, distillation etc.,) that are used in daily life
CO4	To identify a type of reaction involving in the formation of a product .The practical knowledge is very essential for the identification of various ions and elements.

INORGANIC & ORGANIC CHEMISTRY

CO1	To understand the ways in which mono, di and unsaturated carboxylic acids are easily prepared by at industrial level. knowing about the active methylene compounds Studying about oxidizing and reducing Reagents, reactions and their mechanisms are very useful for the establishment of small industries and also for their self employment
CO2	To study d block elements which is useful in determination of colored complex formation in Dye industry and formation alloys which are essential for the manufacture of utensils and vessels that are used in daily life
CO3	To Various theories studied by the students involved in bonding in



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	metals is very useful in gaining knowledge about thermal and electrical conductance of metals.
CO4	To gain the knowledge of conductors, insulators and semi conductors will help the students in building their career in battery industry

SPECTROSCOPY & PHYSICAL CHEMISTRY

CO1	To be able to generate an Electric Current in an Electro Chemical Cell. This is the basis of all batteries and Fuel Cells.
CO2	To gain command on Dilute Solutions, Elevation of B.P. & depression of Freezing point, osmotic pressure, colligative properties
CO3	To gain command on Phase rule, components and degrees of freedom, eutectic point, Pb-Ag system, NaCl system and freezing mixtures.
CO4	To know about Spectroscopy, electromagnetic spectrum, Electronic, IR spectroscopies, selection rules applications and NMR s-spectroscopy, chemical shift, m spin-spin coupling.

INORGANIC CHEMISTRY

CO1	To Describe the trends in the physical and chemical properties of
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	group 13 to group 17 elements. Know the Chemistry of some important compounds of Boron, Carbon, Silicone etc.
CO2	To Identify and judge the structure, type of reaction, mechanism and chemical behavior of an organic compound during its transformation from reactants to products.
CO3	To identify the reason for the aromaticity of various organic compounds that are used in the manufacturing of many products.
CO4	To understand the importance of Structural theory in the organic chemistry which provides a strong basic knowledge for the students that helps in their further studies.

CLUSTER-A-1

POLYMER CHEMISTRY

CO1	To be able to recognize different polymeric materials commonly seen in our environment and their applications.
CO2	To explain the general reaction course and reaction mechanism of free radical, ionic and Zeigler – Natta Polymerization.
CO3	To know the method of calculating the degree of polymerization and molecular weight of polymers by Viscometry, Osmometry, and light scattering methods.
CO4	To determine glass transition temperature and various factors effecting it. Also the free volume theory and WLF equation is learnt. Describe the effect of addition of various polymer additives to enhance the properties of polymeric materials.



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CLUSTER ELECTIVE – VIII-A-2

INSTRUMENTAL METHODS OF ANALYSIS

CO1	To acquire fundamental knowledge of spectroscopy and chromatographic techniques.
CO2	To understand the instrumentation and application of spectroscopy through U.V, I.R, N.M.R, for the quantitative and qualitative analysis of organic compounds (molecules) useful in analysis of drugs (pharmacy industry).
CO3	To acquire the knowledge of handling sophisticated instruments like spectrophotometer which are used to identify functional groups (I.R)
CO4	To learn about atomic absorption, emission and fluorescence spectroscopies, electro analytical methods and radio chemical methods.

CLUSTER-A-2

INSTRUMENTAL METHODS OF ANALYSIS

CO1	To gain knowledge about various forms, formulation and therapeutic uses of drugs. Can identify different modes of administration of drugs which helps in creating awareness while
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	using medians.
CO2	To learn about the structures, preparation methods and analysis of various basic drugs which will be very helpful if they chose the field of pharmaceuticals in their career.
CO3	To identify various elements or substituents present in the food material that are often consumed in daily diet and also useful in some manufacturing industries.
CO4	To know about the major diagnostic methods which can be useful in creating awareness among themselves and also the people around them.



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B.Sc., Mathematics, Electronics, Computer Science **(M.E.Cs)**

PROGRAM OUTCOMES

PSO 1: Understand the concepts of basic electronic components, networks, communication systems, microprocessors and micro controllers, algorithms, C language, Arduino programming, Networking, cloud and Big Data.

PSO 2: Analyse the concepts of mathematics, Electronics and computer Networks and able to use them in solving real world problems.

PSO 3: Acquire the skills to use various electronic components, microprocessor, microcontroller, Arduino, Raspberry PI and simulators.

PSO 4: Ability to interlink the skills developed and gets an aptitude to address the problems in smart home design, smart vehicles, smart sensors in various fields.



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COURSE OUTCOMES

ELECTRONICS

Circuit analysis & Electronic devices-1

CO1	To learn about the concepts of RMS value of sine wave, j-operator, resistance, reactance and admittance concepts.
CO2	To learn about the concepts of KCL and KVL and how to apply them to mesh analysis and node analysis on circuits consisting of resistors and sources.
CO3	To understand Thevenin's theorem, Norton's theorem, Maximum power transfer theorem, Reciprocity theorem, Millman's theorem and their applications.
CO4	To gain knowledge on RC, RL circuits, their frequency response and their applications as Low pass, High pass filters; differentiator and integrator.

Circuit Analysis & Electronic devices -2

CO1	To learn about formation of P-N Junction, Junction capacitance, effect of temperature on reverse current, VI characteristics, applications of diode and a few two terminal devices like Zener diode, Tunnel diode and Varactor diode.
CO2	To learn about CB, CE CC configurations of BJT, h-parameters, load



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	line analysis and biasing of BJT.
CO3	To understand the differences between JFET and BJT, V-I characteristics of JFET, parameters of JFET, applications of FET and MOSFET. They would also learn about UJT characteristics, applications.
CO4	To learn about the SCR construction, two transistor model of SCR, characteristics and applications of SCR. They would also learn about structure and operation of LED, LDR, PV cell, Photo diode.

Analog Circuits & Communication-1

CO1	To learn about various rectifier configurations using diodes and their parameters like ripple factor, efficiency etc. They would also learn about regulation and harmonic components in the rectified output.
CO2	To learn about various filters using inductors and capacitors, series, shunt regulators and 78xx, 79xx IC regulators. They would also learn about Switch mode power supply.
CO3	To learn about RC coupled CE amplifier, the concepts of negative and positive feedback. They would also learn about the effect of negative feedback on various amplifier circuit parameters.
CO4	To learn about the basic components of operational amplifier, the working of differential amplifier in various configurations. They would also learn about various input and output parameters of op-Amp.



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Analog Circuits & Communication -2

CO1	To learn about basic op-Amp circuits, inverting, non-inverting amplifiers, frequency response of op-Amp. They would also learn about the interpretation of op-Amp data sheets.
CO2	To learn about the applications of op-Amps for various mathematical operations, usage of op-Amp as oscillators, and voltage regulators.
CO3	To learn about basics of communication systems, AM, FM and PM. They would also learn about the basics of Amplitude Modulation, modulator & demodulator circuits.
CO4	To understand the concepts of Frequency Modulation, generation and detection of FM waves, advantages of FM over AM and block diagrams of AM and FM radio receivers.

Digital Electronics & Microprocessor 8085 -1

CO1	To know about Various number systems and conversions among them. They would also learn about various logic families like RTL, DTL, ECL, TTL, CMOS etc and about universal logic gates.
CO2	To learn about De-Morgan Theorems, Boolean identities, Karnaugh maps and applications of them to calculate Sum of Products and Product of Sum of Boolean expressions.
CO3	To learn about Multiplexers, de-multiplexers, half adder, full adder and various flip flops like RS, JK, D, T, Master-slave flip flops.



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CO4	To learn about Synchronous, Asynchronous counters, Up/Down counters, and working of 7490 decade counter.
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Embedded Systems and Applications -1

CO1	To learn about the architecture of 8051 microcontroller and program counter and memory organisation in the micro controller and their applications in the digital systems.
CO2	To learn about Pin diagram, Port organisation, I/O Programming, Bit manipulation. Interrupts and timer. with this concepts they can understand the structure of digital systems and their works.
CO3	To learn about Addressing modes, instruction set and assembly language programming of 8051. By using the instruction set various operations using microcontroller can be done.
CO4	To learn the Time Delay Generation and Calculation; Timer/Counter Programming, machine -cycle frequency calculation using microcontroller. Find out the outputs of various programmes using microcontroller.



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COURSE OUTCOMES

Computer Science

COMPUTER FUNDAMENTALS AND PHOTOSHOP

CO1	To acquire the basic knowledge on computer hardware and software.
CO2	To learn the concepts and be able to work on adobe Photoshop applications.
CO3	To get the ability to create and edit photo albums
CO4	The apply the knowledge gained in the classroom to design and edit Banners and visiting cards etc..

PROGRAMMING IN C

CO1	To appreciate and understand the working of a digital computer
CO2	To analyse a given problem and develop an algorithm to solve the problem
CO3	To understand the 'C' language constructs in the right way
CO4	To apply the knowledge to Design, develop and test programs written in 'C'



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OBJECT ORIENTED PROGRAMMING USING JAVA

CO1	To Understand the concept and underlying principles of Object-Oriented Programming
CO2	To Understand how object-oriented concepts are incorporated into the Java programming language
CO3	to acquire and improve problem-solving and programming skills using OOP concept
CO4	To become familiar with the fundamentals and acquire programming skills in the Java language.

DATA STRUCTURES

CO1	To acquire the knowledge of arrays, records, linked structures, stacks, queues, trees, and graphs as represented in memory and its applications
CO2	To Write programs that use arrays, records, linked structures, stacks, queues, trees, and graphs
CO3	To discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing.
CO4	To describe the concept of recursion, give examples of its use, describe how it can be implemented using a stack.



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Data Base Management System

CO1	To gain knowledge on database structure and its design
CO2	To understand different data models used for database design
CO3	To understand database transactions and data recovery
CO4	To apply the knowledge of DML,DDL,DCL commands to manipulate data in the database

Software Engineering

CO1	To design and develop Windows application using different Windows technologies that use a variety of GUI controls and classes to fulfill specific user requirements.
CO2	To explain how event driven applications use threading to perform time-consuming operations.
CO3	To demonstrate how to use specific features of the GUI programming language to write objectoriented programs and handle run-time errors.
CO4	To explain in a public setting how user interfaces should be designed to accommodate human physiology and limitations.



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Distributed Systems

CO1	Understand the advanced database concepts & relevant technologies.
CO2	Identify & use database concepts for variety of applications and implement PL/SQL
CO3	Interpret transaction processing & query processing methods.
CO4	Recognize the latest concepts in database management such as data mining, big data

Cloud Computing

CO1	Understand various basic concepts related to cloud computing technologies, architecture and concept of different cloud models: IaaS, PaaS, SaaS. Cloud virtualization, cloud storage, data management and data visualization.
CO2	Understand different cloud programming platforms & tools and familiar with application development and deployment using cloud platforms.
CO3	Learn the basics of Hive, HQL, HBase schema design, PIG and NoSQL
CO4	Learn basics of Big data, Hadoop and Map Reduce.



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COURSE OUTCOMES

MATHS

DIFFERENTIAL EQUATIONS

CO1	To Understand how to differentiate linear and non-linear differential equations.
CO2	To Apply different methods for solving differential equations of first order but not of first degree.
CO3	To find the solution of higher-order linear differential equations with constant coefficients.
CO4	To Use the method of "variation of parameters" to find the solution of higher-order linear differential equations with variable coefficients and solve the Cauchy-Euler equations

SOLID GEOMETRY

CO1	To understand geometrical terminology for angles, triangles, quadrilaterals and circles, measure angles using a protractor, use geometrical results to determine unknown angles.
CO2	To find the areas of triangles, quadrilaterals and circles and shapes based on these
CO3	To Define parallel lines, Recognize and create parallel lines on graphs and with equations, define perpendicular lines, Recognize and create graphs and equations of perpendicular lines



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CO4	To recognise line and rotational symmetries and the applications of spheres
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ABSTRACT ALGEBRA

CO1	To be able to assess properties implied by the definitions of groups
CO2	To be able to use various canonical types of groups (including cyclic groups and groups of permutations)
CO3	To be able to analyze and demonstrate examples of subgroups, normal subgroups and quotient groups
CO4	To be able to use the concepts of isomorphism and homomorphism for groups

REAL ANALYSIS

CO1	To Understand the concepts of limits, Continuity, Discontinuity, Uniform Continuity
CO2	To Use the definitions of convergence as they apply to sequences, series, and functions
CO3	To apply the Mean Value Theorem and the Fundamental Theorem of Calculus to problems in the context of real analysis
CO4	To identify Riemann Integral functions



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RING THEORY & VECTOR CALCULUS

CO1	To be able to compute and analyze the vector-valued functions of a real variable and their curves and in turn the geometry of such curves including curvature, torsion and the Frenet-Serre frame and intrinsic geometry
CO2	To gain the ability to compute and analyze integral curves of vector fields and solving differential equations to find such curves
CO3	To be able to compute and analyze the differential ideas of divergence, curl, and the Laplacian along with their physical interpretations, using differential forms or tensors to represent derivative operations
CO4	To acquire the knowledge to compute and analyze the integral ideas of the functions defined including line, surface and volume integrals - both derivation and calculation in rectangular, cylindrical and spherical coordinate systems and understand the proofs of each instance of the fundamental theorem of calculus

LINEAR ALGEBRA

CO1	To recognize the concepts of the terms span, linear independence, basis, dimension and apply these concepts to various vector spaces and subspaces
CO2	To use matrix algebra and the related matrices to linear transformations,
CO3	To be able to Compute and use eigenvectors and eigenvalues



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CO4	To Determine and use orthogonality
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ELE1CTIVE–VII-(B)

NUMERICAL ANALYSIS

CO1	To analyze and detect different form of errors and also will be able to solve Algebraic and Transcendental equations using different methods.
CO2	To Interpolate the functions within the range using equally and un equally spaced points
CO3	To understand the Least Squares Method and be able to curve fit data using several types of curves (straight line, second degree parabola, power curve, exponential curve)
CO4	To solve the solution of a linear system of equations using direct or iterative methods. • To solve the selected class of differential equations using Taylor, Picards, Euler's, RungeKutta, Adams and Milne's method.

ELECTIVE– VII-(C)

NUMBER THEORY

CO1	Will be able to derive numerical methods for approximating the
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	solution of problems of continuous mathematics
CO2	To obtain numerical approximations to the first and second derivatives of certain functions • Calculate a definite integral using an appropriate numerical method
CO3	To implement a variety of numerical algorithms using appropriate technology
CO4	To Compare the viability of different approaches to the numerical solution of problems arising in roots of solution of non-linear equations, interpolation and approximation, numerical differentiation and integration, solution of linear systems



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BSC (MICRO BIOLOGY ,BIOTECHNOLOGYBIOCHEMISTRY)

PROGRAM OUTCOMES

POS-1 : ACQUIRED BASIC KNOWLEDGE AND IMPORATANCE OF
MICROORGANISMS

POS-2 : LEARN ABOUT STRUCTURE OF CELL AND CELL
ORGANELLES, GENETICS, IMMUNOLGY , IMPORTANCE OF DNA
AND RNA

POS-3: UNDERSTAND THE ROLE OF BIOTECHNOLOGY IN
PLANTS AND ANIMALS LEARN DEVELOPMENT OF NEW
TECHNIQUES

POS-4: ACQUIRED THE KNOWLEDGE AND IMPORTANCE OF
BIOFERTILIZERS AND BIOPESTICIDES

POS-5: BASIC KNOWLEDGE ON STRUCTURE & PROPERTIES OF
CARBOHYDRATES , PROTEINS , AND LIPIDS

POS-6: TO LEARN THE SAFE HANDLING OF SAMPLE AND
INSTRUMENTATION APPLICATIONS



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COURSE OUTCOMES

MICROBIOLOGY

INTRODUCTION TO MICROBIOLOGY AND MICROBIAL DIVERSITY

CO1	To know about bacteriology, virology, basic as well as modern microbial techniques and will be skilled in sterilization, pure culture and other techniques.
CO2	To know about fundamental aspects of the basic biology of bacteria, virus, protozoa and the types of microorganisms and isolate, characterize and classify microbes.
CO3	To gain a strong grounding in microbial genetics also the microbiology students will be able to describe how microbes are used as model systems to study basic biology and other fields.
CO4	To gain the knowledge about isolation and preservation of microbes
CO5	To learn about the structure, differences, structure and replication of microbes

MICROBIAL BIOCHEMISTRY & METABOLISM



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CO1	To learn about the biomolecules and nucleic acids of life
CO2	To learn skills about the instrumentation
CO3	To Gain the basic knowledge about the enzymes and their classification
CO4	To Gain the knowledge about the growth and nutrient types of microbes
CO5	To learn about microbial respiration , fermentation and photosynthesis

MICROBIOLOGY

CO1	. To learn about the structure, differences, structure and replication of microbes
CO2	To study in detail about Microorganisms like bacteria and viruses - their structure, life cycle, history, classification and their importance a. To apply the knowledge about micro organisms in daily life like maintaining hygiene, and taking food rich in probiotics for healthy life.
CO3	To study the food habits of diverse microorganisms under the name microbial nutrition. To acquire the ability to decide which nutrition should be supplied to a particular micro organism for its growth and to apply this knowledge for carrying out project.
CO4	To know about the favourable and unfavourable conditions, growth properties, mechanisms to control growth of microbes. To use this knowledge in controlling harmful microorganisms and



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	thus avoiding occurrence of infectious diseases.
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IMMUNOLOGY AND MEDICAL MICROBIOLOGY

CO1	To gain Knowledge about types and Organs involved in immune responses
CO2	To be able to know the Basics of immunology and types, structure of antigens and antibodies
CO3	To gain the skills about general methods and principle of laboratory diagnosis
CO4	To learn about the Anti microbial agents
CO5	To gain the knowledge about causative agents of different diseases

ENVIRONMENTAL & AGRICULTURAL MICROBIOLOGY

CO1	To be able to gain the knowledge and techniques used in agricultural field
CO2	To Explain the interactions between Microorganisms and the food environment and factors influencing their growth and survival.
CO3	To know about bacteriology, virology, basic as well as modern microbial techniques and will be skilled in sterilization, pure culture and other techniques.



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CO4	To know about fundamental aspects of the basic biology of bacteria, virus, protozoa and the types of microorganisms and isolate, characterize and classify microbes.
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FOOD AND INDUSTRIAL MICROBIOLOGY

CO1	To Explain the interactions between Microorganisms and the food environment and factors influencing their growth and survival.
CO2	To Describe the characteristics, identification and detection of food borne microbes.
CO3	To Perform microbial investigations.
CO4	To students understand the technologies implemented by Food and industrial microbiology .
CO5	To Learn about Role of Microbes in Bio geo chemical cycles



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COURSE OUTCOMES

BIOTECHNOLOGY

MICROBIOLOGY AND CELL BIOLOGY

CO1	To learn about contributions of various scientists in the field of Biotechnology and microscopy, various staining methods useful for the study of microorganisms in detail. To be motivated to pursue research through keen observations.
CO2	To study in detail about Microorganisms like bacteria and viruses - their structure, life cycle, history, classification and their importance a. To apply the knowledge about micro organisms in daily life like maintaining hygiene, and taking food rich in probiotics for healthy life.
CO3	To study the food habits of diverse microorganisms under the name microbial nutrition. To acquire the ability to decide which nutrition should be supplied to a particular micro organism for its growth and to apply this knowledge for carrying out project.
CO4	To know about the favourable and unfavourable conditions, growth properties, mechanisms to control growth of microbes. To use this knowledge in controlling harmful microorganisms and thus avoiding occurrence of infectious diseases.
CO5	To study the detailed structure and the sub cellular structures, various mechanisms occurring in the eukaryotic cell, which helps in designing drugs in case there is abnormal cell division etc.



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MACROMOLEULES, ENZYMOLOGY AND BIOENERGETICS

SEMESTER –II

CO1	To know about the discovery, structure and properties, stabilizing forces of various kinds of DNA. The understanding of the basic molecule of life like DNA for inspiring research in various fields and specifically in life science for gene therapy, designing drugs etc.
CO2	To know about the structures, classification physico-chemical properties of the building blocks of proteins i.e., amino acids. To learn about the mechanism of diseases resulting due to abnormal protein structures..
CO3	To learn about the classification, structure, nomenclature and importance of a major nutrient that is carbohydrate. To learn about the polysaccharides present in nature and various conditions arising due to lack of improper intake of carbohydrates.
CO4	To learn about the structure, classification, nomenclature, inhibition, kinetics of the enzymes the knowledge of which is useful for application in medical field to cure diseases arising due to non-functional or absence of enzymes.
CO5	To study regulation, inhibition, Bypass reactions of various pathways taking place in living cells in detail as any abnormalities or diseases arising due to dysregulation of the pathways is easily understood and solution can be provided through research.



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IMMUNOLOGY

CO1	To learn about the basic mechanisms, distinctions and functional interplay of innate and adaptive immunity and the cellular/molecular pathways of humoral/cell-mediated adaptive responses.
CO2	To learn about the structure, classes, types of Antibody and Antigens and factors affecting antigenicity.
CO3	To understand how disease causing microorganism can be used as a weapon to fight against the same microorganism.
CO4	To get better understanding about vaccination, blood transfusion, grafting etc.
CO5	To gain knowledge that helps to take up research to find medicines for present incurable diseases.

GENETICS & MOLECULAR BIOLOGY

CO1	To study about macromolecules responsible for life on earth.
CO2	To acquire knowledge on Organelle genome organization and various gene families
CO3	To know the level of expression by transcription and translation.



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CO4	To learn the molecular mechanisms responsible for diseases and may take up research in this field.
CO1	To gain and apply knowledge of Biotechnology, Science and Engineering concepts to solve problems related to field of Biotechnology

GENE EXPRESSION & DNA TECHNOLOGY

CO1	To replicate strategies of Nucleic acids
CO2	To learn about the Mutational changes, damage and their repair
CO3	To Know about the Structure ,types,functions of RNA and ribosomes and genetic code
CO4	To gain the knowledge about types and regulation of gene expression , protein synthesis
CO5	To learn about Basic principles of Genetic Engineering

Cluster Electives – III

Plant Biotechnology and Animal Biotechnology

CO1	To gain and apply knowledge of Biotechnology, Science and Engineering concepts to solve problems related to field of Biotechnology
CO2	To design, perform experiments, analyze and interpret data for investigating complex problems in biotechnology Engineering and



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	related fields.
CO3	To demonstrate knowledge of project and finance management when dealing with Biotechnology Engineering problems
CO4	To gain concept of vaccines and transgenic plant and animal production.
CO5	To have overall view about IPR issues.

Environmental Biotechnology

CO1	To learn about Ecology, various ecosystems, Bio-geo chemical cycles.
CO2	To learn about pollutants. maintenance of standards, Biological indicators
CO3	To learn about Biocides, waste disposal - effluent treatment methods,
CO4	To have idea about Bioremediation, GM microbes in the environmental management.

Industrial Biotechnology

CO1	To learn about important Microorganisms. various Medium and Inoculum Preparation.
CO2	To have knowledge on types of bioreactors. Analysis of various



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	types of bioreactors
CO3	To have knowledge about fermentation, Production of Citric Acid by by Fermentations.
CO4	To acquire knowledge about various of recombinant proteins having therapeutic and diagnostic applications



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COURSE OUTCOMES

BIOCHEMISTRY

Biomolecules

CO1	Appreciation of the role of water in biological system.
CO2	Ability to comprehend the structure, function and acid base properties of amino acids.
CO3	Introduction to the structure, properties and roles of carbohydrates.
CO4	Appreciation of the varied roles of lipids including distribution in different biological membranes
CO5	Understanding nucleic acid chemistry and structure.

Nucleic acids and Biochemical Techniques

CO1	Students will learn the basic aspects of the structure of DNA and RNA along with unusual structures of DNA. Students will also be made aware of the other roles that nucleotides can play in the
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	body
CO2	Students will learn about the principle and applications of spectrophotometry and fluorimetry. Students will learn the principle of various chromatographic techniques like gel filtration, Ion exchange.
CO3	Students will learn about electrophoretic techniques, their principle and applications in analyzing proteins and nucleic acids Students will learn about the basic rules of sedimentation, various types of centrifuges and rotors.
CO4	Students will learn and understand the different cell culture and microbiological techniques used in biochemistry.
CO5	Students will learn about various microscopes and slide preparation, histology and staining techniques..

Enzymology and bioenergetics

CO1	Knowledge about the basic properties and characteristics of enzymes and their action; insights into the factors affecting enzyme activity.
CO2	Students will learn about the kinetics of enzyme catalyzed



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	reactions and bisubstrate reactions
CO3	Outline of the inhibitors of enzymes and their clinical importance..
CO4	Understand the basic mechanisms of photophosphorylation in plants and microbes
CO5	Understand the concept of chemiosmotic theory and the mechanism of Oxidative phosphorylation and ATP synthesis.

Intermediate metabolism

CO1	Students will learn the concepts of metabolism with an emphasis on glycolysis and gluconeogenesis
CO2	Students will learn about glycogen synthesis, breakdown, glycogen storage diseases, Calvin cycle C3 and C4 pathways in plants
CO3	The students will learn about overview, enzymes and regulation of citric acid cycle and glyoxylate cycle in plants. They will also learn about hormonal regulation of carbohydrate metabolism and diseases associated with metabolic irregularities.
CO4	The students will learn about lipid digestion, Fatty acid oxidation,



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	and Ketone-body metabolism. Students will gain insight into de novo synthesis and degradation of purine and pyrimidine nucleotides, regulation and salvage pathways. Further, the students will learn about the inhibitors of nucleotide metabolism and disorders related to purine and pyrimidine metabolism.
CO5	The students will learn about synthesis of saturated, unsaturated, odd and even chain fatty acids and regulation of fatty acid metabolism. They will also learn about the synthesis of glycerophospholipids and sphingolipids. Cholesterol metabolism, diseases associated with abnormal lipid metabolism

Physiology, Clinical Biochemistry and Immunology

CO1	Students will be introduced to hormones, various types of cellular signaling, classical and modern endocrine methodologies. They will understand the concept of signal, reception, transduction, amplification and response, Scatchard analysis, signal transduction and steroid receptors.
CO2	Appreciate the significance of the adrenal histology with respect to synthesis of cortical and medullary hormones. The concept of blood pressure regulation and electrolyte balance will be understood. Role of medullary hormone epinephrine in fight and



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	flight response, general adaptation syndrome and the biochemical changes during acute and chronic stress will be learned.
CO3	Knowledge about the synthesis, structure and biochemical functions of the thyroid gland secretions, factors that monitor calcium homeostasis in the human body and hormonal networks that regulate growth and repair.
CO4	Gain knowledge about histology of gastrointestinal tract with respect to regulation secretion of gastrointestinal hormones, regulation of satiety and appetite. Other topics include glucose homeostasis and role of hormones and other factors in the same. Students will get an insight into dysregulations that lead to pathophysiologies like anorexia, bulimia, diabetes, obesity and metabolic syndrome.
CO5	To learn about the basic mechanisms, distinctions and functional interplay of innate and adaptive immunity and the cellular/molecular pathways of humoral/cell-mediated adaptive responses Students will be taught about the historical perspective of immunology, They will learn about the cells and organs of the immune system and innate immune mechanisms.

Molecular Biology & Recombinant DNA Technology



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CO1	Students will learn about the complexity of DNA double helix structure, nature of nucleotides, melting of DNA and understand the importance of supercoiling of DNA Understand the details of DNA replication and importance of various proteins and enzymes involved in replication and application of inhibitors
CO2	To learn about the Mutational changes, damage and their repair
CO3	To Know about the Structure ,types,functions of RNA and ribosomes and genetic code
CO4	To gain the knowledge about types and regulation of gene expression , protein synthesis
CO5	To learn about Basic principles of Genetic Engineering



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BA (SOCIAL WORK,ECONOMICS,GEOGRAPHY)

PROGRAM OUTCOMES

PSO 1:Understand the physical and political boundaries of dynasties from ancient period to modern times

PSO 2:Toanalyse the influence of Indian location and geographical features such as Himalayas and oceans, plains attract the foreign invaders for political and commercialestablishments.

PSO 3:To study and understand the concept of Economics, problems.

PSO 4:Understand the basic concepts of geomorphology, natural resources, mineralexploration, procedural and object oriented programming, remote sensing.

PSO 5: Analyse the properties of various rocks, minerals, various climatic conditions, areal. interpretation using image processing tools.



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Course outcomes

Social work

SOCIAL WORK PROFESSION, PHILOSOPHY AND BASIC SOCIAL SCIENCES CONCEPTS-I

Semester-I

CO1	Promoting the development of social work as a profession through cooperation based on professional values, standards, ethics, human rights, training and working conditions.
CO2	To understand the political framework for social welfare
CO3	To know the basic concepts of economics and structure of economy
CO4	To understand the basic concepts and processes in social psychology and its relevance to Social Work

SOCIAL WORK PROFESSION, PHILOSOPHY AND BASIC SOCIAL SCIENCES CONCEPTS-II

SEMESTER –II

CO1	Able to understand the basic sociological concepts and notions of society.
CO2	Able to know the basic concept of economics and structure of economy.
CO3	To learn method of conducting a review of literature
CO4	Able to explore the knowledge about political framework in the



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context of social welfare.

SOCIAL WORK METHODS-I

Semester –III

CO1	To understand the individual, family and their problems and the social contextual factors affecting t.
CO2	To understand Social Casework as a method of Social Work practice
CO3	To gain knowledge about the basic concepts, tools, techniques, processes and Skills of working with individual
CO4	To develop an understanding of application of case work in diverse settings.

SOCIAL WORK METHODS-II

SEMESTER –IV

CO1	To work in agencies working in different types of areas of Social Work practice
CO2	To develop work plan in consultation with agency supervisor.
CO3	To develop capacity for observation and analysis of social realities
CO4	To practice the methods of working with individuals and groups.

FIELDS OF SOCIAL WORK

SEMESTER –V



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CO1	To understand the basics of field work
CO2	To understand the concept of self, developing self awareness and orientation to field work.
CO3	To be familiarized with the professional role of Social Workers
CO4	To practice the methods of working with individuals and groups.

NON-GOVERNMENTAL ORGANIZATIONS

SEMESTER –V

CO1	To understand the fundamental concepts and components of community, community organization and social action
CO2	To understand the models of community organization and social action
CO3	To understand the relationship of community organization and social action with other methods of social work
CO4	To understand various social movements in India.

SOCIAL PROBLEMS AND WELFARE SERVICES IN INDIA

SEMESTER -VI

CO1	Acquaint themselves with the basic concepts of Sociology like society, community, association, culture, social change, social stratification etc..
CO2	Know the basic social institutions like family, marriage, kinship in a scientific way
CO3	Explain social change and the factors affecting social change. Realize the importance of cultural lag to understand social change.



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CO4	Learn about the Constitutional Provision for the protection of minorities and other weaker section in India.
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SOCIAL WORK ON HIV/AIDS

SEMESTER-VI

CO1	. To acquire a basic understanding of the concept of health and well-being in the context of development
CO2	To build an understanding of the basic health care system in India and health care access
CO3	To develop a knowledge base of the national health policy and programs
CO4	To gain knowledge about HIV.



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COURSE OUTCOMES

Economics

Micro Economics – Consumer Behavior

Semester I

CO1	To gain knowledge on how households (demand) and business (supply) firms interact in various market structures to determine price and quantity of a good produced.
CO2	To Understand that Economics is about the allocation of scarce resources, that scarcity forces choice, trade-offs exist and that every choice has an opportunity cost.
CO3	To Demonstrate the concepts of Micro Economics using a production possibility frontier diagram.
CO4	To understand how comparative advantage provides the basis for gains through trade.

Micro Economics - Production and Price theory

Semester II

CO1	To understand Producers equilibrium with the help of isoquants, expansion path and elasticity of substitution
CO2	To understand Different types of markets and their features
CO3	To identify and list the determinants of the demand and supply for goods in a competitive market and explain how that demand and supply together determine equilibrium price.



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CO4	To demonstrate marginal productivity theory of distribution, theory of wages, identify different types of rent, illustrate different theories of interest and profit.
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Macro Economics - National Income, Employment and Money

Semester III

CO1	To understand the difference between Micro and Macro Economics, importance of macro Economics and Macro Economic variables
CO2	To be able to define and explain the process of calculating national income, identify its components, demonstrate circular flow of income, analyse the various identities with government and international trade
CO3	To Demonstrate the meaning and functions of money, illustrate various versions of quantity theory of money
CO4	To explain the meaning of consumption function, relationship between APC and MPC, consumption and income, concept of multiplier and accelerator, MEC and rate of interest.

Macro Economics - Banking and International Trade

Semester IV

CO1	To analyse different phases of trade cycles, demonstrate various phases of trade cycles, understand the impact of cyclical
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	fluctuations on the growth of business, and lay policies to control trade cycles.
CO2	To Illustrate the meaning of inflation, identify different kinds of inflation, causes and effects of inflation on different sectors of the economy, describe different measures to control it.
CO3	To Identify types of banks, explain the meaning and functions of commercial banks, illustrate how bank create credit, and suggest the instruments to control it
CO4	To Explain economic growth and development, determinants of economic development and measurement of economic development.

Economic Development and Indian Economic

Semester V

CO1	To develop ideas of the basic characteristics of Indian economy and Andhra Pradesh economy
CO2	To understand the importance of planning undertaken by the government of India, have knowledge on the various objectives, failures and achievements as the foundation of the ongoing planning and economic reforms taken by the government.
CO3	To Understand agriculture as the foundation of economic growth and development, analyse the changing nature of agricultural sector and its contribution to the Indian economy
CO4	To be aware of the economy as a whole, and to understand the basic features of Andhra Pradesh's economy, sources of revenue, how the state government finance its programmes and projects.



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Indian and Andhra Pradesh Economy

Semester V

CO1	To understand the meaning and difference of internal and external trade
CO2	To Understand the different theories of international trade
CO3	To analyze the protection policy of the international trade.
CO4	To assess the recent trends in the foreign trade, EXIM policy and FDI in India



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COURSE OUTCOMES

Geography

Geography of India

CO1	To gain the knowledge of Physical features of India, Climate, Soils, Rivers and Vegetation
CO2	To understand the issues of Population of India and Migration
CO3	To have knowledge of Human Settlements in India and Urbanization
CO4	To understand the varieties of resources of India with special emphasis on Minerals and fuels of India

Physical Geography - I

CO1	To know the details of the Interior of the earth and theories of Isostasy, Continental drift and understand the Major landforms
CO2	To acquire knowledge of Earth quakes and Volcanoes and understand the classification of Rocks Weathering the Erosion
CO3	To have the knowledge of landforms process and development of River, Wind and Wave action
CO4	To gain the knowledge of landforms process and development of Karst and Glacial action



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Physical Geography-II

CO1	To know the difference between Weather and Climate and knowledge of Atmospheric structure and composition, Insolation, Temperature and atmospheric pressure and knowledge of pressure belts
CO2	To acquire the knowledge of Winds and their classification, atmospheric disturbances and understand the Humidity and Precipitation
CO3	To acquire the knowledge of Sub-Marine relief features of Ocean, Salinity and Temperature of Oceans
CO4	To understand about the Wave and Tides and knowledge of Ocean Current and Deposits

Human Geography

CO1	To acquire the knowledge of objectives of Human and Economic Geography and their activities
CO2	To have the knowledge of Man and Environment and Resources
CO3	To acquire the knowledge of Major Human races and to know the knowledge of Population growth and their distribution
CO4	To acquire the knowledge of Human settlements and Urbanization and to understand the different crop patterns in the World



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Introduction to Geographical Information System(GIS)

CO1	To acquire the knowledge of Fundamentals of Geographical Information System, Data output, Input, Data Storage and Analysis
CO2	To understand Components of Geographic Information System
CO3	To have good knowledge of Data base Management System, Functions and Analysis
CO4	To have the knowledge of relation between R.S and GIS

Regional Geography of Asia - I (A1 Cluster)

CO1	To know the knowledge of Relief and Physical aspects of Asia
CO2	To acquire the knowledge of Natural Vegetation and Agriculture of Asia
CO3	To acquire the knowledge of Minerals and Industries of Asia
CO4	To understand the issues of Population and Urbanization

Regional Geography of A.P (B1 Cluster)

CO1	To acquire the knowledge of physical aspects, climate and drainage system of Andhra Pradesh
CO2	To understand the different types of soils and vegetation
CO3	To acquire the knowledge of Agriculture, Irrigation Projects and Minerals



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CO4	To acquire the knowledge of Population and Settlements
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