



SEETHALAKSHMI RAMASWAMI COLLEGE

(Autonomous)

Affiliated to Bharathidasan University

Tiruchirappalli-620 002

Accredited with A+ by NAAC (4th Cycle)



PROGRAMME OUTCOME
PROGRAMME SPECIFIC OUTCOME
COURSE OUTCOME

2024

Programme Outcomes
Undergraduate Programme (Arts)

On completion of the programmes, the students can

PO 1	Identify, interpret and explain the introductory as well as the fundamental concepts specific to the disciplines of Arts, Humanities and Languages, summarize the discipline-specific knowledge and develop communication skills
PO 2	Initiate, infer, relate and discover productive expression of discipline-specific skills, predict and expand critical thinking with respect to the application of theoretical cum practical knowledge
PO 3	Estimate and state the in-depth understanding of the academic knowledge proficiency, demonstrate problem-solving skills, analytical reasoning, integrate experiential and self-directed learning
PO 4	Survey, analyse and be appraised with the application of sustainable practices, scientific learning modules, needs of higher education, research and collaboration
PO 5	Recognize and prioritise moral, ethical, human and social values in personal, professional and social life, Prepare for empowerment, national development through leadership qualities, explore and engage in life-long learning

Undergraduate Programme (Science)

Upon completion of the programmes, graduates can

PO1	Acquire a comprehensive understanding of disciplinary knowledge integrating Indian Knowledge System (IKS), exhibiting proficiency in enhanced communication skills, information and digital literacy
PO2	Identify, analyse and solve new challenges with their problem-solving skills, honed with analytical reasoning, strengthened by the acquisition of theoretical foundations and practical skills, which boost the productivity in collaborative team work
PO3	Foster creativity to enhance employability, entrepreneurial skills, promote opportunities for higher education and to initiate proactive steps for building a sustainable environment leading to economic independence and leadership qualities
PO4	Promote self-paced and self-directed learning to improve scientific knowledge and research related skills to address emerging professional challenges and societal needs
PO5	Demonstrate the ability to identify ethical, moral, and social values, in order to achieve multicultural competence enabling women empowerment and national development

Undergraduate Programme
(Commerce and Business Administration)

On completion of the programme, the graduates can

PO1	Acquire and demonstrate the theoretical and practical application of Accounting, Management, Marketing strategies and techniques, enable critical thinking with analytical ability, meet business requirements and obtain communication skills
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PO2	Understand, Identify, Illustrate, Apply, Analyse and Interpret the discipline-specific knowledge and Indian knowledge system, attain Proficiency in Digital Literacy to draw valid conclusions in order to manage business effectively
PO3	Discuss, evolve, integrate and evaluate the wide spectrum of disciplinary knowledge in Commerce and Management, Exhibit leadership Qualities with reflective thinking to initiate business, undertake employment leading to women empowerment and national development for sustainable development
PO4	Explore the basic disciplinary knowledge and professional skills required to undertake the courses like Chartered Accountancy, Certified Management Accountancy, Associate Company Secretaryship, MBA, MSW, MHRM, develop knowledge level for higher studies and to engage in lifelong learning
PO5	Apply and Analyse the research related skills, exhibit a sense of inquiry to identify, analyse, obtain problem solving skills by prioritizing cultural, ethical and moral values

Postgraduate Programme(Arts)

On completion of the programmes, the students can

PO 1	Understand various cultures, identify values, apply them in a global perspective with multicultural competency, asses and demonstrate a higher level of experience and expertise in theoretical and practical application of discipline-specific knowledge and Indian Knowledge System (IKS)
PO 2	Develop research related skills, examine the correlations and interrelationship between relevant questions to formulate hypotheses, evaluate the results, engage in independent, innovative investigations for professional, self-employment and entrepreneurial ventures
PO 3	Acquire scientific reasoning, reflective thinking, problem-solving skills along with information and digital literacy and use ICT tools effectively
PO 4	State, analyse, interpret the knowledge, ideas and innovations in specific domains to establish and appraise self-sustaining, collaborative initiatives for domain-specific needs
PO 5	Integrate acquired knowledge to invent constructive, need-based solutions, create a comprehensive, co-operative environment, engage in team work, contribute to sustainable development and gain professional competency with leadership readiness

Postgraduate Programme(Science)

Upon completion of the programmes, graduates can

PO1	Demonstrate a high level of expertise in theoretical and practical disciplinary knowledge which amalgamates Indian Knowledge System (IKS) that hones a holistic development with enhanced communication skills, information and digital literacy
PO2	Acquire highly developed scientific reasoning, critical abilities, problem solving and reflective thinking, along with research-related skills, enabling independent innovative investigations for entrepreneurial and self-employment ventures
PO3	Become empowered with leadership readiness, environmental awareness, professional

	training for competitive and qualifying examinations from the periodical training and academic proficiency
PO4	Identify, analyse and solve new challenges with analytical reasoning, strengthened by the acquisition of theoretical foundations and practical skills, which boost the productivity in collaborative team work
PO5	Gain moral and ethical awareness to contribute to society and industry, offer impactful, innovative solutions, achieve sustainable development and engage in life-long learning

**Postgraduate Programme
(Commerce and Business Administration)**

On completion of the programme, the graduates can

PO1	Apply disciplinary knowledge in the fields of Finance, taxation and accounting to solve business problems, promote critical thinking skills, and analytical reasoning abilities for making managerial decisions in disciplines specific to the fields of Commerce and Management
PO2	Enhance the ability to compete in the modern digital world by the application of latest technology in various business fields and to inculcate digital literacy to achieve the organizational objectives
PO3	Develop team work spirit, leadership qualities, identify key areas to manage the projects, lead the team by formulating vision, setting goals, directing and motivating human resources and to enable self directed learning to manage multi cultural environment
PO4	Instigate critical thinking and scientific reasoning abilities in their minds to improve research skills
PO5	Gain wide spectrum of disciplinary knowledge in the fields of management, to enable and facilitate problem solving skills

B.Sc. BIOCHEMISTRY

PROGRAMME SPECIFIC OUTCOMES	
PSO 1	Recall, Quote and interpret the relationship between structure and functions of biomolecules at cellular level, identify and list the core biochemical principles and processes of metabolic pathways in living organisms. Demonstrate comprehensive knowledge of biochemical principles and their applications.
PSO 2	Infer and execute the analytical and hands on training skills to develop and carryout the ability of leadership skills to manage challenges and social issues in multidisciplinary environments and exhibit competence in laboratory techniques, ensuring adherence to safety protocols and best practices in handling biochemical materials.
PSO 3	Categorize and conduct the experimental studies to measure the concentration of biomolecules to analyse and differentiate the values in healthy and diseased condition, to enhance employability, entrepreneurial skills, promote opportunities to cultivate the ability to engage in lifelong learning and professional development in biochemistry that updated with advancements in the field.
PSO 4	Create and Evaluate information from a wide range of sources in order to communicate ideas, concepts and construct arguments in both scientific and non-scientific language through Indian Knowledge System (IKS) that formulate a holistic development with enhanced communication skills through written reports, oral presentations and discussions with peers and professionals and digital literacy.
PSO 5	Design an independent research project addressing a specific area of Life sciences, develop the proposals and ability to conduct literature reviews and experimental design and devise the moral and ethical awareness to contribute to society and industry that offer impactful, innovative solutions.

CORE COURSE - I		
CHEMISTRY OF BIOMOLECULES		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Predict the structure of macro molecules and micro molecules	K1
CO2	Apply the knowledge in the classification and properties of carbohydrates	K2
CO3	Differentiate the fatty acids and lipids with their importance	K3
CO4	Analyze the Structure, biochemical activities and uses of amino acids.	K4
CO5	Compile the role of proteins in Biological system	K5

FIRST ALLIED COURSE-I		
GENERAL CHEMISTRY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the basic principles and laws of chemistry, classify the elements and study the atomic and molecular structure, chemical bonding and reaction kinetics.	K1
CO2	Identify and predict the formation of chemical bonding, Resonance and its significance, Homolytic and heterolytic reactions and isomerism and stereoisomerism	K2
CO3	Demonstrate the classification of elements into s, p, d, and f blocks, the Intermolecular Forces and Hybridization	K3
CO4	Categorize the types bonding in carbon compounds of organic reactions and tests for chirality.	K4
CO5	Appraise the various quantum numbers, mechanism free radical reactions and Stereochemical notation.	K5

CORE COURSE - II		
CELL BIOLOGY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the basic concepts of cell theory and List out the role of cells as the fundamental units of Life, importance of sub cellular organelles.	K1
CO2	Describe structure and infer the functions of plasma membrane and cellular organelles	K2
CO3	Indicate the chemical composition of important cellular constituents and infer the biological importance.	K3
CO4	Categorize and Examine the types of cells, cellular processes and their biological significance to enhance scientific knowledge.	K4
CO5	Evaluate and assess the role of cell biology and its unique features in health and diseased condition in biological systems.	K5

FIRST ALLIED COURSE-II		
BIOPHYSICAL CHEMISTRY		
Course Outcomes (CO)		Knowledge Level
	CO-Statements	
	On completion of this course, students will be able to	

CO No.		
CO1	Memorize the importance of H ₂ O and electrolytes. State the basic concepts of diffusion, viscosity and colloids.	K1
CO2	Understanding the Laws of mass action, diffusion, viscosity and adsorption.	K2
CO3	Analyze the properties of physio- chemical forces in biological systems.	K3
CO4	Compute the methods to determine pH, osmotic pressure and viscosity of fluids.	K4
CO5	Appraise the biological significance of water, hypothesize the mechanism of diffusion, osmosis, surface tension and colloids.	K5

CORE PRACTICAL -I		
MICROSCOPIC AND BIOMOLECULE ANALYSIS		
Course Outcomes (CO)		Knowledge Level
	CO-Statements	
CO No.	On completion of this course, students will be able to	
CO1	List out the content of sugars, amino acid, protein from food stuffs using different qualitative analysis	K1
CO2	Identify the type of fatty acid in oils	K2
CO3	Infer the adulterants in different foodstuffs	K3
CO4	Examine the bacteria by Gram's and differential staining methods	K4
CO5	Evaluate and quantify the content of Biopolymers from various food samples	K5

FIRST ALLIED PRACTICAL		
BIOPHYSICAL CHEMISTRY		
Course Outcomes (CO)		Knowledge Level
	CO-Statements	
CO No.	On completion of this course, students will be able to	
CO1	Find out the normality of different acids	K1
CO2	Infer the normality of various alkalis	K2
CO3	Prove the hardness of water from different water samples	K3
CO4	Distinguish the pH of various buffer solution	K4
CO5	Assess the working method of pH meter	K5

CORE COURSE-III		
TECHNIQUES IN BIOCHEMISTRY		
Course Outcomes (CO)		Knowledge Level
	CO-Statements	

CO No.	On completion of this course, students will be able to	
CO1	State the principles of various fundamental analytical techniques in biochemistry.	K1
CO2	Summarize the working methodology of different microscopic, photometric chromatographic, electrophoretic, centrifugation and radioactive techniques.	K2
CO3	Produce absorption spectra of biomolecules, chromatographic data, band patterns for molecular size determination in electrophoresis.	K3
CO4	Analyze the applications of spectrophotometry, chromatography, electrophoresis, molecular probes and radioisotopes	K4
CO5	Perceive proficiency in using advanced biochemical instruments such as mass spectrometers, spectrophotometers, and gel electrophoresis apparatus to analyze biomolecules	K5

ALLIED COURSE-I		
BASIC BIOCHEMISTRY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify and describe the chemical structure of Biomolecules.	K1
CO2	Classify the different types of carbohydrate, amino acids, protein, lipids and nucleic acids.	K2
CO3	Apply the knowledge of biomolecules in various biological functions of living system.	K3
CO4	Compare the properties of biomolecules and explain its significance.	K4
CO5	Summarize the importance of macromolecules in structural organization of living organism.	K5

NON MAJOR BASED ELECTIVE- I		
BIOMOLECULES		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Outline the structure of carbohydrate, protein, lipids and nucleic acids	K1
CO2	Demonstrate and identify the various methods of biomolecules.	K2
CO3	Explore the properties of biomolecules carbohydrate, protein, lipids and nucleic acids and vitamins and its	K3

	biological role.	
CO4	Investigate the effects of biopolymers and vitamins in health.	K4
CO5	Criticize the functions of biomolecules in living organism.	K5

SKILL BASED ELECTIVE - I		
HERBAL MEDICINE		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recognize and classify phytochemicals into the respective groups, Describe various extraction methods in phytochemical analysis.	K1
CO2	Discuss the importance of primary and secondary metabolites, their screening tests and scope of pharmaconosy to promote health.	K2
CO3	Compute the medicinal properties and uses of a range of herbs, vegetables and fruits used in common ailments and their pharmacological effects.	K3
CO4	Analyze the importance of authentication and propose nutritive and medicinal properties of herbs in day-to-day life.	K4
CO5	Develop skills in identification of herbs, their properties and uses of commonly used herbs Indian medicine systems	K5

CORE COURSE - IV		
ENZYMOLGY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Memorize the nomenclature, classification of enzymes, characteristics of coenzymes, immobilized enzymes and various methods in enzyme kinetics	K1
CO2	Identify the mechanism of enzyme action, enzyme catalysis, factors affecting enzyme activities and applications of enzymes in various fields	K2
CO3	Demonstrate the enzyme expression units, modifiers of enzymes activity and enzyme regulation including allosteric regulation and inhibitors and three dimensional structures of enzymes.	K3
CO4	Analyze the types of enzymes, develop practical skills such as enzyme purification and kinetic studies	K4
CO5	Predict the active sites, principle and applications of biosensors and biochips, Compile the industrial and explain the therapeutic applications of enzymes and clinical	K5

	importance of enzyme inhibitors.	
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SECOND ALLIED COURSE-II		
MICROBIAL BIOCHEMISTRY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the fundamental concepts of microbial metabolism including catabolic and anabolic pathway.	K1
CO2	Compare the role of enzymes in metabolic pathway.	K2
CO3	Explain the aerobic and anaerobic respiration in various microbial systems.	K3
CO4	Analyze the key metabolic pathways such as carbohydrate, lipids and nucleic acids.	K4
CO5	Summarize the synthesis and degradation process of biopolymers.	K5

NON MAJOR BASE ELECTIVE -II		
DIAGNOSIS OF DISEASES		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Point out the normal and abnormal counts in blood and human diseases.	K1
CO2	Identify common sign and symptoms associated with major human diseases across various system.	K2
CO3	Explain the pathophysiological basis of common diseases affecting major organ system.	K3
CO4	Analyze laboratory and diagnostic test results to support accurate diagnosis.	K4
CO5	Compose the functions of vital organs.	K5

SKILL BASE ELECTIVE - II		
DRUG BIOCHEMISTRY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Enlist the sources, classification of drugs and understand how drugs are absorbed, distributed, metabolized, and excreted and how they produce their effects.	K1
CO2	Discuss about orally administered drugs, injectables, aerosol, anaesthetics, antidepressants, antiseptics and solid	K2

	preparations with standard protocols.	
CO3	Demonstrate the interaction of drugs with their targets at the molecular level, including the molecular basis of drug design and action, metabolic pathways, adverse effects, and therapeutic value.	K3
CO4	Examine the relationship between the pharmacology of a disease and its treatment or prevention and the mechanism of action of antibiotics, gastro intestinal drugs and CNS drugs	K4
CO5	Assess the active constituents of drugs, various pharmaceutical dosage forms, basic pharmacological actions of different categories of drugs acting on various systems	K5

CORE COURSE –V		
MOLECULAR BIOLOGY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall and define the molecular organization of genetic material, structure, and composition of nucleic acids and their role in heredity.	K1
CO2	Explain and interpret the mechanisms of replication, transcription, and translation, demonstrating an understanding of the central dogma and regulatory processes.	K2
CO3	Apply molecular biology principles to analyze gene expression, operon models, and the function of enzymes involved in nucleic acid.	K3
CO4	Analyze molecular interactions governing gene regulation, mutation, and repair mechanisms to differentiate normal and altered genetic functions.	K4
CO5	Evaluate recent advances and experimental applications in molecular biology to design innovative approaches for genetic analysis and research.	K5

CORE COURSE-VI		
METABOLISM		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the basic concepts of metabolism and identify the major biomolecules involved in metabolic pathways	K1
CO2	Explain the steps, intermediates and role of enzymes in carbohydrate, lipid protein and nucleic acid metabolism	K2

CO3	Apply knowledge of metabolic pathways to interpret the flow of energy and metabolites in living systems	K3
CO4	Analyze the interrelationship of major metabolic pathways under normal and altered physiological conditions.	K4
CO5	Evaluate the biochemical basis of metabolic disorders and the role of coenzymes and hormones in metabolism	K5

CORE COURSE –VII		
GENETICS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Examine the fundamental principles of inheritance, including Mendelian and Non mendelian patterns of genetic transmission.	K1
CO2	Describe the structure and functions of genetic materials in prokaryotes and Eukaryotes.	K2
CO3	Acquire the knowledge in Mechanism of sex linkage and sex determination.	K3
CO4	Evaluatve the applications of genetics in biotechnology, medicine, agriculture and evolutionary biology.	K4
CO5	Summarize molecular basis of genetic diseases and repair mechanism.	K5

CORE PRACTICAL – III		
PHYTOCHEMICAL ANALYSIS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Know the importance of primary and secondary metabolites	K1
CO2	Identify medicinal plants and plant materials used for phytochemical screening.	K2
CO3	Implement qualitative tests to detect various phytochemicals such as alkaloid, flavonoids, tannins, saponins, terpenoids and glycosides.	K3
CO4	Estimate quantitatively the concentration of major phytochemicals by standard biochemical methods	K4
CO5	Interpret and document experimental results and correlate phytochemical profiles with pharmacological activities.	K5

MAJOR BASED ELECTIVE-I

PLANT AND MICROBIAL BIOCHEMISTRY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Describe the structure and function and metabolism of biomolecules in plants and microorganism.	K1
CO2	Elaborate the biochemical process involved in photosynthesis, respiration and nitrogen metabolism in plant and bacteria.	K2
CO3	Illustrate the role of enzymes, coenzymes and secondary metabolites in plant metabolism and physiology.	K3
CO4	Analyze the regulation and integration of various metabolic pathway of plant and bacteria cell metabolism.	K4
CO5	Review biochemical principles, to understand plant growth, stress responses an adaptation mechanism.	K5

SKILL BASED ELECTIVE-III		
NUTRITIONAL BIOCHEMISTRY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify and recall the fundamental concepts of nutrition, classify food groups, and recognize the basic principles of a balanced diet and dietary recommendations.	K1
CO2	Describe and explain the biochemical basis of energy metabolism, basal metabolic rate, and the nutritional importance of macronutrients and micronutrients.	K2
CO3	Demonstrate the ability to apply nutritional biochemistry concepts in assessing dietary intake, estimating energy needs, and evaluating nutrient utilization.	K3
CO4	Examine and interpret the biochemical alterations associated with nutritional disorders and therapeutic dietary interventions for various physiological and pathological conditions.	K4
CO5	Formulate, justify, and develop the evidence-based dietary plans for individuals across different life stages and health conditions, integrating innovative approaches in nutrition and wellness.	K5

CORE COURSE-VIII		
ENDOCRINOLOGY		
Course Outcomes (CO)		Knowledge Level
	CO-Statements	

CO No.	On completion of this course, students will be able to	
CO1	Recall the structure, location and functions of major endocrine glands and biochemical nature of hormones.	K1
CO2	Explain the biosynthesis, secretion and mechanism of action of peptide, steroid and amino acid derived hormones	K2
CO3	Apply the principles of endocrine regulation to understand feedback mechanisms and hormonal balance in various physiological conditions.	K3
CO4	Analyze the interrelationship between different endocrine glands and their role in maintaining homeostasis.	K4
CO5	Evaluate the physiological, biochemical and pathological implications of hormone imbalances and endocrine disorders in diabetes, hypothyroidism and Cushing's syndromes.	K5

CORE COURSE-IX		
CLINICAL BIOCHEMISTRY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Outline the principle and procedure of biochemical test used in the diagnosis and monitoring of various clinical conditions.	K1
CO2	Comprehend the biochemical basis of human diseases and disorders including metabolic abnormalities and the role of biomarkers.	K2
CO3	Interpret diagnostic test results and correlate with clinical findings for effective diagnosis and treatment planning.	K3
CO4	Analyze the body fluids to determine the concentration of biochemical substance.	K4
CO5	Summarize the causes, symptoms and treatment of metabolic disorders.	K5

CORE PRACTICAL- IV		
BLOOD AND URINE ANALYSIS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Examine the hematological studies.	K1
CO2	Compare the normal and abnormal values of biochemical parameters.	K2
CO3	Apply the proper methods for specimen collection, handling and transport.	K3

CO4	Diagnose the biochemical constituents in blood serum and urine.	K4
CO5	Assess the level of marker enzymes activity.	K5

MAJOR BASED ELECTIVE-II		
IMMUNOLOGY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	List and identify the principal cells, organs and molecules of the immune system and outline their primary roles in maintaining host defense.	K1
CO2	Summarize and interpret the structural organization and functional significance of antigens, antibodies, and complement pathways in immune responses.	K2
CO3	Demonstrate the practical competence in performing and interpreting basic immunological assays to detect antigen-antibody reactions and immune markers.	K3
CO4	Differentiate and analyze the molecular mechanisms involved in hypersensitivity, autoimmune reactions, and graft rejection processes.	K4
CO5	Formulate and justify the innovative immunological strategies for vaccine production, immunodiagnostics, and therapeutic applications with ethical and biosafety awareness.	K5

MAJOR BASED ELECTIVE - III		
HUMAN PHYSIOLOGY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recognize and describe the organization of major organ systems, their structural components, and the physiological roles of body fluids and blood.	K1
CO2	Explore the mechanisms involved in digestion, absorption, circulation, respiration, excretion, and neural communication in maintaining body homeostasis.	K2
CO3	Apply physiological principles to analyze the interrelationships between different organ systems during normal and altered functional states.	K3
CO4	Examine and interpret the biochemical and physiological processes underlying muscle contraction and nerve transmission.	K4
CO5	Assess and integrate physiological data to design approaches for health improvement, demonstrating	K5

	awareness of ethical, clinical, and technological applications of human physiology.	
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B.Sc. BIOTECHNOLOGY

PROGRAMME SPECIFIC OUTCOMES	
PSO 1	Recall, understand, Analyze the basic principles, Evaluate the applications of specific disciplines incorporating Indian knowledge systems (IKS), to develop problem solving skills and statistical skills a in the field of biotechnology and acquire good oral and written communication skills.
PSO 2	Identify, interpret and examine the complex problems with scientific reasoning in a collaborative team work in the various domains of Biotechnology to promote entrepreneurial development with environmental awareness. Implement skills and knowledge acquired in skill imparting and entrepreneurial courses in upcoming fields of Biotechnology.
PSO 3	Define, Describe, summarize, plan and compute knowledge in scientific fundamentals and acquire comprehensive understanding of the principles and practices of biotechnology including skill-based concepts and combine experimental and computational approaches to design and perform experiments proficiently to develop innovative and critical thinking, leadership qualities and self employment in the field of biotechnology.
PSO 4	Understand, examine, acquire, assess the technological proficiency, integrating digital literacy and execute interdisciplinary research in the field of biotechnology industries with innovative investigation and reflective thinking for personality development.
PSO 5	State and recognize the importance of Bioethics, IPR, entrepreneurship, Communication and management skills so to be ready to achieve competence for higher studies, research and be employment equipped in the domain of Biotechnology and allied fields to conduct original research. Appraise and formulate a sense of social, ethical, environmental and professional responsibility for lifelong learning.

CORE COURSE-I		
CELL BIOLOGY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Understand and compare the structure of prokaryotic and eukaryotic cells to gain insight into the cell as the fundamental unit of life and create a comparison model	K1
CO2	Analyze and evaluate the structure and function of cell organelles and the cell membrane Apply this knowledge to analyze their roles in cell function. Evaluate effects of changes and create structural models to build a strong foundation in cellular biology.	K2

CO3	Describe, explain, and analyze the structure and functions of nucleic acids, and discuss the molecular mechanisms involved in replication, transcription, translation, and post-translational modifications, create diagrams to show these steps.	K3
CO4	Interpret and predict cellular responses to intra- and extracellular environments by evaluating intracellular signalling pathways and create response pathway models.	K4
CO5	Understand, explain, and analyze the molecular mechanisms and principles involved in cellular differentiation, morphogenesis, growth, and cell potency and design models of developmental processes.	K5/ K6

FIRST ALLIED COURSE-I		
MICROBIOLOGY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Describe cellular, biochemical, and physiological Aspects of microorganisms and distinguish the similarities and differences between microbial groups.	K1
CO2	Explain cellular level processes and connect the Biochemical process involved in pathogenesis.	K2
CO3	Apply and infer the microbiological techniques to solve scientific problems and examine the different nutrition source.	K3
CO4	Describe the cultural use of microorganisms in food production, medicine, fuel production, and waste treatment.	K4
CO5	Create awareness for the disease causing Microorganisms and defend the body through detection.	K5/ K6

CORE COURSE-II		
MOLECULAR BIOLOGY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify and acquire understanding the concept of cells, gene and DNA. Will be able to design and implement experimental procedures using relevant techniques.	K1
CO2	Summarize and interpret the different types of RNA and mechanisms of transcription.	K2
CO3	Demonstrate and construct the various types of ribosomes and mechanism of translation, modifications, create diagrams to show these steps.	K3

CO4	Analyze and categorize the regulatory mechanisms involved in gene expression in prokaryotes and eukaryotes.	K4
CO5	Formulate, opine and assess the processes affecting the central dogma of life.	K5/ K6

CORE PRACTICAL-I		
CELL AND MOLECULAR BIOLOGY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Understand the molecular events of the cell cycle, its regulation, and cell division, integrating scientific reasoning and digital literacy to foster communication skills and apply ethical principles in biotechnological research for sustainable development.	K1
CO2	Identify and analyze chromosomal arrangements during cell division, using analytical reasoning and collaborative teamwork to solve biotechnological problems and enhance productivity in research .	K2
CO3	Examine the effect of Colchicines on chromosome movements during mitosis, applying ethical reasoning and problem-solving skills to assess biotechnological implications for societal development and multicultural competence.	K3
CO4	Understand the mobility of macromolecules in electrophoresis, using scientific reasoning to enhance research skills and apply problem-solving techniques to address emerging professional challenges in biotechnology.	K4
CO5	Estimate DNA from plants, microbes, and animals, applying scientific principles and techniques to solve biotechnological challenges, while improving communication skills and digital literacy.	K5/ K6

FIRST ALLIED COURSE-II		
IMMUNOLOGY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify, describe, and analyze the major components of the immune system at organ, cellular, and molecular levels, integrating technological tools and interdisciplinary approaches to advance research and innovation in biotechnology.	K1
CO2	Understand, explain, and compare immunoglobulin types and apply techniques for antigen-antibody interactions,	K2

	fostering creativity and entrepreneurial skills to drive innovation and promote opportunities for higher education and sustainable biotechnological solutions.	
CO3	Explore and assess the immune response, applying immunological principles to address societal challenges and ethical issues in biotechnology, fostering social responsibility and multicultural competence.	K3
CO4	Define and discuss disease conditions like autoimmunity and immunodeficiency, applying scientific reasoning and problem-solving skills to address biotechnological challenges through teamwork.	K4
CO5	State and formulate the basis for vaccination and transplantation challenges, using immunological principles to analyze biotechnological problems enhancing communication skills, information literacy, and digital proficiency in biotechnology research.	K5/ K6

ALLIED PRACTICAL		
MICROBIOLOGY AND IMMUNOLOGY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify the procedure for staining process and basic bacterial shapes from their observation.	K1
CO2	Explain the principles of sterilization methods and their applications of various sterilization methods in microbiology.	K2
CO3	Apply and knowledge to the steps for preparing, sterilizing, and pouring culture media to support microbial growth.	K3
CO4	Analyze the presence or absence of agglutination to determine blood group or antigen-antibody specificity about immunological techniques.	K4
CO5	Demonstrate and Evaluate the effectiveness and applications of agar gel diffusion, hemagglutination in detecting antigen and antibodies.	K5/ K6

CORE COURSE- III		
GENETICS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Explain the contributions of Gregor Mendel and describe his experiments with the garden pea to demonstrate foundational principles of genetics.	K1

CO2	Apply Mendel's Law of Dominance and Law of Segregation by constructing and analysing Punnett Squares to predict inheritance patterns.	K2
CO3	Predict the probability of a child inheriting specific traits by calculating genetic ratios and interpreting Mendelian principles.	K3
CO4	Examine, Analyze the process of crossing over and illustrate how it contributes to the recombination of alleles at gene loci located on the same chromosome.	K4
CO5	Apply the principles of the Hardy-Weinberg equilibrium to calculate allele frequencies, determine heterozygote carrier frequencies, and evaluate the genetic structure of populations.	K5/ K6

SECOND ALLIED COURSE- I		
BIOTECHNOLOGY-I		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Understand the history, scope, and applications of biotechnology in various fields like medicine, agriculture, environment, and industry.	K1
CO2	Explain fundamental concepts of microbiology, including the principles of microscopy, bacterial structure, and staining methods, and apply techniques of pure culture and microbial control	K2
CO3	Apply knowledge of plant tissue culture techniques for the preparation of media, isolation of single cells, protoplasts, and various culture types, including cryopreservation.	K3
CO4	Analyze the requirements and techniques involved in animal tissue culture, including isolation, primary cell culture, cell lines, and their applications	K4
CO5	Evaluate the clinical applications of recombinant technology in producing pharmaceutical products, blood substitutes, and therapeutic enzymes.	K5/ K6

NON MAJOR ELECTIVE-I		
BIOTECHNOLOGY FOR HUMAN WELFARE		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify human friendly viruses, bacteria, algae and appreciate their economic importance.	K1
CO2	Understated about the benefits of Green manures and	K2

	organic fertilizers and use them in their daily life.	
CO3	Apply the economic factors associated with mushroom cultivation.	K3
CO4	Analyze the use of microbes in industries such as dairy and medicines.	K4
CO5	Evaluate the process for maintenance and preservation of microorganisms.	K5/ K6

SKILL BASED ELECTIVE-I		
BIOINSTRUMENTATION		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify human friendly viruses, bacteria, algae and appreciate their economic importance	K1
CO2	Understand about the benefits of Green manures and organic fertilizers and use them in their daily life.	K2
CO3	Apply the economic factors associated with mushroom cultivation.	K3
CO4	Analyze the use of microbes in industries such as dairy and medicines.	K4
CO5	Evaluate the process for maintenance and preservation of microorganisms.	K5/ K6

CORE COURSE- IV		
GENETIC ENGINEERING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Understand, explain, apply, analyze, evaluate, and create innovative approaches using the fundamental principles, tools, and techniques of genetic manipulation in diverse contexts.	K1
CO2	Identify, describe, utilize, analyze, assess, and design applications of DNA and cDNA libraries in genetic engineering and research.	K2
CO3	Recognize, discuss, employ, investigate, evaluate, and develop advanced tools and techniques used in genetic engineering to solve complex problems.	K3
CO4	Recall, describe, implement, analyze, evaluate, and innovate gene isolation and PCR-based cloning techniques for research and industrial applications.	K4
CO5	Understand, explain, apply, interpret, assess, and contribute	K5/ K6

	to genetic engineering practices in biotechnology, pharmaceuticals, and R&D laboratories while addressing ethical and societal impacts.	
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CORE PRACTICAL – II		
GENETICS AND GENETIC ENGINEERING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Remember and understand the basics of DNA and plasmid structure, apply techniques to isolate and quantify them analyze purity, evaluate results, and devise improved extraction protocols.	K1
CO2	Define the principles of blotting and PCR, interpret the workflow, use the techniques, and explore the nucleic acid bands and examine accuracy and design diagnostic procedures.	K2
CO3	Identify Mendelian genetics and classify patterns of inheritance, assess this knowledge to pedigree analysis and chromosomal abnormalities and validate case data, appraise genetic disorders, and formulate inheritance models. .	K3
CO4	Recognize protein structures and describe electrophoresis, employ separation techniques, investigate band patterns, and categorize resolution. Develop better protocols for protein analysis. .	K4
CO5	List cell components and explain their functions to perform observations of cells, map their growth, measure experimental results and create models to study cell multiplication. Recollect heredity laws and express how traits are passed on, implement genetic rules to solve inheritance problems, differentiate trait distribution, rate patterns, and construct simulations based on heredity.	K5/ K6

SECOND ALLIED COURSE II		
BIOTECHNOLOGY-II		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Understand and compare the basic tools and techniques used in genetic engineering.	K1
CO2	Explain how DNA is structured and organized in the human genome.	K2
CO3	Identify diseases using DNA-based diagnostic tools and biomarkers.	K3

CO4	Summarize about gene therapy methods, delivery techniques, and safety concerns.	K4
CO5	State, examine and understand the principles and techniques used in DNA profiling and forensic science.	K5/ K6

SECOND ALLIED PRACTICAL-II		
BIOTECHNOLOGY I & II		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Understand and apply laboratory safety protocols and basic requirements for conducting microbiological and biotechnological experiments.	K1
CO2	Demonstrate techniques in cell isolation, including protoplast isolation using mechanical methods and immobilization of cyanobacterial cells.	K2
CO3	Perform biochemical analysis by isolating and quantifying pigments from biological samples, and evaluating microbial fermentation processes like wine and ethanol production.	K3
CO4	Apply molecular biology techniques such as Polymerase Chain Reaction (PCR) for the amplification of genetic material.	K4
CO5	Execute procedures for the isolation, cultivation, and identification of agriculturally and environmentally important microbes such as <i>Rhizobium</i> , <i>coliforms</i> , and hydrocarbon-degrading bacteria.	K5/ K6

NON MAJOR ELECTIVE-II		
BIOTECHNOLOGY FOR ENVIRONMENTAL RESTORATION		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify, Recall and list the environmental factors contributing to pollution, and factors responsible for the pollution.	K1
CO2	Understand and explain the microbial treatment methods utilized for managing sewage and industrial effluents.	K2
CO3	Apply knowledge of contaminant characteristics to understand their role in facilitating bioremediation.	K3
CO4	Internalize and apply the significance of bio fuels and organic farming.	K4
CO5	Provide solutions for environmental problems and understand legal aspects related with environmental issues.	K5/ K6

SKILL BASED ELECTIVE-II		
PLANT TISSUE CULTURE		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	List out the Plant tissue culture techniques, preparation of culture medium.	K1
CO2	Know the principles of cell culture techniques; identify the importance of sterility and good aseptic techniques.	K2
CO3	Demonstrate protoplast fusion using PEG	K3
CO4	Explain the micro propagation and <i>invitro</i> conservation process.	K4
CO5	Gain and apply comprehensive knowledge on GM technology, Bio-Safety relations and Germplasm Storage.	K5/ K6

ENZYME AND ENZYME TECHNOLOGY		
CORE COURSE -V		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Describe the types, structure, and roles of enzymes, coenzymes, and cofactors; compare different enzymes and their functions; evaluate their biological importance and simple models to show how they work.	K1
CO2	Discuss where enzymes come from and how to extract and purify them; use different techniques to separate and analyze enzymes; test purity and design a step-by-step purification process.	K2
CO3	Show how enzymes bind to substrates and catalyze reactions; apply concepts to study examples like lysozyme and chymotrypsin and compare with their efficiency, illustrate their mechanisms, effectiveness, and construct models to represent their action.	K3
CO4	Explain enzyme reaction rates and types of inhibition; use graphs to study kinetics and effects of factors like pH and temperature; blueprint experiments to test enzyme regulation.	K4
CO5	Prioritize enzymes used in industries and medicine; explain how they help in real-world processes; compare clinical enzymes, assess their usefulness, and explore new applications or products using enzymes.	K5/ K6
PLANT BIOTECHNOLOGY		
CORE COURSE -VI		

Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify the basic structure of the plant genome and recall how gene expression occurs.	K1
CO2	Explain the use of bioreactors for large-scale production of secondary metabolites using cell culture techniques.	K2
CO3	Apply different components of major plant tissue culture media to show how they contribute to successful tissue culture.	K3
CO4	Examine the principle of plant genetic engineering and its application	K4
CO5	Summarize about the mechanism of action by nitrogenase in nitrogen fixation	K5/ K6

ANIMAL BIOTECHNOLOGY		
CORE COURSE -VI		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Examine the principles of animal culture and media preparation.	K1
CO2	Explain the techniques, procedure, and growth patterns involved in animal cell culture.	K2
CO3	Apply the assisted reproductive technologies used in livestock and interpret their practical applications.	K3
CO4	Analyze the concepts of gene therapy to examine its effectiveness in treating various diseases.	K4
CO5	Evaluate the techniques used in transgenic animal technology and justify their applications.	K5/ K6

RESEARCH METHODOLOGY BIOTECHNOLOGY		
MAJOR BASED ELECTIVE-I		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify the skills in research problem, thesis writing and publication in journal.	K1
CO2	Discuss and illustrate the various methods of processing and Tabulate	K2
CO3	Classify and explain the various methods of central tendency and dispersion.	K3
CO4	Explain the basic concepts involved in testing of hypothesis	K4

CO5	Relate the results of the correlation coefficient and analyze the linear regression apply in APA format.	K5/ K6
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MOLECULAR MODELING AND DRUG DESIGNING		
SKILL BASED ELECTIVE-III		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall stages in drug discovery and define key terms in metabolism and toxicity. Explain pharmacokinetics and apply toxicology insights. Analyze limitations in development and examine their impact on drug success.	K1
CO2	Identify modeling tools and describe force field principles. Apply energy calculations and analyze molecular interactions. Judge model suitability for predicting drug behavior.	K2
CO3	Use steps in homology modeling and describe alignment and framework. Apply side chain refinement and analyze models via Ramachandran plot. Evaluate protein model accuracy and reliability.	K3
CO4	Explain SAR/QSAR concepts and physicochemical parameters. Apply correlation equations and analyze structure–activity trends. Assess QSAR models for drug optimization.	K4
CO5	Outline pharmacophore concepts and describe docking types. Apply ADME screening and docking methods. Analyze design strategies and appraise de novo approaches.	K5/ K6

CORE PRACTICAL –III		
ENZYME, PLANT AND ANIMAL BIOTECHNOLOGY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the enzyme catalyze reactions as well as enzyme kinetics and its applications.	K1
CO2	Describe the essential laboratory techniques used in plant biotechnology and interpret their basic applications.	K2
CO3	Explain the concepts of animal cell culture techniques	K3
CO4	Analyze the molecular principles underlying plant and animal biotechnology techniques to support the development and design of new biological products.	K4
CO5	Evaluate recent advances and innovative applications in plant and animal biotechnology to design sustainable solutions and formulate novel biotechnological products.	K5/ K6

PHARMACEUTICAL BIOTECHNOLOGY		
CORE COURSE-VIII		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the fundamentals of drug manufacturing and discovery, integrating the principles of drug design, quality control, and regulatory compliance in pharmaceutical industries.	K1
CO2	Explain the production, mechanism, and clinical applications of therapeutic enzymes and blood substitutes, emphasizing their biochemical and physiological significance in therapy.	K2
CO3	Produce the recombinant DNA technology in the large-scale production of therapeutic hormones and growth factors used in modern medicine.	K3
CO4	Evaluate the principles, production processes, and innovations in vaccine technology and antisense therapeutics for disease prevention and control.	K4
CO5	Integrate molecular, cellular, and therapeutic principles to design and evaluate gene therapy approaches for the treatment of genetic and acquired diseases.	K5/ K6

ENVIRONMENTAL BIOTECHNOLOGY		
CORE COURSE-IX		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall and explain the fundamental concepts of ecology and ecosystems, including abiotic and biotic components, and summarize the biochemical cycles of nitrogen, carbon, and phosphorus in maintaining environmental balance.	K1
CO2	Discuss the sources, nature, and types of environmental pollutants and analyze global pollution problems while illustrating the conversion of waste into renewable energy resources.	K2
CO3	Interpret the principles and analyze the stages of biological wastewater treatment (primary, secondary, and tertiary) and evaluate the mechanisms and applications of in situ and ex situ bioremediation techniques.	K3
CO4	Differentiate and assess the processes involved in biodegradation, biopilling, bioleaching, and biosorption, emphasizing microbial roles in pollutant degradation and resource recovery.	K4

CO5	Evaluate biomass as a renewable source of energy, compare thermochemical and biological conversion processes, and formulate strategies for the production of bioethanol and hydrogen for sustainable bioenergy development.	K5/ K6
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FERMENTATION TECHNOLOGY		
MAJOR BASED ELECTIVE -II		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	List the basic components of medium formulation and state their role in microbial fermentation.	K1
CO2	Describe how to calculate and explain the applications of bacteria, yeasts, moulds, and mammalian cells in different fermentation processes.	K2
CO3	Use the principles of microbial growth kinetics to illustrate the production of industrial products in fermentation processes.	K3
CO4	Point out the downstream processes of Mammalian cell culture and know about applications of Immobilized cells and enzymes.	K4
CO5	Explain the production of organic acids and antibiotics.	K5/ K6

BIOINFORMATICS, IPR AND BIOETHICS		
MAJOR BASED ELECTIVE -III		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall key concepts, scope, and applications of bioinformatics and computational tools to illustrate, employ, distinguish, justify, and construct the use of operating systems, programming languages, web platforms, and sequence retrieval systems like NCBI- Entrez.	K1
CO2	Show the sequencing techniques, genome projects, and proteomics tools while summarizing their goals and functions to demonstrate, break down, appraise, and formulate workflows using genomic and proteomic data, ORFs, ESTs, and microarrays.	K2
CO3	Explain the types and structures of primary, secondary, and composite databases and describe their functions to navigate, differentiate, critique, and integrate data from platforms like Gen Bank, SWISS-PROT, Ensembl, and PubMed.	K3
CO4	Examine the alignment algorithms and explain the logic behind local and global alignments to apply, investigate,	K4

	assess, and devise sequence analysis using tools like BLAST, FASTA, Clustal, and HMMs.	
CO5	Recognize the principles of homology, phylogenetics, intellectual property, and bioethics, and interpret phylogenetic relationships and tree structures to operate, examine, validate, and propose methods and frameworks for analyzing evolutionary data and managing ethical/legal issues in bioinformatics.	K5/ K6

CORE PRACTICAL -IV		
PHARMACEUTICAL AND ENVIRONMENTAL BIOTECHNOLOGY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recognize various microbiological and physicochemical methods for assessing the quality and purity of water, soil, and air samples.	K1
CO2	Identify and isolate environmentally significant microorganisms, including bacteriophages, xenobiotic-degrading bacteria, and metal-reducing bacteria, using selective enrichment and characterization techniques.	K2
CO3	Experiment the role of microbes in environmental processes such as bioremediation, waste degradation, and biogenic methane production.	K3
CO4	Analyze sterility testing procedures, interpret MIC values, and evaluate antibiotic microbiological assay results to assess the safety and therapeutic effectiveness of pharmaceutical products.	K4
CO5	Design and integrate advanced analytical and chromatographic techniques (TLC, HPLC, and GC) to develop robust qualitative and quantitative assessment methods for pharmaceutical compounds, including vitamins and bioactive molecules, ensuring quality assurance and standardization.	K5/ K6

BBA

PROGRAMME SPECIFIC OUTCOMES	
PSO 1	Identify, Understand, Analyse and apply the Disciplinary knowledge in functional areas of Management such as Human Resource, Production, marketing and Financial Management.
PSO 2	Define, Explain and Examine the theoretical knowledge to assess practical situations with reflective thinking in order to develop effective Business Plans, Prepare Financial Statement, Create Marketing Strategies and understand projects to solve real – world Business Challenges.
PSO 3	Determine the Leadership Qualities, Demonstrate the Problem Solving skills by gathering and assessing appropriate information and Develop the necessary Management skills for Effective Management of Business.
PSO 4	Enhance ability to strategically show research findings to improve decision-making processes and prepare business models, as well as research-related skills to recognize and analyse issues in business.
PSO 5	An Ability to adapt to dynamic changes in an environment with an understanding of societal and ecological issues relevant to professional managerial practice through life – long learning.

CORE COURSE- I		
PRINCIPLES OF MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify the importance of management process and some of the key skills required for the contemporary management practice.	K1
CO2	Understand the Evolution and Theories of Management.	K2
CO3	Apply knowledge of management theories and techniques to real-life business situations	K3
CO4	Analyse, infer and discover functional usage of language in formal and informal contexts, interpret the literal, figurative and thematic meaning embedded in literary texts.	K4
CO5	Assess the effectiveness of management principles and functions in achieving organizational goals in diverse scenarios.	K5/K6

SECOND ALLIED COURSE - I		
MANAGERIAL ECONOMICS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Understand the core concepts and principles of Managerial Economics.	K1
CO2	Apply demand and supply analysis to evaluate consumer and producer behavior.	K2
CO3	Analyze cost and revenue structures for business planning and pricing strategies.	K3
CO4	Examine market structures and their impact on pricing and competition.	K4
CO5	Develop critical thinking to solve business problems using economic concepts, principles of micro and macro economics and experiential tasks.	K5/K6

CORE COURSE - II		
FINANCIAL ACCOUNTING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the basic concepts, conventions, principles, and practices, Identify the needs, Classifications and limitations of Accounting.	K1
CO2	Understand the fundamentals of book keeping Infer the advantages of Subsidiary books and enter accounting transactions in the appropriate books.	K2
CO3	Apply accounting rules in determining financial results and preparation of financial statement to identify the profit and loss.	K3
CO4	Analyse and examine the steps in preparing the Final Accounts of a sole trader and a Non –Profit Organisation.	K4
CO5	Determine and assess the financial position of a business Entity and comprehend the different kinds of frameworks that are used to address organisation challenges.	K5/K6

CORE COURSE - III		
MANAGERIAL COMMUNICATION		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall and Identify the fundamental concepts, models, and barriers of communication in a business context.	K1
CO2	Explain the significance and Challenges in verbal, non-verbal and Electronic communication skills.	K2
CO3	Apply and construct the communication strategies to prepare professional documents such as reports, Business Letters, Interview Letters and Writing effective E- mails for Organisational effectiveness.	K3
CO4	Compare the communication channels in an organization and list the various kinds of Business letters and Characteristics of Good reports.	K4
CO5	Interpret and Explain the contents of Application Letter, Bio –Data ,Reference Letter, Confirmation and Resignation Letter	K5/K6

CORE COURSE -V		
BUSINESSENVIRONMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Define and Discover the conceptual knowledge on economic and noneconomic environment in business, industrial policies and different types of economic system	K1
CO2	Understand the different modes of engagement with markets and explore the interconnections between these and the economic, legal, governmental, political, regulatory, Technology for the expansion of business.	K2
CO3	Illustrate the various environments on business, the pros and cons of new industrial policy, benefits and against both economic and social settings while keeping economic planning in mind.	K3
CO4	Connect the Knowledge on national and international opportunities for business.	K4
CO5	Interpret the best possible method to overcome the challenges arising from changes taking place in the business environment and Design a technique which would help a business unit to get the first moves advantages	K5/K6

CORE COURSE - IV		
HUMAN RESOURCE MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the Basic Concepts of Human Resource Management and Identify the Recruitment Process, Training needs, Process of Appraisal System.	K1
CO2	Show the importance of recruitment, selection and Performance Appraisal procedure in an organization.	K2
CO3	Illustrate the Sources of Recruitment, Steps in selection and Interview, Types of Training.	K3
CO4	Identify the objectives, importance of Training and need for Human Resource Information System.	K4
CO5	Measure the effectiveness of Test, Training programs and Explain the uses of Human Resource Information system.	K5/K6

SECOND ALLIED COURSE -II		
COST ACCOUNTING FOR MANAGERS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify the basic knowledge on cost accounting concepts, elements and classification of cost, Inventory and overheads.	K1
CO2	Understand the techniques of costing, preparation of cost sheet, Need for material control, control of idle time of labour, methods of calculation of labour turnover and classification of overheads.	K2
CO3	Compute the procedure for Tender and quotation, Preparation of EOQ, Methods of valuing material, labour, and overheads issue.	K3
CO4	Analyse and compare the Inventory control, Measurement of Overheads, Process costing and Job costing.	K4
CO5	Evaluate the process losses, wastage, scrap, normal and abnormal losses and Treatment of profit costing.	K5/K6

SKILL BASED ELECTIVE -I		
INVESTMENT BASICS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify and Define various investment options, including savings, mutual funds, insurance, and provident funds, and Discover the key principles, types, and benefits associated with each investment instrument.	K1
CO2	Explain and Compare various investment options, including savings, mutual funds, insurance, and provident funds, and Discuss their features, benefits, and risks in the context of financial planning and wealth management.	K2
CO3	Apply investment concepts, evaluate various investment avenues such as bank deposits, mutual funds, insurance, and provident funds, and Explore their features, benefits, and risks in the context of personal and organizational financial planning.	K3
CO4	Evaluate and Analyse their suitability for different financial goals and risk profiles, based on an understanding of their characteristics, benefits, and underlying principles.	K4
CO5	Develop effective investment strategies based on their understanding of financial and non-financial assets, risk factors, and applicable policies.	K5/K6

NON-MAJOR BASED ELECTIVE –I		
ELEMENTS OF ADVERTISING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify and Recall the fundamental concepts of advertising, including its definitions, objectives, types, media, copy, agencies, budgeting methods, and effectiveness measurement techniques.	K1
CO2	Classify and compare the various types of advertising, along with the role of advertising media, copy, agencies, and budget in creating effective advertisements.	K2
CO3	Compute the appropriate advertising media to design effective advertisement strategies, including selecting appropriate media, creating appealing advertisement copies, and allocating budgets using suitable methods.	K3
CO4	Analyze the components, strategies, and effectiveness of	K4

	advertising by examining the types of advertisements, media selection, copywriting methods, roles of advertising agencies, and budgeting techniques to evaluate their impact on various stakeholders and outcomes.	
CO5	Evaluate the effectiveness of various advertising strategies, media, and budgets, and recommend improvements to enhance consumer engagement and organizational objectives.	K5/K6

CORE COURSE - VI		
COMMERCIAL LAW		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify and remember the fundamental principles of the Indian Contract Act, 1872, and the Sale of Goods Act, 1930, including their key elements and classifications. Understand concepts such as offer, acceptance, consideration, available remedies, bailment, pledge, as well as conditions and warranties.	K1
CO2	Comprehend and elaborate on the essential elements of a valid contract, the concept of a free contract, quasi-contracts, and the discharge and breach of contracts. Explain the rights of a surety, the rights and liabilities of a Pawnee, the duties and rights of an agent, the termination of an agency, the contract of carriage of goods, and the rights of an unpaid seller.	K2
CO3	Determine the application skills relating to Formation of a contract, Discharge of contract, Remedies for breach of contract, duties and rights of an agent, Bailer, Bailee, Surety.	K3
CO4	Examine and apply analytical skills by reviewing various case laws related to contracts involving a minor, a person of unsound mind, and individuals disqualified by law, as well as the principle of free consent. Analyze different conditions and warranties provided in the sale of goods.	K4
CO5	Assess and summarize the regulations governing the Indian Contract Act, 1872, and the Sale of Goods Act, 1930.	K5/K6

CORE COURSE -VII		
MARKETING MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	

CO1	Acquire the knowledge of market, marketing, marketing mix, product, product mix, skimming price, penetration price, middleman, whole saler, retailer and promotion mix.	K1
CO2	Understand the features, objectives, importance and functions of marketing, traditional marketing Vs modern marketing, product differentiation, difference between skimming price and penetration price, importance and functions of middlemen, importance and objectives of promotion.	K2
CO3	Familiarize the classification of markets, product life cycle, product segmentation, factors influencing pricing decisions, role of middle men in the channels of distribution and promotion methods.	K3
CO4	Develop analytical skills in elements of marketing mix, product diversification, product failure, pricing policy decisions, pros and cons of middlemen, arguments for and against advertising.	K4
CO5	Evaluate the modern marketing concept, product policy, pricing policy, channels of distribution system and promotion policy.	K5/K6

SECOND ALLIED COURSE - III		
MANAGEMENT ACCOUNTING FOR MANAGERS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Acquire the knowledge in management accounting in the aspects of scope, objectives, characteristics, functions, significance, limitations, ratio analysis, classification, need, importance of adequate working capital, disadvantages of excess or inadequate working capital, fund flow and cash flow statements, working capital, marginal costing, break even analysis, budget, budgeting and budgetary control.	K1
CO2	Familiarize and understand the difference between financial and cost accounting versus management accounting, significance and limitations of financial statements, components of balance sheet and profit and loss account, fund flow versus cash flow statement, significance and limitations in the preparation of fund flow and cash flow statement.	K2
CO3	Develop the application skills to estimation of working capital, computation of contribution, P/V ratio, break even sales and margin of safety in the process of decision-making	K3
CO4	Analyzing the financial statement using short-term, long-term, profitability ratios, factors determining working capital requirements, fund flow and cash flow statements and break-	K4

	even analysis.	
CO5	Construction of balance sheet in ratio analysis and preparation of budgets	K5/K6

SKILL BASED ELECTIVE - II		
OFFICE ORGANISATION		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify the fundamental concepts of a modern office, including its meaning, functions, location factors, layout, environment, and essential office resources.	K1
CO2	Explain the significance of modern office functions, organisation, systems, and equipment in enhancing workplace efficiency and productivity.	K2
CO3	Apply principles of office layout, environmental planning, and resource management to create a productive and efficient office environment.	K3
CO4	Analyze and evaluate different types of office manuals, filing and indexing systems, and determine their effectiveness in improving office communication and documentation.	K4
CO5	Design an ideal modern office system integrating concepts of layout, organisation, filing, routine operations, and mechanization to improve overall productivity and administrative control.	K5/K6

NON-MAJOR BASED ELECTIVE - II		
GROUP DYNAMICS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify and Recall the basic knowledge of a group, its characteristics, types, and stages of development, formation of group, types of group norms, leadership, nature of motivation, communication and employee morale.	K1
CO2	Understand and Classify the importance of motivation, employee morale, communication, leadership, formal, informal groups and analyze the challenges associated with informal groups.	K2
CO3	Apply leadership and motivation theories through experiential learning and to develop the concepts of motivation theories,	K3

	group norms and kinds of leadership.	
CO4	Analyze the needs for motivation, leadership styles, measurement of morale and evaluate the applicability of Maslow's and McGregor's theories in organizational settings.	K4
CO5	Evaluate the factors affecting and causes of morale, process and steps in motivation, qualities of a leader.	K5/K6

CORE COURSE-VIII		
ORGANISATIONAL BEHAVIOUR		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Describe the fundamental concepts, nature, importance, and scope of Organizational Behaviour and describe how individuals and groups behave in organizations.	K1
CO2	Interpret different components of personality and perception, and evaluate how they influence individual behavior at the workplace.	K2
CO3	Illustrate the process of learning and motivation, and apply various motivational theories for improving employee performance.	K3
CO4	Examine group dynamics, identify stages of group development, and compare different leadership styles and leadership theories.	K4
CO5	Evaluate and review the causes and consequences of stress, suggest stress management strategies, and explain various types of conflict along with methods of conflict resolution.	K5/K6

CORE COURSE-IX		
RESEARCH METHODS FOR MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Describe objectives of research, enumerate the importance of identifying the research problem, reproduce the characteristics of hypotheses, tabulate the types of data and interpretation technique.	K1

CO2	Elaborate the types of research, discuss the techniques involved in research problem, recognize the sources of hypotheses, indicate the tools for data collection and report writing techniques.	K2
CO3	Acquire the significance of research, apply research problem techniques, demonstrate role of hypotheses in business research, write data collection methods and report layout.	K3
CO4	Analyze criteria of good research, identify requirements of good research design, document the procedure for testing hypotheses, point out the steps in constructing questionnaire, examine the types of report.	K4
CO5	Debate the problems encountered by researchers in India, assess the types of research design, evaluate the characteristics of sound measurement tools, validate data processing coding, review precautions for writing report.	K5/K6

CORE PRACTICAL		
COMPUTERIZED ACCOUNTING-TALLY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
CO1	Explain the concept of accounting and the role of computers in accounting, State the needs and importance of computerized accounting system, and Describe the features and benefits of using tally in financial management.	K1
CO2	Demonstrate the use and features to configure general accounting and inventory settings in tally, illustrate configure options to set accounting formats, data format, and number system, create new company after existing company details, explain international accounting technology and period setting in tally.	K2
CO3	Construct and modify groups and ledger as per organisational need. Prepare trading account, profit and loss account and balance sheet, capture and Classify different types of vouchers such as payment, receipt, journal and contra, Modify, sequence and prepare vouchers to produce final accounts and accounting statements.	K3
CO4	Explain the concept of inventory and inventory masters in tally, Organise and categories stock group, stock items and	K4

	stock categories, Illustrate and differentiate units of measurement for stock handling, Document inventory and financial records and examine stock movements.	
CO5	Explain the purpose of cost centers in cost allocation and control, Modify and design cost centers and cost categories in tally, interpret cost centers information in voucher entries for expense and income tracking, evaluate cost-based reports for decision making in business.	K5/K6

MAJOR BASED ELECTIVE-I		
INDUSTRIAL LEGISLATION		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
CO1	Recognize the object of the factories act and workmen's compensation act, identify the concept of industrial dispute act and payment of wages act, indicate the bonus formula under payment of bonus act.	K1
CO2	Comprehend licensing and registration of factories, outline coverage of workmen's compensation act, elaborate adjudication and arbitration, discuss procedure regarding payment of wages, review the application of bonus act.	K2
CO3	Investigate welfare measures under factories act, explore the categories of disablement, write about forum under the industrial dispute act, illustrate fixation of wage period and eligibility of bonus.	K3
CO4	Analyse holidays and annual leaves, illustrate employer's liability, differentiate layoff, retrenchment and closure, point out the time of payment wages and disqualification for bonus.	K4
CO5	Evaluate special provisions under factories act, explain the quantum of compensation, interpret strike and lockdown, verify deduction from wages and determination of bonus.	K5/K6

SKILL BASED ELECTIVE-III		
DIGITAL MARKETING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
CO1	Discuss the fundamental concepts of Digital Marketing and distinguish it from traditional marketing methods, including understanding the behavior of the digital consumer.	K1
CO2	Describe about the different Online Advertising platforms, formats, and strategies including search engine ads, network advertising, affiliate marketing, and landing page usage.	K2
CO3	Experiment and implement Email Marketing campaigns by understanding types of emails, tools, opt-in strategies, advantages, and tracking methods.	K3
CO4	Analyze and manage Social Media Marketing strategies, tools, and content development for platforms such as Facebook, Twitter, and blogging/webinars.	K4
CO5	Assess Search Engine Optimization (SEO) techniques including on-page and off-page optimization, keyword analysis, and understanding of SERP and SEO tool	K5/K6

CORE COURSE-X		
ENTREPRENEURIAL DEVELOPMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
CO1	Enumerate the characteristics of Entrepreneur, list the functions of women entrepreneur, outline the course contents and curriculum of EDPS, recognise the project classification and project appraisal.	K1
CO2	Elaborate the functions of entrepreneur, discuss the growth of women entrepreneurship, elaborate phases of EDPs, illustrate idea generation and concepts of project appraisal.	K2
CO3	Ascertain the difference between entrepreneur and intrapreneur, explore the problems of women entrepreneurs, illustrate NSIC, SIDO, show project life cycle, demonstrate economic and finance analysis.	K3

CO4	Analyze the advantages of being an entrepreneur, illustrate the development of women entrepreneurs, outline SISI, SIDBI, point out the steps in formulation of project report, infer technical feasibility.	K4
CO5	Determine the factors influencing entrepreneurship, evaluate schemes for women entrepreneurs, explain types and objectives of industrial estates, interpret network analysis, test managerial competence.	K5/K6

CORE COURSE-XI		
FINANCIAL MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
CO1	Define and describe the basic concepts of Finance and Financial Management; identify and recall the key functions, objectives, and approaches involved in financial decision-making.	K1
CO2	Demonstrate and interpret the application of financial management concepts and tools to make effective managerial decisions.	K2
CO3	Examine, calculate, and interpret the basic concepts of cost of capital by determining and analyzing its various components for effective financial decision-making.	K3
CO4	Analyze and evaluate the primary sources of capital, categorize and compare their costs, and relate this understanding to optimize investment decisions.	K4
CO5	Evaluate, compare, and justify various methods of investment proposals by assessing their effectiveness and predicting their impact on financial performance.	K5/K6

CORE COURSE-XII		
SERVICES MARKETING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
CO1	Describe the nature, scope, and importance of services marketing; discover the growth and contribution of the service sector to economic development; outline the 7Ps of the service marketing mix and evaluate the challenges and opportunities in marketing of services.	K1
CO2	Describe the stages of the consumer decision-making process in services, interpret customer expectations, select and illustrate models such as GAP and SERVQUAL to assess performance, discuss the factors influencing customer satisfaction and loyalty, and evaluate strategies for managing service encounters and customer relationships.	K2
CO3	Explain the concept of service blueprinting and process design, execute principles of physical evidence and service environment design, explain the role of people, process, and physical evidence in service performance, and examine service quality standards and their impact on service delivery.	K3
CO4	Explain the role of the communication mix in promoting services, apply promotional tools such as advertising and public relations, analyze pricing strategies including differential, bundling, evaluate factors influencing pricing decisions, and outline effective service marketing communication.	K4
CO5	Explain the concepts of service failure, recovery, identify recovery strategies to enhance customer trust and retention; evaluate the role of technology measure global trends and innovations shaping the future of service marketing; and formulate strategies for sustainable and relationship-driven service excellence	K5/K6

MAJOR BASED ELECTIVE-II		
INDUSTRIAL RELATIONS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
CO1	Cite the features of industrial relations, identify the functions of trade unions and need for grievance, recognize the importance of collective bargaining, examine the essential conditions for successful working of worker's participation in management.	K1
CO2	Demonstrate the factors of IR, identify the trade union structure and causes of grievances, summarize the structure of collective bargaining, observe the need for workers' participation in management.	K2
CO3	Investigate the scope and objective of IR, explain the problems in trade union and basic elements in grievance, figure out the essential conditions for success of collective bargaining and worker's participation in management.	K3
CO4	Analyze the contrast between HRM & IR, estimate the measures to strengthen the trade union, outline the pre-requisites of a grievance procedure, function of collective bargaining and forms of workers' participation in management.	K4
CO5	Determine the factors of industrial relations, evaluate trade union structure, recommend disciplinary procedure, test the process of collective bargaining and validate workers' participation in management.	K5/K6

MAJOR BASED ELECTIVE-III		
PRODUCTION MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
CO1	Describe the modern production and operating function, enumerate the importance of plant location, layout and need for maintenance, reproduce the production planning process and quality control steps.	K1

CO2	Elaborate the continuous production, discuss the objectives of plant location, importance of maintenance and recognize the elements of production planning and control, summarize the principles of quality control.	K2
CO3	Acquire the production manager duties, apply weber's theory, demonstrate work study and elements of production planning, write quality control steps.	K3
CO4	Analyze merits and demerits of continuous production, identify plant layout factors, point out preventive measures in maintenance management, deduce limitation of production control, explain statistical quality control.	K4
CO5	Assess characteristics of intermittent, evaluate combined plant layout, validate work, time and method study, compare production planning and production control, review statistical quality control	K5/K6

B.COM.**PROGRAMME SPECIFIC OUTCOMES**

PSO 1	Understand and apply the disciplinary knowledge in functional areas of business such as Accountancy, Management, Finance, Human Resource Management, Marketing, Taxation, Auditing, Banking and Law
PSO 2	Identify, develop and evaluate the business ideas with critical thinking to become a successful entrepreneur leading to women empowerment.
PSO 3	Develop, build and Create the leadership qualities with reflective thinking for running a business enterprise efficiently.
PSO 4	Compare and Analyze the business issues by applying the problem solving skills and research related skills to meet the global challenges
PSO 5	Prepare the students to confidently navigate the highly competitive world by analyzing, evaluating, and applying their skill sets to pursue professional courses to engage in lifelong learning

CORE COURSE - I**FINANCIAL ACCOUNTING - I**

Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the basic concepts and principles involved in preparing accounts of sole trading concerns.	K1
CO2	Understand the process of preparing accounts for non-trading organizations.	K2
CO3	Apply appropriate methods for accounting depreciation and handling bills of exchange.	K3
CO4	Analyze accounting practices from incomplete records and determine profits using various methods.	K4
CO5	Evaluate and justify accounting treatment for royalty transactions and insurance claims.	K5/K6

FIRST ALLIED COURSE - I**ACCOUNTING PRINCIPLES AND PRACTICES - I**

Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Define the basic accounting concepts and accounting rules.	K1
CO2	Explain the journal entries of business transactions and post to ledger accounts	K2
CO3	Prepare different types of subsidiary books	K3
CO4	Classify debit and credit balances of a sole trading concern	K4
CO5	Construct final accounts of a sole trading concern	K5/K6

SECOND ALLIED COURSE - I**BUSINESS ECONOMICS**

Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Understand the core concepts and principles of Business Economics	K1
CO2	Apply demand and supply analysis to evaluate consumer and producer behavior.	K2
CO3	Analyze cost and revenue structures for business planning and pricing strategies.	K3

CO4	Examine market structures and their impact on pricing and competition.	K4
CO5	Develop critical thinking to solve business problems using economic concepts and experiential tasks.	K5/K6

CORE COURSE - II		
BUSINESS ENVIRONMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Describe the concepts of Business, Political, Social, Economic and Technological environment.	K1
CO2	Explain the ideas of Nature of environment, Foreign trade policy and its impact urbanization and competitive advantage.	K2
CO3	Demonstrate the various types of Environment, Government and business relationship and types of social Organisation, Structure of the economy and impact of technology on Businesses.	K3
CO4	Analyse the elements of Environment, Various Taxes, Rural Development, Economic Policies and Sources of Technology Dynamics	K4
CO5	Create a Conducive Technological Environment for Business to operate globally.	K5/K6

CORE COURSE - III		
BUSINESS MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify the importance of management process and some of the key skills required for the contemporary management practice.	K1
CO2	Understand the Evolution and Theories of Management.	K2
CO3	Apply knowledge of management theories and techniques to real-life business situations	K3
CO4	Analyze the importance of planning, organizing, staffing, directing, and controlling in achieving organizational objectives.	K4
CO5	Assess the effectiveness of management principles and functions in achieving organizational goals in diverse scenarios.	K5/K6

FIRST ALLIED COURSE - II		
ACCOUNTING PRINCIPLES AND PRACTICES - II		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the basic concepts of accounting and identify the differences between single entry and double entry system	K1
CO2	Prepare the final accounts of trading and non-trading concerns	K2
CO3	Compute various methods of charging depreciation	K3
CO4	Compare branch accounting and departmental accounting	K4
CO5	Construct Financial accounting reports to analyze the problems and opportunities and to find solution for the same.	K5/K6

FIRST ALLIED PRACTICAL		
PRACTICAL - ACCOUNTING PRACTICES		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the Accounting concepts, conventions and principles	K1
CO2	Understand the methods of Accounting	K2
CO3	Prepare the various kinds of Cash Book	K3
CO4	Distinguish between Single Entry System and Double Entry System	K4
CO5	Compare Trading and Non-trading Concerns	K5/K6

CORE COURSE - IV		
FINANCIAL ACCOUNTING - II		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Describe the terms and concepts of branch, hire purchase, partnership accounts and role of Accounting Standards.	K1
CO2	Explain the accounting procedure for hire purchase and installment system, branch, departments and partnership firms.	K2
CO3	Apply the acquired knowledge in the preparation of account relating to different business enterprises.	K3
CO4	Analyse the different procedures relating to preparation of financial accounts.	K4
CO5	Summarize the accounting process in accordance with Indian Accounting Standards.	K5/K6

CORE COURSE - V		
BANKING THEORY LAW AND PRACTICE		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify the knowledge on banking system	K1
CO2	Classify the Rights and Obligations of Banker	K2
CO3	Demonstrate process of opening and Operation of an account	K3
CO4	Analyze the principles of sound lending and different types of credit	K4
CO5	Appraise the latest Digital Banking Practices	K5/K6

SECOND ALLIED COURSE – II		
MARKETING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify the fundamental concepts and definitions of marketing including the marketing mix and market classifications.	K1
CO2	Understand the key components of market segmentation and consumer behavior.	K2
CO3	Demonstrate knowledge of fundamental marketing concepts including the marketing mix (4Ps), segmentation and consumer behavior.	K3

CO4	Integrate the elements of the marketing mix to formulate strategic marketing plans that align with organizational goals.	K4
CO5	Develop an integrated marketing plan by synthesizing the principles of product planning, pricing, promotion, and distribution to create a unified strategy that enhances competitive advantage and business growth.	K5/K6

NON MAJOR ELECTIVE - I		
BASICS OF INVESTMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify the various investments, their objectives, the distinction between savings and investments	K1
CO2	Understand how simple and compound interest influence investment choices and returns	K2
CO3	Apply knowledge of investment objectives and interest rate calculations to create basic financial plans.	K3
CO4	Analyse various investment options like Bank deposits, mutual funds, insurance, Gold investment and real estate to determine their suitability for specific financial objectives.	K4
CO5	Evaluate and compare traditional and modern investment strategies, to determine the most effective approach for wealth building.	K5/K6

SKILL BASED ELECTIVE COURSE - I		
STOCK MARKET PRACTICES		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Understand the basic concepts of stock market	K1
CO2	Discuss the structure of primary and secondary market0s.	K2
CO3	Outline the various functions of stock exchanges	K3
CO4	Explain the various functions of OTCEI, NSE, BSE	K4
CO5	Analyse the indices of NSE and BSE	K5/K6

SECOND ALLIED COURSE – I		
PRINCIPLES OF ACCOUNTANCY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Describe the basic concepts, objectives and principles of Book-keeping and accounting.	K1
CO2	Explain the procedure for recording business transactions in subsidiary books and preparing a Bank Reconciliation Statement	K2
CO3	Prepare trial balance and apply appropriate methods to detect and rectify accounting errors	K3
CO4	Analyse the position of a sole trader by preparing final accounts including Trading, Profit and Loss Account and balance sheet	K4
CO5	Evaluate and compare single entry systems and double entry system to assess profit	K5/K6

	and financial position and difference between balance sheet and statement of affairs	
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CORE COURSE - VI		
CORPORATE ACCOUNTING - I		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the basic concepts and procedures related to the issue, forfeiture, and reissue of shares.	K1
CO2	Explain the legal provisions and accounting treatment for the redemption of preference shares.	K2
CO3	Apply accounting methods for the issue and redemption of debentures.	K3
CO4	Analyze the components of final accounts of companies as per Schedule III of the Companies Act, 2013.	K4
CO5	Evaluate and integrate accounting procedures related to profits prior to incorporation and interpret relevant Indian Accounting Standards (Ind AS).	K5/K6

CORE COURSE - VII		
BUSINESS COMMUNICATION		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify the objectives and barriers of communication.	K1
CO2	Explain effective business writing and business correspondence.	K2
CO3	Apply skills to draft different types of business letters along with appropriate replies.	K3
CO4	Analyze the structure and content of biodata, application letters, and business reports.	K4
CO5	Evaluate and utilize modern communication tools such as fax, email, video conferencing, and internet in a business context.	K5/K6

SECOND ALLIED COURSE - III		
HUMAN RESOURCE MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Outline the functions of HRM.	K1
CO2	Describe job analysis, recruitment and selection procedure.	K2
CO3	Explain the benefits of training to the employees.	K3
CO4	Evaluate the modern methods of performance appraisal.	K4
CO5	Summarize the various types of employee welfare services.	K5/K6

NON MAJOR ELECTIVE - II		
PRACTICAL BANKING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall basic banking terms, types of banks, and essential banking services.	K1
CO2	Explain the purpose and functions of different bank accounts, deposits, and negotiable instruments.	K2

CO3	Apply the knowledge of endorsements, cheque handling, and account procedures in real-life scenarios.	K3
CO4	Analyze the differences between various banking instruments and digital banking methods.	K4
CO5	Evaluate the benefits and risks of online and mobile banking and suggest ways to ensure secure digital transactions.	K5/K6

SKILL BASED ELECTIVE - II		
PRINCIPLES OF INSURANCE		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the basic concepts, types, and principles of insurance.	K1
CO2	Explain the features and policies of life, general, motor, and fire insurance.	K2
CO3	Apply the knowledge of insurance procedures such as taking policies and filing claims.	K3
CO4	Analyze different insurance policies and identify their suitability based on risk and need.	K4
CO5	Evaluate the functions of IRDA and suggest improvements for protecting policyholders' interests.	K5/K6

SECOND ALLIED COURSE – II		
PERSONNEL MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Describe the fundamental concepts and principles of personnel management and its role in organizational effectiveness	K1
CO2	Explain the process involved in Personnel Management, recruitment, Selection, Training, Development and Performance Appraisal	K2
CO3	Apply suitable selection procedures and performance appraisal strategies for different business situations	K3
CO4	Examine the various sources of recruitment, interview methods and appraisal techniques	K4
CO5	Summarise the Performance appraisal system and Computer applications HRM	K5/K6

SECOND ALLIED PRACTICAL		
PRACTICAL: BASICS OF ACCOUNTANCY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Implement the accounting principles	K1
CO2	Distinguish between accounts of Trading & Non-trading Concerns	K2
CO3	Construct the specimen of three columnar cash book	K3
CO4	Analyse accounting practices of various business units for effectiveness	K4
CO5	Prepare a report based on the data collected from the business visit	K5/K6

CORE COURSE – VIII		
INCOME TAX		

Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Outline the basic concepts, determination of residential status and incidence of tax	K1
CO2	Discuss the income chargeable under salary	K2
CO3	Compute the taxable income of House property	K3
CO4	Calculate the profits and gains of business or profession	K4
CO5	Determine Capital Gain and compute Income from Other Sources	K5/K6

CORE COURSE – IX		
CORPORATE ACCOUNTING II		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify the accounting practices regarding Amalgamation and Absorption of Joint-Stock companies	K1
CO2	Describe the various accounting concepts of External and Internal reconstruction	K2
CO3	Determine the various accounting practices of Banking companies	K3
CO4	Evaluate the accounting aspects of Insurance companies	K4
CO5	Assess and apply the accounting procedure relating to Liquidation of companies	K5/K6

CORE PRACTICAL - I		
COMPUTERIZED ACCOUNTING - TALLY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify the basics of Tally Accounting Package.	K1
CO2	Outline the preparation of Journals and Ledger entries for all kinds of business Concerns	K2
CO3	Prepare inventories – stock vouchers through Computerized Tally accounting	K3
CO4	Figure out the accounts for cost centers	K4
CO5	Integrate various Reports to analyse a Company's Financial performance.	K5/K6

MAJOR BASED ELECTIVE - I		
BUSINESS LAW		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Define the concepts of various Business Laws like contract, Sale of Goods.	K1
CO2	Elaborate the various Legislations relating to Agency.	K2
CO3	Determine the various aspects of insurance.	K3
CO4	Compare and contrast the conceptual framework of Bailment and Pledge.	K4
CO5	Develop the theoretical concept of contract for sale, hire purchase, transfer of property.	K5/K6

SKILL BASED ELECTIVE - III		
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NON BANKING FINANCIAL INSTITUTIONS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Describe the role of NBFIs in the financial market	K1
CO2	Outline the Structure and broad functioning of NBFIs.	K2
CO3	Explore the concepts of Money market and Hire purchase	K3
CO4	Appraise the different types of lease	K4
CO5	Discuss the functions of mutual fund company	K5/K6

CORE COURSE - X		
FINANCIAL MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall basic concepts in Financial Management and applying techniques of Time Value of Money	K1
CO2	Recognize importance concepts of Valuation of Securities and determine Cost of Capital using formula	K2
CO3	Develop knowledge on Capital Structure and demonstrate EBIT – EPS analysis for raising Long term funds.	K3
CO4	Analyze and Compare the Capital Budgeting Techniques for arriving decisions in selecting a Project	K4
CO5	Develop the Knowledge on Concepts of Working Capital to determine and evaluate the Working Capital Requirements	K5/K6

CORE COURSE - XI		
MANAGEMENT ACCOUNTING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Outline the concepts of Management Accounting.	K1
CO2	Elaborate and interpret various ratios to find out the liquidity, solvency and profitability position of the company.	K2
CO3	Examine the statement of funds flow and cash flow.	K3
CO4	Evaluate the various types of budgets.	K4
CO5	Determine marginal costing techniques for managerial decision making.	K5/K6

CORE COURSE - XII		
COST ACCOUNTING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Point out the cost accounting methods and Techniques	K1
CO2	Compute cost sheet and preparation of tenders	K2
CO3	Practice the purchase, storing and issue procedures for materials.	K3
CO4	Examine the different methods of remuneration for labour.	K4
CO5	Determine allocation and apportionment of Overheads and understand process	K5/K6

costing procedures	
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MAJOR BASED ELECTIVE - II		
AUDITING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Define the important concepts and rules relating to Auditing	K1
CO2	Outline the techniques of Internal Control and Internal audit	K2
CO3	Ascertain the vouching of various transactions	K3
CO4	Explain the Valuation and Verification of assets and Liabilities, Investigation process.	K4
CO5	Estimate the procedures for auditing computerized account	K5/K6

MAJOR BASED ELECTIVE - III		
E-COMMERCE		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Enumerate the fundamentals of E-Commerce	K1
CO2	Explain the various applications of E-Commerce	K2
CO3	Determine the concept of online marketing.	K3
CO4	Analyze the various security measures of E-Transactions	K4
CO5	Generate the E – commerce principles	K5/K6

B.COM. (APPLIED)

PROGRAMME SPECIFIC OUTCOMES	
PSO1	Understand and apply the disciplinary knowledge in key areas of Banking, Law, Accountancy, Auditing and Human Resource Management besides Business Taxation.
PSO2	Identify, develop and evaluate business areas and its models with critical thinking to help in becoming successful women entrepreneurs.
PSO3	Develop, build and Create leadership qualities with reflective thinking in starting business units efficiently.
PSO4	Compare and Analyze business issues by applying problem solving skills and research related skills to face business-related challenges.
PSO5	Prepare students to boldly face the prevailing competitive environment by analyzing, evaluating, and applying their skills to pursue professional courses and enable them to carry out lifelong learning as well.

CORE COURSE - I		
PRINCIPLES OF ACCOUNTING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Describe the concepts of Accounting, single entry system, consignment, depreciation account and non-trading organisation.	K1
CO 2	Explain the accounting principles, self-balancing system, features of consignment, objectives of depreciation and receipts and payments account.	K2
CO 3	Prepare trial balance, account current, joint venture accounts, depreciation account and income and expenditure account.	K3
CO 4	Differentiate cash book and pass book, single entry and double entry, sale and consignment, straight line method and written down value method and P&L account and income and expenditure account.	K4
CO 5	Summarise the ideas of errors, Average due date, joint venture accounts, methods of depreciation and balance sheet preparation for non-trading organisations.	K5

FIRST ALLIED COURSE – I		
BUSINESS STATISTICS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Describe the concepts of statistics, dispersion, skewness, kurtosis, correlation, regression, least squares and index numbers.	K1
CO 2	Explain the characteristics of statistics, degrees of variation, types of correlation, time series and Characteristics of index numbers.	K2
CO 3	Calculate the methods of central tendency, mean deviation, simple linear regression, curve fitting and test of consistency.	K3
CO 4	Compare Arithmetic mean and Geometric mean, mean deviation and standard deviation, correlation and regression, different methods of estimates and test of consistency and adequacy.	K4

CO 5	Summarise the concepts of empirical relation between averages, dispersion, properties of regression lines, methods of seasonal variations and Cost of living index.	K5
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FIRST ALLIED COURSE – II		
MARKETING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Describe the concepts of marketing, product, pricing, promotion and distribution channels.	K1
CO 2	Explain the objectives of marketing, pricing, personal selling, features of a product and types of channels.	K2
CO 3	Apply old and new marketing concepts, product policy, determination of Price, theories of personal selling and supply chain management.	K3
CO 4	Point out the functions of marketing management, package, labelling, price, salesmanship and supply chain management.	K4
CO 5	Summarise the ideas of marketing mix, product life cycle, pricing policies, types of salesmanship and e-commerce.	K5

CORE COURSE - II		
BUSINESS ACCOUNTING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Describe the terms and concepts of various levels of Partnership Accounts, Insurance Branch Accounts and Instalment System.	K1
CO 2	Explain the Accounting procedure for partnership firms, Abnormal items in insurance, Departmental Accounts and Higher purchase system.	K2
CO 3	Apply the acquired knowledge in the preparation of accounts related to partnership firms, Royalty, Branch Accounts and Instalment system.	K3
CO 4	Analyse the steps involved in the preparation of final accounts for partnership firms, Insurance, Departmental Accounts and Hire purchase system.	K4
CO 5	Summarise the Accounting treatment relating to profit sharing, Insolvency, lease, Branch Accounts and Hire purchase system.	K5

CORE COURSE - III		
MANAGERIAL ECONOMICS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Enumerate the fundamentals of Managerial Economics, Utility Analysis, Elasticity of Demand, Price Policy and Consumer's Surplus.	K1
CO 2	Discuss the concepts of Demand Analysis, Cardinal Utility, Demand schedule, factors in pricing policy and Assumptions of Consumers' surplus.	K2

CO 3	Illustrate the ideas of demand forecasting, Total utility and managerial utility, Types of Demand, pricing methods and law of Diminishing Marginal utility.	K3
CO 4	Analyse the methods of Demand forecasting, Importance of Law of Diminishing Marginal utility, factors influencing Elasticity of Demand, kinds of monopoly and criticisms of consumer's surplus.	K4
CO 5	Summarise essence of methods of Demand forecasting, Indifference Curve Analysis production function, oligopoly and consumer's surplus.	K5

FIRST ALLIED COURSE - III		
ADVERTISING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Define the concepts of Advertising, Advertisement copy Advertising media, sales force management and sales promotion.	K1
CO 2	Interrupt the ideas of Publicity, Headlines, Outdoor media, Recruitment of salesman and Purpose of sales promotion.	K2
CO 3	Demonstrate the goals and models of Advertising, Qualities of good advertisement copy, merits of outdoor media, Training and Importance of sales promotion.	K3
CO 4	Point out the significance of Advertising, Elements of Advertisement copy Characteristics of outdoor media, Importance of training and objective of sales promotion.	K4
CO 5	Develop themselves to become a good Advertiser and successful sales executive.	K5

FIRST ALLIED PRACTICAL		
ADVERTISING PRACTICES		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Recall the concepts of Advertisement copy.	K1
CO 2	Describe the various kinds of a good Advertisement copy.	K2
CO 3	Apply the process of Advertising in different business entities.	K3
CO 4	Analyse the Qualities of a good Advertisement copy.	K4
CO 5	Prepare Advertisement for various business units to reach public.	K5

CORE COURSE - IV		
CORPORATE ACCOUNTING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Enumerate the Forfeiture of Shares, Modes of Winding up, Procedure for Reducing Share Capital, External Reconstruction, Insurance Company Accounts, Significance of Indian Accounting Standards.	K1

CO 2	Discuss about Final Accounts of Companies, Calculation of Liquidator's Remuneration, Methods of Accounting for Amalgamation, Legal Requirements of Business of Banking Companies Consolidated Financial Statement.	K2
CO 3	Calculate the Statement of Profit Prior to Incorporation and Prepare Merger and Amalgamation Accounts, Accounting Treatment in the books of Selling and Purchasing Company, Guidelines of RBI for Profit and Loss account, IndAS- 8 Accounting Policies Changes in Accounting Estimate and Errors.	K3
CO 4	Analyze the Apportionment of Expenses, Petition for Compulsory Winding up, Order of Payment, Distinction between Pooling of Interest method and Purchase method, Fire and Marine Insurance, Annual Accounts of Life, IndAS-7 Cash Flow Statement.	K4
CO 5	Prepare the Minority Interest, Cost of Control, Ascertain Pre and Post Incorporation Profit, Deficiency or Surplus Account, Pooling of Interest Method and Purchase method, Objectives of Indian Accounting Standards.	K5

CORE COURSE - V		
HUMAN RESOURCE MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Describe the Functions of HRM, Role and Qualities of HR manager, objective of Job Analysis, Guidelines for making the interviews Successful, significance of Employee Training, Computer application in HRM.	K1
CO 2	Explain the characteristics of HRM, Guidelines for preparing job description, Advantages of Formal Induction, Process of Training, Features of Training. Features of performance appraisal.	K2
CO 3	Apply the Nature and scope of HRM, Contents of job description, Benefits and drawbacks of test, Need of employee training, Essentials of an effective performance appraisal system, Methods of performance appraisal.	K3
CO 4	Analyse the Difference between Personnel Management and HRM, Problems in placement, Sources of Recruitment, difference between Training and Development, Problems in performance appraisal.	K4
CO 5	Summarise the Managerial function operative function, Selection procedure, types of test, on the job training off the job training, Assessment of training needs, E-Recruitment.	K5

SECOND ALLIED COURSE - I		
ENTREPRENEURIAL DEVELOPMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Describe the concepts of Entrepreneur, Factory Design, Project, SSI and Industrial Estates.	K1
CO 2	Explain the need for entrepreneurs, Concept of Factory buildings, Project life cycle, Problem of SSIs and Tax benefits to SSIs.	K2
CO 3	Demonstrate the various types of Entrepreneurs, Types of Factory Layout, Concept of Project Formulation, Functions of DIC and features of Industrial Estates.	K3

CO 4	Analyse the concept of Entrepreneurship, Factors influencing Factory Building, Elements of Project Formulation and Government policies for SSIs.	K4
CO 5	Summarise the role of entrepreneurship in economic development, Considerations in a factory layout, Concept of Project Appraisal, Role of SSIs in Indian Economy and Schemes of incentives in operation.	K5

NON MAJOR BASED ELECTIVE - I		
GENERAL COMMERCIAL KNOWLEDGE		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Describe the meaning of Commerce, Features of Partnership, Contents of Prospects and Memorandum, Meaning of Office Organization, Office services, Internet and Email.	K1
CO 2	Explain the Meaning of Trade and Industry, Forms of Business Organization, Meaning of Company form of Organization and Promotion of Company, Functions of Office Organization, Inward and Outward Mail.	K2
CO 3	Apply the Scope of Commerce, Trade and Industry, Features of Partnership, Features of Memorandum of Association and Articles of Association, Contents of Office Layout and Office Manual, Essential of Good Filing System.	K3
CO 4	Analyze the Economic bases of Commerce, Merits and Demerits of Partnership and, Types of Shares and Debentures, Importance of Office Organization, Types of Indexing.	K4
CO 5	Summarize the Importance of Commerce, Sole Proprietorship features and Merits and Demerits, Co- operatives- Features, Types and Office Accommodation and Environment, Methods of filing.	K5

SKILL BASED ELECTIVE - I		
MODERN COMMUNICATION METHODS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Describe the concept of Management communication, Types, Employability skills, Interview letters and Electronic communication.	K1
CO 2	Discuss the importance of effective communication, grapevine, Developing soft skills, References and Internet.	K2
CO 3	Interpret the barriers to communication, Limitations of Informal Communication, Importance of soft skills, Letter of Appointment and Benefits of Internet.	K3
CO 4	Explain the objectives of Management Communication, Importance of Grapevine, Growth skills, Reports and World Wide Web.	K4
CO 5	Summarise the concepts of effective communication, Grapevine, Soft Skills, Interview Letters and Telecom Technology.	K5

CORE COURSE - VI		
COST ACCOUNTING		

Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Describe the concept of cost accounting, material control, labour cost control, overhead analysis and process costing.	K1
CO 2	Explain the differences between cost accounting and other accounting methods, types of stores, idle time, classification of overheads and methods of reconciliation.	K2
CO 3	Prepare cost sheet, stores ledger, payroll, overhead distribution and reconciliation statement.	K3
CO 4	Point out the objectives of cost accounting, material control, labour cost control, overhead analysis and reconciliation statement.	K4
CO 5	Produce tenders and quotations, estimation of wastages and scraps, time keeping records, allocate overheads and procedures for gains and losses.	K5

CORE COURSE - VII		
COMMERCIAL LAW		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	State the concepts of Indian Contract Act, offers, indemnity, agency and contract of sale.	K1
CO 2	Explain the sources of commercial Law, conditions of a valid contract, contract of Guarantee, creation of agency and essentials of contract of sale.	K2
CO 3	Illustrate the types of offer, methods of discharge of contract, discharge of surety, types of agency and right of lien.	K3
CO 4	Analyse the contractual capacity of parties, methods of breach of contract, bailment, rights and duties regarding agency, rules regarding delivery of goods.	K4
CO 5	Summarize the idea of contract, agreement, quasi contract, indemnity, guarantee, pledge, agency and right of lien.	K5

SECOND ALLIED COURSE - II		
INDUSTRIAL LEGISLATIONS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Examine the concepts of Factories act, Employee's Compensation Act, industrial disputes act, payment of wages Act and ESI Act.	K1
CO 2	Explain the rights and duties of workers, concept of Compensation, essentials of layoffs and lockouts, procedure regarding payment of wages and ESI Corporation.	K2
CO 3	Calculate wages during leave period, amount of Compensation, Average pay, fixation of wages period and contribution.	K3
CO 4	Explain the welfare of workers, rules regarding Employee's Compensation, procedure for settlement of industrial disputes, procedure for registration of trade union and medical benefit council.	K4
CO 5	Summarise the concepts of occupier, disablement, retrenchment, deductions, fines and medical benefits council.	K5

NON MAJOR BASED ELECTIVE - II		
INVESTMENT AVENUES		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Describe the meaning of savings, Deposits, mutual funds, shares, debentures and post office schemes.	K1
CO 2	Explain the need for investment activity, types of deposits, mutual funds, equity shares, preference shares and public provident fund.	K2
CO 3	Show the objectives of investors, know your customer, role of mutual funds, types of debentures and public sector bonds.	K3
CO 4	Summarise the concept of investment opportunities, opening of bank account, schemes, OTCEI and drought relief bond.	K4
CO 5	Evaluate various investment opportunities, certificates of Deposit, various types of schemes, demat accounts and prices of shares over a period of time.	K5

SKILL BASED ELECTIVE - II		
FINANCIAL INSTITUTIONS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Describe the concepts of financial systems, money Market, commercial banks, RBI and development banks.	K1
CO 2	Explain the types of financial market, composition of money Market, functions of commercial bank, objectives of reserve bank and IFCI.	K2
CO 3	Show the classification of capital Market, features of money Market, savings account, nationalization of RBI and ICICI.	K3
CO 4	Analyse government securities, commercial papers, clean loans, functions of RBI and IDBI.	K4
CO 5	Summarise the weaknesses of Indian financial system, repo instrument, balance sheet of a commercial bank, monetary policy of RBI and NABARD.	K5

CORE COURSE - VIII		
BUSINESS TAXATION		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Recall the fundamental concepts of Income tax, Residential Status, Heads of Income and Goods and Services Tax (GST).	K1
CO 2	Explain the provisions relating to the computation of Agricultural income and income from different heads such as Salary, House Property, Capital Gains, Business/Profession and other sources and components of GST.	K2
CO 3	Calculate the amount of income tax to be paid by the assessee under all the heads of income based on his residential status and GST calculation.	K3

CO 4	Analyse the various deductions and exemptions on Income Tax under all the heads of Income and GST.	K4
CO 5	Assess the tax to be paid by the assessee based on the amount of income earned by him from all the sources and applications of GST.	K5

CORE COURSE - IX		
COMPANY LAW AND SECRETARIAL PRACTICE		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Recall the fundamental concepts of Company Law including the Formation of a company, its management, secretary and Share capital.	K1
CO 2	Discuss the various types of Companies, the procedure for its formation, Rights, Powers & Duties of Board of directors and secretary and the differences between the shares and stock.	K2
CO 3	Show the advantages and disadvantages of the Corporate Veil, Effects of Incorporation of a company, Procedure for appointment and retirement of directors, Qualifications of a Company secretary and the procedures regarding issue of shares.	K3
CO 4	Analyse the characteristics of a company, Contents of Memorandum of Association & Prospectus, Managerial Remuneration, Secretarial procedures relating to member meetings and the procedure for issue of share certificates.	K4
CO 5	Summarise the concepts of Company, Doctrine of Ultra Vires, kinds of directors and their meetings and the duties of secretaries regarding Application and allotment of shares.	K5

CORE COURSE - X		
FINANCIAL MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Enumerate the concept of Financial Management along with the concepts of Financial Decisions, Sources of Long term Finance, Dividend policy and working capital.	K1
CO 2	Explain the objectives of Financial Management, Features & Importance of Cost of Capital, Merits and Demerits of various types of shares, Nature of Dividend decisions and the Importance of Working Capital.	K2
CO 3	Show the functions of Financial Management, Theories of Capital Structure, Features of debentures, Factors affecting Dividend Decisions and Need for Capital Budgeting.	K3
CO 4	Differentiate between Traditional Approach & Modern Approach, Operating Leverage & Financial Leverage, Equity Shares & Preference Shares, Bonus Issue & Stock Split and ARR & IRR method.	K4
CO 5	Summarise the scope of Financial Management, various types of Leverage, Types of debentures, Determinants of Dividend decisions and various sources of working capital.	K5

MAJOR BASED ELECTIVE-I		
BANKING THEORY LAW AND PRACTICES		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Define Bank, Relationship between Banker & Customer, Negotiable Instruments, Paying & Collecting Banker and Digital Banking	K1
CO 2	Explain the various types of Banks, Credit, Securities, Bills, Electronic Mobile Wallets and Duties & Responsibilities of a Paying Banker	K2
CO 3	Examine the Functions of Commercial Banks, Principles of Sound lending, Privileges enjoyed by Holder in due course, Duties of Collecting Banker and Opportunities in Digital Banking	K3
CO 4	Differentiate among the various types of Banks, types of Bank Accounts, and differences between Negotiability & Transferability, Paying Banker & Collecting Banker and Internet Banking & Traditional Banking	K4
CO 5	Summarise the role of Banks in Economic Development, General Principles of Secured Advances, Endorsement & its Legal Provisions, Obligation of Paying Banker to honour Cheque and the concept of Electronic Money	K5

SKILL BASED ELECTIVE-III		
SALES PROMOTION AND PUBLICITY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Define Sales Promotion, its Strategies, Schemes and Publicity and Public Relations	K1
CO 2	Explain the objectives of Sales Promotion, its Strategies, Public Relation, Classification of Sales Promotion Schemes and Need for Planning Publicity	K2
CO 3	Apply the various Sales Promotion Methods, Strategies, Schemes, Publicity and Public Relation Methods in the future to Promote their Sales	K3
CO 4	Analyse the Advantages & Disadvantages of Sales Promotion, its various strategies, Publicity, Public Relations and the competition among the Sales Promotion Schemes	K4
CO 5	Evaluate the various Sales Promotion Methods, Strategies, Schemes, Effectiveness of Publicity and Managerial Decisions for Public Relations	K5

CORE COURSE - XI		
MANAGEMENT ACCOUNTING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Define Management Accounting, Financial Statement Analysis and ratio Analysis, Fund Flow Statement, Marginal Costing and Standard Costing	K1
CO 2	Describe the advantages and disadvantages of Management Accounting, Ratio Analysis, Cash Flow Statement, Break Even Point and Budgetary Control	K2

CO 3	Show the differences between Management Accounting & Financial Accounting, Comparative & Common size balance Sheets, Fund Flow Statement & Income Statement, Absorption costing & Marginal Costing and standard cost & Budgetary control	K3
CO 4	Analyse the objectives of Management Accounting, Financial Statements, Fund flow statement, Marginal costing and Budgetary control	K4
CO 5	Summarise the functions and duties of Management Accountant, Utility of ratios, Advantages & Disadvantages of Fund Flow Statement, CVP Analysis and various Budgets	K5

CORE PRACTICAL-I		
COMPUTERIZED ACCOUNTING-TALLY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Recall the concepts of Final Accounts, Vouchers, Inventories, Cost Centers and GST in Computerised Accounting	K1
CO 2	Describe the features of Tally and the procedures for creating Journals, Inventories, Cost Centers and Balance Sheet	K2
CO 3	Make use of various Tally menus in the preparation of Ledgers, Inventories, Cost Centers and Trial Balance	K3
CO 4	Analyse the configuration of Tally, its uses and difficulties in preparing and printing the Accounts	K4
CO 5	Create Accounts for a Company, Journal vouchers, Stock vouchers, Cost Centers and Bank reconciliation Statement	K5

MAJOR BASED ELECTIVE- II		
AUDITING PRINCIPLES AND PRACTICES		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO 1	Describe the concepts of Audit, Internal Control, Internal Check, Vouching, Verification & Valuation and Investigation & Reserves	K1
CO 2	Explain the different classes of Audit, Importance of Internal Control & Vouching, Problems in valuation of assets and Essentials of Investigation	K2
CO 3	Show the Powers & Duties of an Auditor, Limitations of Internal Control, Procedure regarding Vouching of Cash Transactions, Mode of Valuation of Fixed Assets and Different approaches to Investigation	K3
CO 4	Explain the Rights & Responsibilities of an Auditor, Evaluative Criteria for Good internal Check, General considerations while vouching Trading Transactions, Auditors position in Valuation of Assets and Duties of Investigator	K4
CO 5	Summarise the overall concepts of Audit, Audit Programme, Audit Working papers, Vouching of Sales Returns & Purchase Return, Valuation of Intangible Assets and Powers of Inspector	K5

MAJOR BASED ELECTIVE-III		
PRINCIPLES AND PRACTICES OF BUSINESS MANAGEMENT		
Course Outcomes (CO)		Knowledge

	CO-Statements	Level
CO No.	On completion of this course, students will be able to	
CO 1	State the concepts of Management, Planning, Organisation, Directing & Motivation and Controlling & Co-ordination	K1
CO 2	Explain the principles of Management, Planning, Organisation, Directing and Co-ordination	K2
CO 3	Show the importance of Management, Planning, Organisation, Directing & Motivation and Controlling & Co-ordination	K3
CO 4	Analyse the Important aspects of Scientific Management, Different types of Strategies & Delegation, Techniques of Directing and Co-ordination	K4
CO 5	Write about the contributions by F.W. Taylor, Essentials of Good policy, Merits & Demerits of different types of Organisation, Characteristics of Motivation and Problems of Co-ordination	K5

BCA

PROGRAMME SPECIFIC OUTCOMES

PSO 1	Recall core computing concepts such as programming languages, algorithms, and database management, integrating Indian Knowledge Systems (IKS), apply programming skills, analyze paradigms, evaluate algorithm efficiency, design simple software, enhance subject knowledge and communication skills.
PSO 2	Explain tools, frameworks and methods used to solve computational problems, discuss how programming techniques break down complex problems to assess solutions, develop collaborative team work and create innovative software solutions to real-world problems.
PSO 3	Implement the programming skills and competencies essential for IT entrepreneurship and employability, explain the role of creativity and innovation in software development, analyze the market needs and technological trends to identify the reflective thinking to create awareness for individual and society.
PSO 4	Use the emerging technologies and methodologies in computer applications, recognizing the need for lifelong learning, research, engage in self-paced exploration by new technologies, implement and evaluate their impact on the computing industry, and develop innovative solutions through independent research.
PSO 5	Demonstrate the ability to design, develop, and implement software solutions by effectively utilizing programming languages, tools and frameworks, adhering reflective and ethical practices in software development.

CORE COURSE-I		
PROGRAMMING IN C AND DATA STRUCTURES		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall fundamental concepts and syntax of C programming including variables, operators, control statements, arrays, functions, pointers, structures, file handling, and data structures such as stacks, queues, linked lists, and trees.	K1
CO 2	Interpret the role of decision-making statements, looping constructs, arrays, strings, pointers, and user-defined data	K2

	types in building structured C programs and managing data efficiently..	
CO 3	Apply the concepts of C programming to develop programs involving input/output operations, control flow, modular programming with functions, dynamic memory access through pointers, and file operations, along with implementation of basic data structures.	K3
CO 4	Analyze complex C programs by breaking them into functions, examining memory usage through pointers and structures, and identifying efficient data handling using arrays, files, and dynamic data structures.	K4
CO 5	Evaluate and design solutions to computational problems using appropriate programming constructs, structured data types, file management techniques, and abstract data structures like stacks, queues, linked lists, and trees for optimized performance.	K5/ K6

CORE COURSE-II		
PROGRAMMING IN PYTHON		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Describe the Python programming concepts, including data types, control statements, strings, data structures, files, classes and objects, and operator overloading, are interconnected and utilized to develop logical and efficient programs.	K1
CO 2	Explain how Python's intuitive syntax supports programming fundamentals by using control statements for flow control, functions for reusability, modules for organization, strings for text manipulation, data structures for efficient data handling and object-oriented features like classes, inheritance, and operator overloading to create reusable and extensible code.	K2
CO 3	Design and implement a Python program that applies control statements for flow control, uses functions to modularize tasks, imports modules for reusability, manipulates strings for text operations, utilizes data structures like lists and	K3

	dictionaries for data management, and demonstrates object-oriented principles by creating classes and objects, applying inheritance, and overloading operators to customize behavior.	
CO 4	Analyze a Python program by identifying its components that include control statements for decision-making, functions for task decomposition, modules for code organization, string operations for text manipulation, data structures for efficient storage and retrieval, and object-oriented concepts such as classes, inheritance, and operator overloading to evaluate their integration and functionality.	K4
CO 5	Evaluate a Python program that integrate control statements, functions, modules, strings, data structures, classes, inheritance and operator overloading and propose improvements or optimizations in its structure, readability and performance based on best practices and design principles.	K5/ K6

CORE PRACTICAL-I		
PROGRAMMING IN C AND PYTHON		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Demonstrate coding skills for simple programs in both C and Python.	K1
CO 2	Execute C programs using control statements and develop Python programs utilizing lists, dictionaries, and sequences.	K2
CO 3	Design and implement Python programs with the use of functions.	K3
CO 4	Develop and execute C and Python programs to perform matrix multiplication and compute the factorial of a number using recursion.	K4
CO 5	Compile C and Python programs to create files, exploring various file modes.	K5/ K6

CORE COURSE-III		
PROGRAMMING IN JAVA		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall the fundamentals of object-oriented programming, the evolution of Java, basic program structure, data types, operators, decision-making statements, arrays, and class structures. Identify the significance of interfaces and inheritance in Java development.	K1
CO 2	Explain the principles of object-oriented programming, the features of Java, and its advantages over C and C++. Describe Java's role in web technologies, program structure, control flow, and data handling techniques like arrays, strings, and vectors.	K2
CO 3	Apply Java constructs such as variables, operators, decision-making, and loops to develop functional programs. Use object-oriented principles like classes, objects, inheritance, and interfaces to solve real-world problems and implement modular solutions.	K3
CO 4	Analyze Java programs for logical errors and optimization by evaluating expressions, debugging loops, and managing object-oriented features like method overloading, overriding, and visibility control. Assess the impact of inheritance and interfaces in program design.	K4
CO 5	Evaluate the efficiency, scalability, and reusability of Java programs by testing and optimizing code. Justify the use of advanced Java concepts such as abstract classes, interfaces, and the Java Virtual Machine for creating robust and secure applications.	K5/ K6

SKILL BASED ELECTIVE - I		
VB.NET PROGRAMMING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall the evolution, features, and components of the .NET	K1

	Framework and VB.NET; identify control statements, UI controls, methods, arrays, classes, inheritance, polymorphism, interfaces, namespaces, and database connectivity features in ADO.NET.	
CO 2	Explain the structure and functionality of VB.NET programs, the usage of control statements and UI controls, types of methods and arrays, the behavior of classes and constructors, the role of inheritance, polymorphism, interfaces, namespaces, and the process of managing data using ADO.NET.	K2
CO 3	Apply VB.NET concepts to develop programs using variables, expressions, control statements, UI controls, methods, arrays, constructors, inheritance, interfaces, and database connectivity for data retrieval, updates, and management.	K3
CO 4	Analyze the usage of variables, expressions, control structures, UI controls, methods, arrays, constructors, and inheritance, interfaces, namespaces, and ADO.NET interactions to design modular and efficient applications.	K4
CO 5	Evaluate the effectiveness of VB.NET components, including controls, methods, arrays, object-oriented programming principles, namespaces, interfaces, and ADO.NET, in developing robust, efficient, and data-driven applications.	K5/ K6

NON MAJOR BASED ELECTIVE - I		
FUNDAMENTALS OF COMPUTERS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Describe Computer Basics and Problem Solving, Demonstrate knowledge of basic computer concepts, algorithms, and problem-solving methodologies using computational tools.	K1
CO 2	Summarize with Input/Output Devices and Memory Systems, Analyze and compare traditional and modern input/output technologies and understand the organization and functionality of various computer memory systems.	K2

CO 3	Demonstrate the Logic Circuits in Computing Develop an understanding of logic circuits, Boolean operations, and their application in designing and analyzing digital systems.	K3
CO 4	Analyze the Programming Languages and Computer Generations, Explain the evolution of programming languages and computer generations, and differentiate between low-level and high-level programming paradigms.	K4
CO 5	Design the Networks and Emerging Computing Technologies, Evaluate the need for computer networks, communication protocols, and explore emerging computing environments like peer-to-peer, grid, and cloud computing.	K5/ K6

CORE COURSE-IV		
DATABASE SYSTEMS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall fundamental concepts of database systems including data models, ER diagrams, SQL syntax, and normalization principles.	K1
CO 2	Explain the architecture of DBMS, data modeling techniques, relational operations, and various forms of data constraints and dependencies.	K2
CO 3	Apply data modeling techniques and relational operators to design, query, and manipulate relational databases using SQL.	K3
CO 4	Analyze relational schemas and operations to detect anomalies, enforce constraints, and ensure consistency and efficiency in database design.	K4
CO 5	Evaluate and optimize database designs by comparing different architectures, normal forms, and SQL techniques for efficient database management.	K5/ K6

CORE PRACTICAL-II		
PROGRAMMING IN JAVA AND MYSQL		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Demonstrate coding skills for simple programs in both Java and MySQL.	K1
CO 2	Execute Java programs using control statements and develop MySQL queries utilizing Data Definition and Data Manipulation Statements.	K2
CO 3	Design and implement Java and MySQL programs with the use of functions.	K3
CO 4	Develop and execute Java program using Object Oriented Programming Concepts and MySQL programs to perform Aggregate functions, Set and String operations.	K4
CO 5	Generate Java programs using packages and multithreading and MySQL programs to implement procedures.	K5/ K6

SKILL BASED ELECTIVE - II		
FUNDAMENTALS OF R PROGRAMMING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall the fundamentals of constants, variables, data types, an introduction to R programming, basic program structure, operators, decision-making statements, functions, and strings. Identify the significance of matrices, mathematical functions, file handling, and plotting functions in R programming.	K1
CO 2	Explain the core concepts of R programming, including the basics, the features of R programming. Describe the role and practical use of matrices, mathematical functions, file handling, charts and plots in R programming.	K2
CO 3	Apply the core concepts of R programming, including its basics and key features, to solve problems. Utilize matrices, mathematical functions, file handling, and charting or plotting functions to analyze data and create visual	K3

	representations in R.	
CO 4	Analyze how the core concepts of R programming, including its basics and key features, interact to solve complex problems. Investigate the use of matrices, mathematical functions, file handling, and charting or plotting functions, examining their roles in data analysis and visualization, and how they contribute to drawing meaningful insights from data	K4
CO 5	Design an R programming solution that combines core concepts to solve complex problems. Use matrices, mathematical functions, file handling, and plotting functions to create a data analysis framework that provides insights and visualizations, showing how these elements work together in real-world scenarios.	K5/ K6

NON MAJOR BASED ELECTIVE - II		
INTRODUCTION TO E-COMMERCE		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall fundamental concepts of E-Commerce including its history, types of business models, web technologies, marketing strategies, security mechanisms, and payment systems.	K1
CO 2	Explain the evolution of E-Commerce, various business transaction models, client-server internet technologies, online marketing approaches, security threats, and digital payment methods.	K2
CO 3	Apply appropriate E-Commerce models, enabling web technologies, and security components to design a basic online business structure with digital payment features.	K3
CO 4	Analyze different E-Commerce platforms and technologies to determine their effectiveness in marketing, securing transactions, and managing digital payments.	K4
CO 5	Evaluate the impact of technological advancements, risk management strategies, and payment systems on the overall success of an E-Commerce business.	K5/ K6

CORE COURSE-V		
PROGRAMMING IN ASP.NET		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall the foundational concepts of ASP.NET, including page structure, application folders, server controls, validation techniques, data binding, ADO.NET components, and XML handling.	K1
CO 2	Explain the functionality of ASP.NET features such as postbacks, master pages, server controls, validation controls, data-bound controls, disconnected data access, and XML integration	K2
CO 3	Apply ASP.NET server controls, validation mechanisms, and data access tools to design user-friendly web forms and dynamically manage web content using ADO.NET and XML technologies.	K3
CO 4	Analyze the interaction between various ASP.NET components such as server controls, validation groups, data-bound controls, and XML data sources to construct efficient and maintainable web applications	K4
CO 5	Evaluate the effectiveness of ASP.NET-based solutions in real-world scenarios by integrating validation, data management, web services, user controls, and reporting tools for optimized web development	K5/ K6

CORE COURSE-VI		
COMPUTER NETWORKS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall the fundamental concepts of computer networks including network types, OSI and TCP/IP models, data transmission methods, error control, routing, and security mechanisms.	K1
CO 2	Explain the working principles of network architectures, transmission media, protocols, internetworking models, client-server applications, and network security standards.	K2

CO 3	Apply appropriate protocols and transmission techniques to design reliable communication networks, implement routing strategies, and use security tools like firewalls and authentication methods.	K3
CO 4	Analyze how different layers of network architecture interact, evaluate data link protocols, compare LAN and WAN technologies, and examine real-world applications such as DNS, FTP, and email systems.	K4
CO 5	Evaluate network performance, communication protocols, and security models, and assess the efficiency of technologies such as ISDN, ATM, cryptography, and intrusion detection systems in solving modern networking challenges.	K5/ K6

CORE COURSE-VII		
DATA MINING AND WAREHOUSING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Remember Recall the fundamental principles and terminology of data mining, data preprocessing, classification, clustering, and warehousing concepts.	K1
CO 2	Understand Explain the processes involved in data preparation, classification, clustering techniques, and the structure of data warehouses and OLAP.	K2
CO 3	Apply appropriate data mining techniques such as data preprocessing, classification algorithms, and clustering methods to analyze real-world datasets.	K3
CO 4	Analyze different data mining models and evaluate data characteristics to choose suitable classification or clustering techniques for given problems.	K4
CO 5	Evaluate and compare the efficiency of data mining algorithms and warehouse architectures for decision-making and problem-solving in business and scientific domains.	K5/ K6

MAJOR BASED ELECTIVE - I		
CLOUD COMPUTING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall fundamental computing paradigms and the basic principles, characteristics, and models of cloud computing.	K1
CO 2	Explain cloud computing architecture, service models, deployment types, and virtualization techniques	K2
CO 3	Apply concepts of cloud deployment and service models to suggest suitable solutions for specific application scenarios.	K3
CO 4	Analyze the key features of public, private, hybrid, and community clouds, along with various cloud service models and provider strategies.	K4
CO 5	Evaluate the offerings of different cloud service providers and assess the benefits and challenges in migrating and managing applications in cloud environments.	K5/ K6

SKILL BASED ELECTIVE - III		
PHOTO EDITING AND ANIMATION		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall and identify the basic components of the Photoshop CS5 interface, file handling operations, and workspace configurations.	K1
CO 2	Explain the concepts of image formats, resolution, color modes, and selection tools used in image editing.	K2
CO 3	Apply various tools such as layers, drawing, painting, and retouching tools to create and enhance images in Photoshop CS5.	K3
CO 4	Analyze the effects of layer styles, filters, smart objects, and their usage in creating advanced visual content.	K4
CO 5	Evaluate and implement automation, 3D features, and animation techniques in Photoshop CS5 to enhance	K5/ K6

	productivity and prepare content for printing.	
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CORE COURSE-VIII		
PROGRAMMING IN PHP		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall and understand PHP syntax, variables, constants, operators, and flow control structures for basic program development.	K1
CO 2	Explain string handling, array operations, and user-defined functions in PHP with proper scope and parameter management.	K2
CO 3	Apply form-handling techniques, file upload controls, and object-oriented programming to create interactive web pages.	K3
CO 4	Analyze file operations in PHP and manage file reading/writing processes using different built-in functions.	K4
CO 5	Evaluate and implement database operations, session management, cookies, and FTP functionality in dynamic web applications.	K5/ K6

CORE COURSE-IX		
OPERATING SYSTEMS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall the fundamental concepts and terminologies of operating systems, including process management, memory techniques, file systems, and storage structures.	K1
CO 2	Explain the structure, components, and services of operating systems and how they manage hardware and software resources effectively.	K2
CO 3	Apply scheduling, synchronization, memory allocation, and	K3

	file handling techniques to solve basic operating system-related problems.	
CO 4	Analyze different operating system algorithms (e.g., page replacement, deadlock detection, disk scheduling) to identify optimal solutions in various scenarios.	K4
CO 5	Evaluate operating system mechanisms and suggest improvements or optimizations for process management, memory usage, and file handling under specific constraints.	K5/ K6

MAJOR BASED ELECTIVE - II		
SOFTWARE ENGINEERING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall the basic concepts of software engineering and the software process , fundamental principles and estimation basics, key design concepts , mobile app development fundamentals, and basic quality and testing terms.	K1
CO 2	Explain software engineering practices and project management concepts ,principles that guide practice and estimation techniques , design concepts and models , mobile app design practices and software quality and testing strategies.	K2
CO 3	Apply software engineering principles ,estimation and project planning methods ,design techniques , mobile app development practices and testing methods to develop software solutions.	K3
CO 4	Analyze the software process and management spectrum , feasibility and estimation outcomes , design models and components , mobile platform constraints , and software quality/testing results to solve engineering problems.	K4
CO 5	Evaluate software engineering approaches , project estimations and resources , design strategies , mobile design solutions , and testing/maintenance methods for improving software project effectiveness.	K5/ K6

MAJOR BASED ELECTIVE - III		
INTERNET OF THINGS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall the fundamental concepts, characteristics, communication models, device components, enabling technologies, and basic applications related to the Internet of Things.	K1
CO 2	Explain IoT system architectures, communication protocols, design methodologies, domain-specific applications, device interfaces, and IoT development environments.	K2
CO 3	Apply IoT design principles, communication APIs, device programming techniques, sensor/actuator interfacing, and application development steps to build simple IoT solutions.	K3
CO 4	Analyze IoT communication approaches, architecture choices, protocol suitability, device integration challenges, and application requirements to design efficient IoT systems.	K4
CO 5	Evaluate IoT platforms, system designs, communication technologies, device selections, and real-time applications to determine their effectiveness for practical IoT implementations.	K5/ K6

B.Sc. COMPUTER SCIENCE

PROGRAMME SPECIFIC OUTCOMES	
PSO 1	Understand, identify and remember the concepts of computer software and apply the mathematical knowledge to solve real world problems theoretically and practically to analyze the outputs of specific application in relevance with the digital literacy portrayed with Indian knowledge systems (IKS) of IT era.
PSO 2	Explain the logic and understand the programming language using appropriate data structure and algorithm to design and develop the skills of computational analysis in problem solving techniques to meet the challenges within realistic constraints.
PSO 3	Implement, analyze and apply the various methodologies of a software/Hardware oriented content empowering the software engineering area to get awareness about IT industries growth sustained with environmental awareness.
PSO 4	Categorize,demonstrate, illustrate and evaluate the potential contributions of computer science field, addressing social and environmental challenges using collaborating team work in group projects to communicate and engage effectively with diverse stakeholders.
PSO 5	Recognize, adhering to global, ethical/technical and security standards of computer science profession to obtain innovative solutions of global issues in the digital era to get engaging in lifelong learning and construction of software systems with various levels of complexity.

CORE COURSE - I		
'C' PROGRAMMING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Remember the program structure of C with its syntax and semantics.	K1
CO 2	Understand the concepts and Develop skills to program using Branching and Looping	K2
CO 3	Apply the concept of arrays and strings functions	K3
CO 4	Analyze the principles of user defined functions, concept of structures, unions, pointers and file management	K4
CO 5	Illustrate basic and advanced level of programming to Code, debug and to test the programs with appropriate cases.	K5/K6

CORE COURSE - II		
PROGRAMMING IN JAVA		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	#Remember the fundamentals of OOPs, statements, develop simple java programs, class definition and various types of inheritance.	K1
CO 2	Understand the concepts and structure of java programming, JVM, decision making, branching statements, constructors and interface problems with new challenges using the acquisition of theoretical and practical skills.	K2
CO 3	Apply the requirements of hardware and software specifications, syntax rules for numerical constants and variables, data types, conditional statements, looping structures, method overloading and extension of interfaces to enhance employability, promote opportunities for higher education.	K3
CO 4	Analyze the functioning of GUI application development, Implementation, looping concepts and their comparison, overriding methods and implementation of interfaces to improve scientific knowledge and research related skills to address emerging professional challenges and societal needs.	K4
CO 5	Evaluate the java environment, operators, design and development of java programs, expressions and logical operators, arrays using complex objects, nesting of methods and accessing interfaces variables to gain the ability to gain skills to attain professional competencies.	K5/ K6

CORE PRACTICAL - I		
PRACTICAL-I: 'C' AND JAVA PROGRAMMING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Remember the basic data types and statements in C and to demonstrate the skill in writing functions and pointers in C programming	K1
CO 2	Understand and infer the string handling and array functions and to enumerate the reasoning skill using file handling	K2

CO 3	Apply structure concepts to develop real world applications such as employee and student file system. Understand and apply the concept of control structures which leads to proficiency in Java	K3
CO 4	Analyze and develop the skills in writing programs using string functions, arrays and to enumerate class, objects, constructors, overloading, overriding concepts which strengthens the analytical and practical skill	K4
CO 5	Evaluate, design and to implement the concept of one dimensional, two dimensional, nested methods, multithreading, inheritance and interface to improve life – long learning programming skill	K5/ K6

CORE COURSE-III		
DATABASE MANAGEMENT SYSTEM		
Course Outcomes (CO)		
CO No.	CO-Statements	Knowledge Level
	On successful completion of this course, students will be able to	
CO1	Understand the basic concepts and applications of database systems in including the relational model, structure, schema and recall the steps in the database design process, define normalization and knowledge of concurrency control mechanisms in database management.	K1
CO2	Explain the purpose of database systems provide a more robust solution than traditional file systems. Utilize relational database schemas and schema diagrams represent the relationships between entities, apply mapping cardinalities to implement the normalization policies identify, redundancies and inconsistencies.	K2
CO3	Apply the concepts of relational database models, including keys and constraints to create and execute SQL queries, implement and visualize the normalization process using 1NF, 2NF, and 3NF to improve design and implement the effectively handle multiple transaction environments.	K3
CO4	Analyze database architecture for solving real-world problems with SQL aggregate functions to ensure accurate data retrieval and following ethical guidelines. E-R designs to identify issues collaborating in teams to ensure database consistency, scalability and investigate deadlocks.	K4
CO5	Evaluate the role of database users and administrators in real-world environments, execute the SQL queries, and demonstrate practical problem-solving to collaborate in	K5/ K6

	teams E-R design issues using and ensure ethical handling normalization and identify the locking and timestamping techniques prevent conflicts in multiple transaction system.	
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NON MAJOR ELECTIVE - I		
COMPUTER FOR EVERYONE		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Remember the fundamentals of Computer and its level of generations along with its anatomy.	K1
CO 2	Understand the concepts and structure of different types of memory to enhance the theoretical knowledge.	K2
CO 3	Apply the requirements of various input devices and its usage which promotes opportunities for higher education.	K3
CO 4	Analyze the functioning of output devices which enhances the skills to address emerging professional challenges and societal needs.	K4
CO 5	Evaluate the development of software and its utilities to gain the ability to attain professional competencies.	K5/ K6

SKILL BASED ELECTIVE – I		
DHTML PROGRAMMING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Understand the foundational concepts of XHTML, DHTML and their applications including editing, validating XHTML and basic event handling in Dynamic HTML.	K1
CO 2	Design and develop web pages by utilizing advanced XHTML features such as tables, forms and image maps, combined with DHTML techniques like dynamic styles, event handling and transitions to create interactive and visually appealing web applications.	K2
CO 3	Apply the knowledge of XHTML and DHTML to create structured, interactive and visually dynamic web pages using object models, event models and transitions effectively.	K3
CO 4	Analyze and integrate advanced features of XHTML and DHTML such as collections, object referencing, event bubbling and image filters to enhance	K4

	functionality.	
CO 5	Evaluate and optimize the use of XHTML and DHTML concepts including validation, dynamic positioning, advanced event and transitions to build robust web applications.	K5/ K6

CORE COURSE - IV		
PYTHON PROGRAMMING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall fundamental Python programming concepts including syntax, data types, control structures, functions, file handling, data structures and object – oriented features.	K1
CO 2	Explain the purpose and usage of Python features such as operators, loops, functions, strings, file operations, collections and class-based structures.	K2
CO 3	Apply Python programming constructs to write programs using decision-making, iteration, file handling, string operations, data structures and classes.	K3
CO 4	Analyze and compare different programming techniques using Python features such as modularity, string processing, data structures and OOP principles.	K4
CO 5	Design and develop complete Python solutions by integrating control structures, functions, string operations, data handling and object-oriented programming	K5/K6

CORE PRACTICAL-II		
PRACTICAL-II: MYSQL AND PYTHON PROGRAMMING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Understand and recall MySQL concepts, including table creation, constraints, structural modifications, membership, comparison and checking for empty or duplicate tuples.	K1
CO 2	Analyze relational operations like union, intersect, join and apply grouping and aggregation functions such as sum, count, max, min and group by.	K2

CO 3	Design and implement advanced SQL queries, including nested subqueries, creating and expanding views and performing string operations for data manipulation.	K3
CO 4	Analyze Python concepts like control structures, functions and data structures to develop modular solutions.	K4
CO 5	Evaluate and implement advanced Python techniques like file handling, modules and OOP concepts to solve complex problems efficiently.	K5/ K6

NON MAJOR ELECTIVE - II		
INTERNET FOR EVERYONE		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Know the basic knowledge of web.	K1
CO 2	Understanding the process of Internet addressing	K2
CO 3	Explore the usage of protocols used throughout the Internet	K3
CO 4	Analyze the working of an E-mail and its ethics	K4
CO 5	Explain the process of Electronic Publishing	K5/K6

SKILL BASED ELECTIVE-II		
IMAGE EDITING TOOLS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Remember the fundamentals of basics tools of digital images editing tools for image enhancement using Photoshop interface and layers effectively.	K1
CO 2	Understand the various Painting tools and techniques to create and modify digital art work in Photoshop and pencil, line, blur, sharpen and smudge tools using Ability to use the selection tools effectively and create a new layers.	K2
CO 3	Apply the concept of adding a border enhancing and Gradient tool , Clone, Pattern and Lasso tools correcting images and Duplicate a Layer	K3
CO 4	Analyze the image Resizing, Blending modes and Eraser tool perform accurate selections and transformations using selection tools in Layer Visibility.	K4
CO 5	Evaluate the Image modes Filling, copying and pasting selections, image components using layer based techniques.	K5\K6

CORE COURSE - V		
OPERATING SYSTEM CONCEPTS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Understand the basic concepts and terminologies of operating systems, single contiguous memory allocation, state model in job scheduling, file concept, access methods, and disk structure.	K1
CO 2	Explain the concept of operating systems, multiprogramming, job scheduling using FIFO, directory structures, file-system mounting and different approaches to disk scheduling.	K2
CO 3	Demonstrate the concepts of the operating system process, partitioned memory allocation, process scheduling, file sharing, protection and disk scheduling algorithms.	K3
CO 4	Analyze the process view point in paged memory management techniques, multiprocessor systems, process synchronization, scheduling, classic concepts of I/O and file structures, the hardware – application I/O interface, disk management, and swap-space management.	K4
CO 5	Evaluate the Hierarchical and Extended Machine View, page removal algorithms, techniques for handling deadly embrace (deadlock), the Kernel I/O Subsystem in transforming I/O to hardware operations, RAID structure and disk management.	K5\K6

CORE COURSE - VI		
DATA STRUCTURES AND ALGORITHMS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Remember the fundamental concepts of data structures such as arrays, stacks queues, trees, graphs and their properties.	K1
CO 2	Understand the concepts of Linked Lists and its various types with its algorithms including their use cases and advantages.	K2
CO 3	Apply the non-linear data structures to solve computational problems, showcasing their problem-solving and critical-thinking skills.	K3
CO 4	Analyze and compare the performance of different graph algorithms and identifying the most efficient solutions for given scenarios.	K4

CO 5	Evaluate and execute existing search and sorting algorithms based on their efficiency, readability, scalability by providing recommendations for improvements.	K5\K6
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CORE COURSE - VII		
MICROPROCESSOR AND APPLICATIONS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall the basic architecture and operations of Intel 8085, ALU, timing and control unit, instruction types, addressing mode across memory, I/O, key instructions, peripheral devices in 8085.	K1
CO 2	Explain the instruction cycles, addressing modes, status flags, internal operations of 8085, interpret the functionality of assembly programs, data transfer schemes and interfacing of I/O devices.	K2
CO 3	Apply and demonstrate the 8085 instructions and addressing modes to write and execute basic assembly programs for arithmetic, logical tasks, data transfer, interrupt mechanisms and peripheral interfacing.	K3
CO 4	Analyze and examine the instruction execution timing, machine cycle, memory or I/O operations using opcode fetch, read/write diagrams in assembly program flow, data transfer types and control word formation for interfacing peripherals.	K4
CO 5	Evaluate microprocessor based solutions using 8085 by designing programs, choosing suitable instructions, optimizing timing. Design complete data acquisition systems involving DMA, interrupt controllers and converters like ADC 0800, DAC 0800.	K5\K6

CORE PRACTICAL-III		
PRACTICAL-III: OPERATING SYSTEMS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall basic Vi editor commands, shell syntax and system tools used in shell programming. Memorize and reproduce the concepts of scheduling, memory allocation and page replacement algorithms.	K1
CO 2	Explain the functionality of file, text, and sort commands used in shell programs. Describe the logical flow and structure of memory and process management algorithms and how they relate to resource allocation.	K2

CO 3	Write shell scripts to implement file, directory and sort operations, applying knowledge of shell syntax. Implement CPU scheduling, memory management and page replacement algorithms in a programming language	K3
CO 4	Analyze the behavior and performance of memory allocation strategies (First Fit, Best Fit, Worst Fit). Compare the efficiency of different page replacement and scheduling algorithms using test data.	K4
CO 5	Design and evaluate scripts and programs for file processing, including both sequential and random access. Critically evaluate and improve the efficiency of scripts or algorithms related to memory and process management.	K5\K6

MAJOR BASED ELECTIVE - I		
SOFTWARE ENGINEERING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall basic software engineering definitions, software processes, project management components and estimation techniques. List core design concepts, software testing strategies and maintenance principles.	K1
CO 2	Explain the principles guiding software engineering practices and project planning. Describe the design process and mobile app environments.	K2
CO 3	Apply estimation techniques and decomposition methods in planning and managing software projects. Use design models, testing methods and mobile development practices to build and maintain software systems.	K3
CO 4	Analyze how software engineering principles influence different stages of design, estimation and project execution. Compare testing techniques, mobile app considerations and reengineering strategies to determine software quality.	K4
CO 5	Evaluate the effectiveness of software process models, estimation methods and management frameworks in real-world projects. Justify the use of various design strategies, testing methods and maintenance approaches for both conventional and mobile software.	K5\K6

SKILL BASED ELECTIVE - III		
.NET PROGRAMMING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	To Understand the .NET Framework, Visual Studio IDE, Toolbars, Menus and Options	K1
CO 2	Apply knowledge about the creating Web Application	K2
CO 3	Understand the state management and configuration of ASP.NET	K3
CO 4	Understand the basics of security and enabling the various types of authentications	K4
CO 5	Know the creation of Web Form with Event Handling.	K5\K6

CORE COURSE - VIII		
COMPUTER NETWORKS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Remember the fundamental concepts of Computer Networking such as network topologies, protocols and models (OSI and TCP/IP) and to know about its Hardware and Software.	K1
CO 2	Understand the functionalities and responsibilities of each layer in the OSI and TCP/IP models including how data is transmitted across these layers.	K2
CO 3	Apply their understanding of Data Link Layer protocols such as Ethernet, PPP which leads to apply knowledge of frame structures by analyzing and constructing data frames for various protocols by ensuring proper encapsulation and addressing of data for transmission.	K3
CO 4	Analyze network performance metrics (bandwidth, latency, and throughput) and to evaluate the impact of different factors on network efficiency and to interpret routing tables to understand the paths of data packets take through the network, showcasing their ability to apply theoretically knowledge practically.	K4
CO 5	Evaluate the security and performance of different symmetric key algorithms, discussing their strengths, weakness and suitability for various applications and to know the importance of Domain Name System.	K5\K6

CORE COURSE - IX		
PROGRAMMING IN PHP		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall and identify the PHP concepts, history, syntax, variables, operators, arrays, functions, files and database components.	K1
CO 2	Explain how PHP handles data types, program flow, functions, files, database interactions, interpret the purpose of PHP scripts, form handling, OOP principles and SQL operations.	K2
CO 3	Apply PHP constructs to write scripts using variables, conditions, loops, arrays, functions, classes, file handling, date, time features, and database connectivity with MySQLi, SQLite and PDO.	K3
CO 4	Analyze program to select appropriate PHP techniques for arrays, functions, OOP, file operations, database tasks, file management and SQL queries	K4
CO 5	Design and develop PHP applications using arrays, OOP, file systems, database to create efficient, secure, structured solutions of advanced PHP concepts with multiple database extensions.	K5\K6

CORE PRACTICAL - IV		
PRACTICAL-IV: PROGRAMMING IN PHP		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall and identify constructs, built-in functions in PHP, web programming using loops, arrays, string, numeric functions, cookies, sessions, form handling and database connectivity.	K1
CO 2	Explain the working of control structures and web technologies in GCD, calculator, file download, client-server interaction through applications authentication and dynamic web pages.	K2
CO 3	Apply programming constructs in multiplication tables, age calculators, maximum array value, HTML and MySQL to develop interactive web pages that perform real-time processing and user-based transactions in PHP.	K3
CO 4	Analyze program requirements and select appropriate logic, break down server-side tasks like cookies, sessions, and authentication using PHP.	K4

CO 5	Design and evaluate complete web applications using authentications, dynamic pages using PHP and MySQL to create efficient user-interactive solutions.	K5/ K6
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MAJOR BASED ELECTIVE - II		
CLOUD COMPUTING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall the fundamental principles, ecosystem, benefits and drawbacks of cloud computing, deployment models, service models and major cloud service providers.	K1
CO 2	Explain the architecture, management, migration aspects of cloud computing, various deployment and service models used in cloud environment.	K2
CO 3	Apply cloud service models (IaaS, PaaS, SaaS) in real-world application contexts, utilize services from providers like AWS, Google Cloud and Microsoft Azure in case-based scenarios.	K3
CO 4	Analyze the principles, architecture, ecosystem and management strategies of cloud computing, compare various deployment models, service models and cloud service providers for specific organizational needs.	K4
CO 5	Evaluate the motivation, principles, connectivity requirements of cloud computing, critically assess cloud deployment models, service models and provider offerings to recommend suitable solutions for specific use cases.	K5\K6

MAJOR BASED ELECTIVE - III		
COMPUTER GRAPHICS AND MULTIMEDIA		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Remember and recall the fundamental concepts of computer graphics, CRTs, graphical primitives, matrix transformations, input device classification and multimedia applications.	K1

CO 2	Understand the concepts of raster scan, random scan displays, line drawing algorithms, composite transformations and interactive picture construction techniques.	K2
CO 3	Apply the concept of flat panel displays, properties of circles, midpoint circle algorithm, two dimensional viewing, three dimensional display methods and multimedia databases.	K3
CO 4	Analyze the concepts of hard copy devices, color and grayscale levels, cohen - sutherland algorithm, three-dimensional, video and image display systems used in output technologies.	K4
CO 5	Illustrate and explain the curve, character attributes, polygon clipping using the sutherland – hodgeman algorithm, translation, scaling, rotation, image scanners and digital audio technologies.	K5\K6

B.Sc. ELECTRONICS

PROGRAMME SPECIFIC OUTCOMES	
PSO 1	Acquire ,apply principles of electronics by integrating hardware and software models by connecting fundamental knowledge to Indian Knowledge Systems (IKS), and effectively communicate complex concepts using the acquired communication skills, information, and digital literacy to develop relevant projects
PSO 2	Identify and apply theoretical and practical skills in digital electronics, embedded systems, VLSI, and Robotics with analytical reasoning and problem-solving capabilities to solve real-world challenges, create innovative systems and foster productive teamwork.
PSO 3	Understand the basic principles of electronic design, IoT tools which help improve problem solving skills, reflective thinking, promote innovative approaches enhance employability, engage in higher education and demonstrate sustainable development access economically independent solutions, exhibit leadership qualities
PSO 4	Recall the basic knowledge of control techniques along with hardware and software models promoting a self-directed, lifelong learning to improve scientific knowledge and evaluate the research skills to address emerging challenges in the field of Electronics with resilience and adaptability, fostering leadership by creating project-based work in a collaborative team environment.
PSO 5	Define the ethical, moral, and social values, in order to achieve multicultural competence enabling women empowerment and national development in real world by analysing the day-to-day problems with analytical reasoning and problem solving skills enabling to construct need based solutions.

CORE COURSE - I		
SEMICONDUCTOR AND ELECTRONIC DEVICES		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the basic concepts of atomic structure, electron distribution, energy bands, and the classification of materials as insulators, conductors, and semiconductors.	K1
CO2	Explain the working principles, classifications, and specifications of passive circuit elements, circuit control, and protective devices, including resistors, inductors, capacitors, switches, fuses, circuit breakers, relays, and the development process of printed circuit boards.	K2
CO3	Apply the concepts of PN junctions and special-purpose diodes to analyse and construct rectifier circuits and explain their characteristics and practical applications	K3

CO4	Analyse the operation of various transistor types and configurations, including BJT, JFET, and MOSFET, and distinguish their characteristics and performance in electronic circuits.	K4
CO5	Evaluate the characteristics and performance of optoelectronic devices such as LEDs, seven-segment displays, LCDs, photodiodes, LASER diodes, and solar cells for various electronic applications.	K5/K6

ALLIED COURSE - I		
SEMICONDUCTOR AND DIGITAL ELECTRONICS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the fundamental concepts of semiconductor physics, including energy bands, charge carriers, types of semiconductors, PN junction properties, rectifiers, and Zener diode applications.	K1
CO2	Describe the operation of PNP and NPN transistors, their use as amplifiers in CB, CC, and CE configurations, and the working principles of sinusoidal oscillators and multivibrators.	K2
CO3	Solve problems involving number system conversions, binary arithmetic, and code conversions such as BCD and Gray code.	K3
CO4	Evaluate and interpret Boolean expressions and simplify them using Boolean algebra and the Karnaugh map (K-map) method for two, three, and four variables.	K4
CO5	Justify the selection and application of various combinational and sequential logic circuits, including adders, subtractors, multiplexers, flip-flops, and counters, based on their functionality in digital systems.	K5/K6

CORE COURSE-II		
DIGITAL ELECTRONICS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the fundamental concepts related to binary numbers and number codes	K1
CO2	Understand the concepts related to logic gates, Boolean algebra, and minimization techniques.	K2
CO3	Emphasize the application of combinational circuits in practical design and implementation scenarios	K3
CO4	Analyse the functionality, performance, and applications of sequential circuits, emphasizing critical thinking and evaluation of digital systems	K4
CO5	Evaluate the applications and performance impact of various memories and design a optimized memory framework.	K5/K6

ALLIED COURSE - II		
OPERATIONAL AMPLIFIER AND COMMUNICATION SYSTEM		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the fundamental concepts, configurations, and applications of Basic Operational Amplifiers.	K1
CO2	Demonstrate and understand the operation and characteristics of Analog to Digital (A/D) and Digital to Analog (D/A) converters includes its types	K2
CO3	Apply knowledge to demonstrate and differentiate various voltage regulators, analyse the working and applications of Power booster, UPS.	K3
CO4	Analyse the components and operation of a communication system and evaluate the impact of various types of noises on system performance	K4
CO5	Evaluate the various modulation techniques, assess the operational principles and performance of different AM and FM receivers and also design & construct advanced communication system models with appropriate modulation and demodulation techniques.	K5/K6

CORE COURSE-III		
ELECTRICAL CIRCUITS AND MACHINES		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the fundamental principles of electrical circuit and apply them to solve basic network problems.	K1
CO2	Describe the concepts and applications of DC network theorems and interpret their use in analysing and solving electrical circuits.	K2
CO3	Implement AC network theorems, to analyse and solve electrical circuits, and evaluate network functions by examining one-port and two-port networks, poles, zeros, and their impact on system response in the time domain.	K3
CO4	Analyse the construction, working principles, and performance characteristics of DC generators and motors, including their losses, efficiency, speed control, and starting mechanisms, and evaluate the functionality and their applications.	K4
CO5	Reconstruct the performance of transformers under various loading conditions using equivalent circuits and design optimized transformer systems, including auto-transformers, by synthesizing knowledge of construction, working principles for enhanced performance in electrical networks.	K5/K6

ALLIED COURSE- III		
ROBOTICS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall and define the fundamental concepts of robotics, including the definition of a robot, laws of robotics, and classifications based on coordinate systems, power sources, method of control, and programming methods.	K1
CO2	Classify the different types of end effectors, including grippers and tools.	K2
CO3	Use the knowledge of different types of sensors in robots, demonstrate the use of machine vision components and utilize vision-guided robotics techniques to solve real-world challenges in automation and robotics systems.	K3
CO4	Distinguish the process of robot selection, installation, and maintenance, evaluate the maintenance procedures for robots to ensure optimal performance and longevity by assessing the safety measures.	K4
CO5	Reframe the capabilities and applications of various types of robots, by identifying challenges for designing innovative robotic systems integrating advanced technologies to enhance performance, efficiency, and adaptability in real-world scenarios for specific applications.	K5/K6

NON-MAJOR BASED ELECTIVE-I		
INTRODUCTION TO WIRELESS TECHNOLOGIES		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify the core components of GSM technology, its architecture, features, and AT command classifications, and describe the purpose and usage of commonly used AT commands in mobile communication systems.	K1
CO2	Classify various GSM AT commands into categories such as call control, message configuration, and error handling, and interpret their roles in mobile communication scenarios.	K2
CO3	Interpret the structure and functioning of the Global Positioning System (GPS) segments, its satellite generation, and its applications in various industries.	K3
CO4	Select the appropriate GPS AT commands, including GPS parameters, WGPS commands, antenna configurations, and GPS configurations, based on their syntax and defined values for GPS controller management.	K4

CO5	Evaluate the operational effectiveness and propose innovative enhancements to society-oriented electronic systems such as Voting Machines, Location Tracking Devices, and Biometric Attendance Systems, integrating advanced features to address emerging societal needs.	K5/K6
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SKILL BASED ELECTIVE-I		
MOBILE PHONE SERVICING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recognizing the fundamental concepts of mobile phone technologies, including the architecture and components of GSM networks, CDMA standards, and the evolution of mobile generations	K1
CO2	Classify the components, tools, and equipment used in mobile handsets, and interpret their roles in the working, maintenance, and troubleshooting processes.	K2
CO3	Diagnose and resolve network issues, power failures, and hardware malfunctions in mobile phones, employing appropriate tools and techniques for assembly, disassembly, soldering, and SMD rework.	K3
CO4	Examine and evaluate the installation processes, driver setups, and troubleshooting techniques for cell phone flashing, IMEI management, and SIM card issues to restore functionality in non-working devices.	K4
CO5	Determine appropriate replacement strategies and repair methods of Cell Phone Components and implement comprehensive repair solutions for Mobile handsets.	K5/K6

CORE COURSE - IV		
ANALOGUE CIRCUITS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the classification, fundamental concepts of monolithic IC technology, basic planar processes, and operational amplifier fundamentals, including ideal characteristics, open-loop operations, and feedback concepts.	K1
CO2	Focuses on developing a foundational understanding of operational amplifier types and circuits	K2
CO3	Use theoretical knowledge to design and implement filters and wave generators	K3
CO4	Discriminate various circuit operations, conversion techniques and connect it to various system developments of real time applications.	K4

CO5	Modify the performance and applications of IC 555 in their modes, assess the characteristics of various voltage regulators leads to design a innovative circuits by developing efficient power regulation.	K5/K6
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ALLIED COURSE - IV		
CONTROL SYSTEM		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the fundamental concepts, examples, and mathematical models of control systems, including mechanical, electrical, and DC motor systems, block diagrams, and signal flow graphs.	K1
CO2	Explain the components and principles of automatic control systems, various Controllers, highlighting their types, characteristics, applications, and specifications	K2
CO3	Use the concepts of time response analysis to determine the behavior of first-order and second-order systems under various damping conditions and demonstrate system performance using controllers and error coefficients.	K3
CO4	Test the frequency domain specifications and system behavior through the interpretation of Bode plots, Polar plots, Nichol's plots, and M and N circles, and correlate time and frequency response characteristics.	K4
CO5	Evaluate system stability using Routh-Hurwitz and Nyquist Stability criteria by analysing the root locations on the S-plane and Design and develop stability analysis procedures for complex systems using various techniques to ensure desired performance and reliability.	K5/K6

NON-MAJOR BASED ELECTIVE-II		
EVERYDAY ELECTRONICS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify and describe the key components and functions of a microwave oven, including the magnetron, waveguides, LCD timer, and safety features.	K1
CO2	Explain the working principles of washing machine components, including the electronic controller, hardware, and wash cycle, as well as the	K2

	functionality of fuzzy logic in automating washing techniques.	
CO3	Focus on evaluating and interpreting the operation of various mobile phone sections and their components.	K3
CO4	Analyze the working principles and internal organization of digital devices and also understand the performance of in-car systems in real-world applications.	K4
CO5	Evaluate the effectiveness and performance of digital access devices, online ticket reservation systems, barcode scanners, ATMs, and set-top boxes and able to provide innovative new solutions that integrate various technologies to meet advanced requirements.	K5/K6

SKILL BASED ELECTIVE-II		
ENTREPRENEURIAL ELECTRONICS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the basic passive and active components used in electronic equipment, logic gates, and encoders/decoders, along with their working principles and applications.	K1
CO2	Explain the usage and operation of various servicing equipment such as soldering iron, desoldering pump, soldering station, and Multimeter, and describe the process of testing and measuring various parameters.	K2
CO3	Focuses on breaking down the working mechanisms and understanding the relationships between parts of heating appliances such as heaters, iron boxes, toasters, geysers, and microwave ovens and evaluate their features, safety and maintenance procedures.	K3
CO4	Evaluate the effectiveness and limitations of various surveillance devices, including CCTV systems, burglar alarms, video door phones, smart car parking systems, GPS trackers, and RFID security systems, and assess their applications in real-world security scenarios.	K4
CO5	Assess the functionality and performance of various air conditioning and refrigeration systems and troubleshooting techniques makes to implement appropriate refrigerants and optimizing system performance, while ensuring proper installation, mounting, and fixing of air conditioners.	K5/K6

CORE PRACTICAL-I		
SEMICONDUCTOR DEVICES AND DIGITAL ELECTRONICS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Study the basic working of Passive components and active components and their role in Series and parallel Configurations which builds foundational theoretical and practical understanding, promoting analytical reasoning and self-directed learning.	K1
CO2	Construct the circuit and study the VI characteristics of PN junction diodes, Zener diodes, LEDs, LDRs, photodiodes, and phototransistors by understanding their principles which helps for linking the theoretical concepts with real-world applications.	K2
CO3	Build the circuits of various rectifiers by applying the knowledge of characteristics of Diodes which develops problem-solving skills by exploring the functionality of rectifiers and their importance in power supply circuits	K3
CO4	Construct the digital circuits using logic gates, Half adder and Half subtractor by verifying the De-Morgan's Theorem which helps for critical reasoning while verifying digital logic and implementing arithmetic operations.	K4
CO5	Design a Analogue and Digital Circuits which are used in the development of projects by studying the characteristics of active and passive components, Universal property of logic gates and Boolean rules, promotes innovation, reflective thinking, and technical skills in designing advanced digital systems.	K5/K6

ALLIED PRACTICAL- I		
ELECTRONICS LAB		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Show the fundamental characteristics of active components gives the foundational knowledge to practical experimentation.	K1
CO2	Build the logic gates using Integrated circuits by understanding the principles of logic gates and implement it in digital systems, which develops critical reasoning and problem-solving.	K2
CO3	Construct the digital circuits by applying the rules of Boolean algebra and by verifying DeMorgan's theorems using integrated circuits emphasizes teamwork and collaborative digital design skills	K3
CO4	Construct Inverting and non-inverting amplifiers, Adder using IC 741 by analyzing the performance of operational amplifiers which promotes the application of knowledge to real-world analogue circuits.	K4
CO5	Construct the AM and FM Circuits and evaluate the AM and FM techniques and design communication systems based on the modulation requirements, strengthens the ability to evaluate and design modern communication systems, linking knowledge to industry applications	K5/K6

CORE PRACTICAL- II		
ELECTRICAL CIRCUITS AND OPERATIONAL AMPLIFIER		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the fundamental principles and laws of electrical and electronic circuits, including Kirchhoff's laws, Ohm's law, and basic theorems in circuit analysis.	K1
CO2	Classify and explain the operational behavior of electronic circuits such as inverting and non-inverting amplifiers, voltage followers, and multivibrators focuses on understanding circuit types and their working principles.	K2
CO3	Implement and test electronic circuits, including op-amp configurations, emphasizes practical application in constructing and verifying circuits.	K3
CO4	Analyze the performance of experimental setups for circuits like integrators, differentiators, and	K4

	resonant circuits involves examining circuit behavior and interpreting results	
CO5	Design and construct advanced circuit configurations, such as custom amplifier setups and multivibrators, integrating theoretical knowledge with practical skills to solve complex real-world problems.	K5/K6

ALLIED PRACTICAL- II		
ARDUINO ROBOTICS EXPERIMENTS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the basic functionalities and programming syntax for Arduino to control components like sensors, displays for robotic system	K1
CO2	Describe the working principles and coding logic for interfacing Arduino with sensors (PIR, fire, obstacle), displays (LED, LCD), and robotic systems like line-following and fire-fighting robots.	K2
CO3	Implement Arduino-based systems, including sensor-controlled displays (LED, LCD), obstacle-detecting circuits, and robotic applications like smoke-detecting and surveillance robots, using appropriate coding highlights hands-on application of knowledge in building systems.	K3
CO4	Analyze the functionality and accuracy of Arduino-powered devices, such as sensors, displays focuses on examining systems for performance and reliability for robotic system.	K4
CO5	Design and develop innovative Arduino-based robotic systems, integrating advanced features and custom algorithms to address complex challenges in areas like remote control, fire-fighting, and surveillance which reflects synthesis and creation of novel solutions in robotic systems.	K5/K6

CORE COURSE- V		
MANAGEMENT AND FUNCTIONAL BEHAVIOUR		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the fundamental concepts of Human Resource Management, including its definition, nature, functions, importance, objectives, and the distinction from Personnel Management.	K1
CO2	Explain the meaning and purpose of recruitment and selection, interpret the difference between recruitment and selection, and describe the sources of recruitment along with their merits, demerits, and factors affecting recruitment.	K2
CO3	Apply the knowledge of various employment tests and interview methods to evaluate candidates, and demonstrate how placement and induction processes are carried out in an organization.	K3
CO4	Analyze different types of employee training and appraisal methods by examining their objectives, processes and effectiveness, and identify the factors that influence a sound training and performance appraisal system.	K4
CO5	Evaluate different leadership styles, motivational theories, and communication methods in order to assess their effectiveness in improving employee behavior and organizational performance.	K5/K6

CORE COURSE- VI		
MICROPROCESSOR AND MICROCONTROLLERS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the fundamental concepts of INTEL 8085 microprocessor.	K1
CO2	Explain the timing diagrams of the 8085 microprocessor for instruction cycle, opcode fetch, execution, memory and I/O read/write operations, and describe various data transfer schemes and understanding the interrupts.	K2
CO3	Apply the knowledge of interfacing devices by demonstrating the working and applications of PPI 8255, implement data transfer using the	K3

	DMA controller 8257 and construct interfacing circuits for ADC and DAC and explain their operational flow in microprocessor-based systems.	
CO4	Analyze the architecture, operational features of 8051, 8052 and their functionalities, register structures, and memory organization to determine suitability for various microcontroller-based applications.	K4
CO5	Evaluate and develop efficient assembly language programs for the 8085 and 8051 microprocessors to perform arithmetic operations, data manipulation, and code conversion, and assess the performance of interfacing applications such as ADC, DAC, traffic light control, and stepper motor control.	K5/K6

CORE COURSE- VII		
EMBEDDED SYSTEM AND EMBEDDED C		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the fundamental concepts of embedded systems, their classifications, required skills of an embedded system designer, and system-on-chip using VLSI technology.	K1
CO2	Explain the types of I/O devices with examples and describe the working of serial and parallel communication ports, wireless devices, timers, watchdog timer, real-time clock, and networked embedded systems, along with understanding various serial and parallel bus communication protocols such as ISA, PCI, and PCI-X.	K2
CO3	Apply the concepts of 8051 C programming by writing programs using data types, generating time delays, performing I/O operations, executing logic operations, data conversion routines, and implementing data serialization in real world applications	K3
CO4	Analyze the use of C programming for 8051 timers, counters, LCD and keyboard interfacing, and ADC/DAC/sensor interfacing, and demonstrate interrupt handling by developing timer- and hardware-interrupt based embedded programs which helps for building projects which satisfies the real world applications in the fields of Communication, Medical and in day today life.	K4

CO5	Evaluate modern processors and microcontrollers and assess the role of SoC modules and ARM-7 processors in mobile devices. Critically examine Arduino boards, including types, pin diagrams, software tools, and technical specifications, and justify their suitability for embedded applications through case studies such as Arduino UNO. This helps for the development of projects for problem solving with analytical reasoning and in day today life applications	K5/K6
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MAJOR BASED ELECTIVE - I		
PROGRAMMING IN C AND C++		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	Knowledge Level
	On completion of this course, students will be able to	
CO1	Recall the basic principles of C programming and elements of C.	K1
CO2	Explain the concepts of arrays, structures, pointers, and file handling in C, including their declarations, initialization, accessing methods, user-defined functions, passing arrays to functions, and basic file operations such as opening, closing, input/output and error handling.	K2
CO3	Apply object-oriented principles and data-type concepts to design and implement C++ programs —use built-in, derived and user-defined data types; apply operators, symbolic constants, and tokens correctly to solve programming problems.	K3
CO4	Analyze the behavior of functions, classes, constructors, destructors, and operator overloading in C++ by differentiating function types, evaluating object creation and member access mechanisms, and comparing unary and binary operator overloading techniques.	K4
CO5	Evaluate C++ programs using different types of inheritance and polymorphism, implement virtual functions, and apply file handling concepts such as streams, file modes, file pointers, and sequential I/O operations to build efficient data-processing applications.	K5/K6

CORE PRACTICAL - III		
C, C++ AND EMBEDDED C		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall and list fundamental facts and definitions related to basic C programming tasks.	K1
CO2	Explain and demonstrate understanding of the above concepts by describing their purpose and behaviour and by walking through simple examples.	K2
CO3	Apply their understanding of matrix operations, array manipulation, and data conversion by writing and executing C programs to solve practical problems.	K3
CO4	Analyze and evaluate the logic, efficiency, and correctness of Embedded C programs written for the given problems which helps for the development of projects with emerging challenges in the field of Electronics provides skills for Entrepreneurship.	K4
CO5	Evaluate and test microcontroller-based programs involving interrupts, timers, LCDs, and sensors which helps to development of projects for day-to-day problems with analysis and develops skills, helps for employment.	K5/K6

SKILL BASED ELECTIVE - III		
LAPTOP SERVICING AND TROUBLESHOOTING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall and identify the fundamental concepts and components of Basic Electronics, demonstrating knowledge of their properties, types, and applications.	K1
CO2	Explain and demonstrate understanding of laptop repairing instruments and tools, describing their purpose, working principle, and application in electronic servicing.	K2
CO3	Apply their knowledge of motherboards and peripherals to identify, assemble, and troubleshoot hardware components in laptops and computers.	K3

CO4	Analyze and diagnose software-related issues in laptops by examining operating systems, drivers, and application faults which promotes self-directed, lifelong learning gives entrepreneurship.	K4
CO5	Evaluate, test, and troubleshoot laptop hardware systems by diagnosing faults, verifying voltage levels and assessing repair procedures to ensure optimal performance and reliability which gives problem solving skills enabling to construct network based solutions.	K5/K6

CORE COURSE - VIII		
INDUSTRIAL ELECTRONICS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the fundamental concepts and characteristics of power semiconductor devices.	K1
CO2	Explain the working principles and control techniques of phase-controlled rectifiers and DC–DC choppers, including single-phase and three-phase converter and interpret their operation under different load conditions.	K2
CO3	Apply the principles of inversion and frequency conversion to construct and analyze single-phase and three-phase inverters, PWM inverters, and cycloconverters for power control and conversion applications.	K3
CO4	Analyze the applications of power electronics systems , converter control methods using PLC, microprocessor, and microcontroller for performance optimization.	K4
CO5	Evaluate modern power converter systems for renewable energy and advanced electrical applications, such as wind turbine systems (WT Types A–D), multilevel converters (MMC topologies), and electric aircraft power systems, assessing their efficiency, control, and performance characteristics.	K5/K6

CORE PRACTICAL - IV		
MICROPROCESSOR, COMMUNICATION AND POWER ELECTRONICS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall the fundamental concepts, instruction sets, and basic algorithms used in 8-bit and 16-bit arithmetic operations, sorting operations.	K1
CO2	Explain the working principles, logic flow, and instruction sequence in 8085 processor through assembly language programmes.	K2
CO3	Apply the knowledge of microprocessor to develop and implement interfacing application programs, using suitable programming techniques., Communication circuits such as AM, FM, PAM which gives basic knowledge about Communication field with reflective thinking helps in the development of communications circuits.	K3
CO4	Analyze the operation, characteristics, and performance of various analogue and digital modulation techniques, evaluate the operation.	K4
CO5	Design and evaluate electronic control circuits such as Full-wave lamp dimmer using UJT and SCR, DC motor speed control circuits, and UJT relaxation oscillators by selecting appropriate components.	K5/K6

MAJOR BASED ELECTIVE - II		
SENSORS, TRANSDUCERS AND MEASUREMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall and define the fundamental concepts of measurement systems.	K1
CO2	Explain the working principles, characteristics, and applications of various transducers, interpret their advantages, limitations, and operating features.	K2
CO3	Apply suitable transducers and sensors for the measurement of non-electrical quantities, by implementing appropriate measurement	K3

	techniques and instrumentation systems.	
CO4	Analyze the operation and performance of Cathode Ray Oscilloscopes (CROs) and compare analogue and digital storage oscilloscopes in terms of features, working principles, and display systems.	K4
CO5	Design and evaluate biomedical instrumentation systems by understanding human physiological parameters, the working principles of diagnostic instruments such as ECG, EEG, EMG, ERG, and CT scanners, assessing their performance and recent advancements.	K5/K6

MAJOR BASED ELECTIVE - III		
COMMUNICATION SYSTEM		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall and identify the fundamental concepts and components of a communication system, modulation.	K1
CO2	Explain the fundamentals of electromagnetic wave propagation, the effects of the environment on wave transmission, and describe the working principles.	K2
CO3	Apply the principles of antenna theory to analyze and determine their characteristics of various types of antennas.	K3
CO4	Analyze various modulation techniques by their block diagrams, working principles, and performance parameters.	K4
CO5	Design and evaluate satellite and wireless communication systems and assess cellular network performance considering frequency reuse, handoff, power control, and traffic engineering for optimizing system capacity and reliability.	K5/K6

IN-PLANT TRAINING		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Recall and identify the fundamental concepts, components, and programming elements related to Arduino and Embedded C.	K1
CO2	Explain and interpret the working principles and behavior of Arduino-based systems and Embedded C programs which helps to create innovative projects.	K2
CO3	Apply their knowledge to develop and execute basic Arduino projects using Embedded C programming improves problem solving skills.	K3
CO4	Analyze Arduino-based systems and Embedded C programs to determine their functionality and performance, makes to address emerging challenges in the field of Electronics.	K4
CO5	Evaluate and validate the performance, accuracy, and reliability of Arduino and Embedded C-based applications through testing and optimization helps in real world by analysing the day-to-day problems with analytical reasoning and problem solving skills enabling to construct need based solutions, provides employment opportunities.	K5/K6

B. Sc. HOSPITAL ADMINISTRATION

PROGRAMME SPECIFIC OUTCOMES	
PSO 1	Identify, apply, and analyze the core and supportive services of a hospital explain foundational science knowledge and skills essential for managing hospital administration and clinical departments effectively, utilize information systems to support critical thinking and analytical approaches in hospital administration, and analyze operational research to address problem-solving in healthcare settings.
PSO 2	Elaborate on theoretical knowledge and practical skills in personnel management and vital statistics for real-world healthcare management applications, develop a comprehensive understanding of hospital organizational services to impact hospital operations, and enabling collaborative team work across various departments such as wards, medical, finance, and IT to enhance coordination within healthcare institutions.
PSO 3	Extend effective management and communication skills essential for hospital administration, discuss the ability to collaborate with diverse teams and interpret organizational information with clear managerial objectives and evaluate team dynamics, conflict resolution strategies, and methods to foster a collaborative environment to achieve hospital goals.
PSO 4	Summarize and analyze advanced professional skills with an emphasis on self-directed learning, compile reports and effectively apply reasoning in workplace scenarios and higher studies and stay updated on administrative trends evolving healthcare regulations to ensure professional growth.
PSO 5	Apply scientific reasoning and evidence-based approaches to resolve challenges within hospital administration, analyze fundamental leadership techniques to guide teams, justify informed decision-making, and create innovative solutions in healthcare management by upholding ethical and patient-centered practices.

CORE COURSE-I		
BASIC BIOLOGICAL SCIENCES		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
CO 1	Recall the names, definitions, and affected systems of common diseases related to the respiratory, circulatory, gastrointestinal, nervous, sensory, endocrine, urinary, reproductive systems.	K1
CO 2	Describe the causes, signs, symptoms, and basic characteristics of various medical conditions affecting major organs such as the heart, lungs, liver, brain, kidneys, and reproductive organs.	K2
CO 3	Apply knowledge to identify common patterns in the symptoms and preventive measures of different diseases, and suggest general health practices for prevention and early detection.	K3
CO 4	Analyze and differentiate between diseases based on organ systems, symptoms, causes, and stages, including understanding the interrelation of metabolic, hormonal, and immune responses.	K4
CO 5	Evaluate treatment options, diagnostic methods, and preventive strategies for major diseases across all systems, including assessing disease progression and patient care priorities.	K5/ K6

CORE COURSE-II		
HOSPITAL CORE SERVICES		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On successful completion of this course, students will be able to	
CO 1	Recall the functions, layout designs, and facility requirements of various hospital departments including Outpatient Services, Nursing Units, ICUs, Surgical Departments, Blood Banks, and Radiological Services.	K1
CO 2	Explain the roles and organizational structure of essential healthcare service areas such as emergency services, clinical laboratories, sterilization units, and environmental control.	K2
CO 3	Apply principles of space planning, infection control, and procedural protocols to evaluate the adequacy and design of hospital departments for effective service delivery.	K3
CO 4	Analyze the interrelationship between different hospital departments and assess how design, location, and operational policies affect patient care and service efficiency.	K4
CO 5	Evaluate hospital infrastructure, departmental workflows, and safety standards to recommend improvements that enhance healthcare quality and operational effectiveness.	K5/ K6

FIRST ALLIED COURSE-I		
MANAGEMENT FOR HOSPITAL SERVICES		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Recall fundamental concepts, definitions and principles of management, including planning, organization, communication, decision-making, and perception.	K1
CO 2	Explain various management theories, structures and practices such as Taylor's Scientific Management, Fayol's principles, MBO and Management by Exception.	K2
CO 3	Apply management tools and concepts like planning types, departmentation bases and communication models in real-life organizational scenarios.	K3
CO 4	Analyze the interrelationship among organizational elements like policy, procedures, decision-making processes and perceptual factors that influence managerial effectiveness.	K4
CO 5	Evaluate management practices and strategies for improving planning, organizational structure, communication flow and exception handling in administrative settings.	K5/ K6

CORE COURSE-III		
HOSPITAL SUPPORTIVE AND UTILITY SERVICES		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Describe the various supportive services in hospitals.	K1
CO 2	Discuss the layout, design and functions of the different supportive service departments in hospitals.	K2
CO 3	Evaluate the organization and overall structure of the supportive services in hospitals.	K3
CO 4	Analyse the facilities and space requirements for the maintenance of supportive service departments.	K4
CO 5	Interpret problem situations, reasons for planning and maintenance needs of the supportive service departments in hospitals.	K5/K6

CORE COURSE-IV		
WARD MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	List various functions hierarchical structure, ward environment and report maintain in the ward.	K1
CO 2	Infer the advantages and planning of the ward management, patients assignment and professional nursing skills	K2
CO 3	Apply 10 commandments of management, ward teaching, social environment and Behavioural ethics in the ward	K3
CO 4	Analyse the principles of ward, types of ward teaching, ward safety measures and clinical teaching	K4
CO 5	Discuss about the ward management and evaluate the assignment of duties and patient medical records	K5/K6

FIRST ALLIED COURSE-II		
ORGANISATIONAL BEHAVIOUR		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Define organisational development, climate, moral conflict and leadership	K1
CO 2	Illustrate the process and theories of the organisation dynamic	K2
CO 3	Construct the measurement of various organisational behaviour	K3
CO 4	Analyze the merits and demerits of the various organisational dynamic	K4
CO 5	Interpret the characteristics, components and evaluate the determinants of the organisational dynamic	K5/K6

CORE COURSE-V		
FINANCIAL MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Recall the fundamental concepts of accounting, including its objectives, bookkeeping, accounting principles and conventions, alongside the structure of financial statements (Profit and Loss Account and Balance Sheet), sources of finance, working capital management, and budgetary control systems.	K1
CO 2	Explain the process of accounting and bookkeeping, the preparation of financial statements, classification of assets and liabilities, sources of internal and external financing, cash management strategies, and the essential features of budgetary control	K2
CO 3	Apply the rules of double-entry accounting to record transactions, prepare financial statements, classify working capital requirements, determine sources of finance, and design budgets for organizational control and decision-making.	K3
CO 4	Analyze the relationships between accounting functions, financial management practices, working capital strategies, and budgetary control systems to identify their interconnected impact on organizational performance.	K4
CO 5	Evaluate the advantages and limitations of accounting practices, financial instruments, working capital policies, cash management techniques, and budgetary control systems in achieving the objectives of effective financial management and organizational growth.	K5/K6

SECOND ALLIED COURSE-I		
OPERATIONS RESEARCH FOR HOSPITAL MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Identify the Linear programming problem, Transportation problem, Assignment problem. List the Replacement policies. Know the basic components of Network constructions.	K1
CO 2	Describe Linear programming problem. Compute initial basic feasible solution using Transportation problem. Discuss the Replacement problem. Classify the Queuing models and simulation models. Explain critical path analysis.	K2
CO 3	Calculate the solution of Linear programming problem using graphical method. Illustrate the Poisson Queuing system and even type simulation.	K3
CO 4	Optimize the Linear programming problem. Evaluate Linear programming problem through Transportation and Assignment Problem.	K4
CO 5	Design the Mathematical formulation. Predict the solutions for LPP through various methods. Estimate the optimality in Transportation and Assignment problems. Analyze the Network Scheduling using PERT / CPM technique	K5/K6

ALLIED FIELD WORK		
HOSPITAL ORIENTATION PROGRAMME-FIELD WORK		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Describe the fundamental roles, functions, and organizational structure of clinical departments, diagnostic departments and administrative services	K1
CO 2	Explain the workflows and interactions among clinical, diagnostic, and administrative departments to support effective healthcare delivery.	K2
CO 3	Illustrate knowledge of clinical procedures, diagnostic practices, and administrative workflows to address real-world healthcare challenges.	K3
CO 4	Analyze the interconnections between clinical care, diagnostic efficiency, and administrative processes to enhance hospital performance and patient satisfaction.	K4
CO 5	Evaluate the overall effectiveness of hospital management by assessing the integration of clinical care, diagnostic capabilities, and administrative services in delivering quality and sustainable healthcare solutions.	K5/K6

NON MAJOR BASED ELECTIVE COURSE-I		
HEALTH EDUCATION		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Examine the fundamental concepts of health education, including its objectives, principles, communication methods and audiovisual aids, along with the basic functions, sources, and classifications of nutrients, vitamins, minerals, and key aspects of pollution and its control.	K1
CO 2	Discuss the principles and communication process in health education, the classification and role of food nutrients, the importance of vitamins and minerals, the components of a balanced diet and the hazards, effects, and preventive measures for different types of pollution.	K2
CO 3	Apply health education principles to promote healthy practices, design balanced diets using knowledge of nutrition and nutrient requirements, evaluate sources and impacts of pollution and recommend appropriate measures to prevent and control health hazards.	K3
CO 4	Analyze the interrelation between nutrition, vitamins, minerals and health in preventing diseases, assess the impact of communication in health education and evaluate the biological effects of pollution and environmental factors such as light, noise, and ventilation on human health.	K4
CO 5	Evaluate the effectiveness of health education strategies, nutritional plans and pollution control measures in improving community health and promoting sustainable environmental practices, while addressing deficiencies and their associated health risks.	K5/K6

SKILL BASED ELECTIVE COURSE-I		
HEALTH AND FIRST AID		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Outline the fundamental concepts of health, including the philosophy of health, first aid principles, wound types, bone injuries, poisoning, burns and foreign body management, along with their respective aims, contents, and rules.	K1
CO 2	Summarize the principles and scope of first aid, the types and dangers of wounds, the signs, symptoms and management of injuries to bones, muscles, and tendons, the methods of poisoning, and the degrees and management of burns and scalds.	K2

CO 3	Demonstrate first aid principles to manage wounds, bleeding, fractures, dislocations, poisoning, burns and foreign body scenarios, ensuring the prevention of further harm and promoting recovery effectively.	K3
CO 4	Categorize the causes, signs, and symptoms of wounds, bone injuries, and poisoning to identify appropriate first aid responses, assess risks and develop effective management strategies for various emergency situations.	K4
CO 5	Evaluate the effectiveness of first aid practices, including wound management, splinting for fractures, handling burns and responding to foreign objects in sensitive areas, to improve emergency response and promote better health outcomes.	K5/K6

CORE COURSE-VI		
RESEARCH METHODOLOGY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Recall the fundamental concepts, objectives, types, and steps of the research process, including research problems, hypothesis, data collection methods, analysis techniques, interpretation, report writing and the role of computers in research.	K1
CO 2	Explain the nature and significance of research and differentiate among various research types, designs, sampling methods, data collection techniques and reporting formats used across all stages of research.	K2
CO 3	Explain the nature and significance of research and differentiate among various research types, designs, sampling methods, data collection techniques and reporting formats used across all stages of research.	K3
CO 4	Analyze research problems by breaking them into components such as literature review, hypothesis, research design, data analysis and interpretation, identifying the relationships among them for effective report writing.	K4
CO 5	Evaluate the effectiveness of research methodologies, data collection techniques, hypothesis testing procedures and report formats in addressing specific research problems and achieving valid outcomes using both manual and computer-based tools.	K5/K6

CORE FIELD VISIT		
HOSPITAL TRAINING PROGRAMME-FIELD WORK		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Recall the basic ward procedures including domestic work, bed making, admission and discharge protocols, drug administration methods, bedside equipment, and modern investigation techniques.	K1
CO 2	Explain the purpose and process of key hospital functions such as ward management, patient admission/discharge, equipment usage, ICU visits, secretary roles, and diagnostic procedures.	K2
CO 3	Apply standard procedures in preparing the ward, assisting with equipment, administering drugs, and supporting clinical tasks in ICU, pediatric, post-operative, and general wards.	K3
CO 4	Analyze the roles and responsibilities of ward and medical secretaries, differentiate among diagnostic methods, and assess the workflow in various hospital departments for effective patient care.	K4
CO 5	Evaluate the effectiveness of hospital operational procedures, including patient care processes, drug administration, equipment management, and documentation systems like store filling and requirement lists.	K5/K6

SECOND ALLIED COURSE-II		
COMPUTER APPLICATIONS IN HEALTH CARE SERVICES		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Recall basic concepts related to hospital information systems, MS Word, MS Excel, MS PowerPoint, and the Internet, including their definitions, functions and uses.	K1
CO 2	Explain the functions of different information systems in hospitals and describe the features and operations of MS Office applications and internet services.	K2
CO 3	Apply MS Word, Excel, and PowerPoint tools for creating and formatting documents, spreadsheets, and presentations and demonstrate basic internet usage including email communication.	K3
CO 4	Analyze the role of computerized systems in hospitals and the functional differences between various MS Office tools and internet services in a healthcare setting.	K4
CO 5	Evaluate the effectiveness of hospital information systems, office applications and internet tools in improving administrative efficiency and communication within healthcare environments.	K5/K6

SECOND ALLIED PRACTICAL-I		
MS OFFICE FOR HOSPITAL MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Recall the basic features and tools of MS Word, Excel, and PowerPoint used for hospital documentation, billing, communication, and presentation purposes.	K1
CO 2	Explain the use of various MS Office tools in formatting documents, managing hospital data, preparing reports, and creating presentations for healthcare operations.	K2
CO 3	Apply word processing tools to create and edit patient records, doctor indexes, and labels; use Excel functions to generate bills and payrolls; and design PowerPoint slides for hospital-related presentations.	K3
CO 4	Analyze hospital information through sorting and organizing data in Word and Excel, and evaluate content structure and design for presentations used in administrative and emergency contexts.	K4
CO 5	Evaluate the effectiveness of MS Word, Excel, and PowerPoint tools in streamlining hospital workflows such as document handling, billing, staff communication, and health awareness campaigns.	K5/K6

NON MAJOR BASED ELECTIVE COURSE-II		
PUBLIC RELATIONS AND COMMUNICATION		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Define key definitions, concepts, and historical background related to public relations, communication processes, PR tools, and various media platforms.	K1
CO 2	Describe the objectives, scope, and functions of public relations, the process of communication, the role of PR professionals, and the impact of different types of media and promotional tools.	K2
CO 3	Demonstrate the communication principles and PR strategies using tools such as newsletters, pamphlets, photography, and advertising across print, broadcast, and digital media for effective public engagement.	K3
CO 4	Analyze the components of public opinion, the PR process, ethical standards, communication models, and the effectiveness of various promotional and media channels in reaching different audiences.	K4
CO 5	Evaluate the role of public relations in organizational management, assess the influence of advertising on society and business, and judge the effectiveness of communication methods and PR campaigns in building public trust.	K5/K6

SKILL BASED ELECTIVE COURSE-II		
MEDICAL RECORDS MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Enumerate key definitions, components, formats, standards, and maintenance procedures related to medical records, including computerized systems and legal documentation.	K1
CO 2	Explain the purposes of medical records for various stakeholders, the advantages of computerized records, standard practices in medical documentation, and procedures for safe record maintenance.	K2
CO 3	Apply knowledge of medical record formats, coding systems, filing methods, and data organization to ensure proper documentation, record retrieval, and compliance with hospital standards.	K3
CO 4	Classify the structure and components of different types of medical records, legal requirements, and quality control methods, identifying areas for improvement in medical record systems.	K4
CO 5	Evaluate the effectiveness of medical record management practices, including computerization, quality assurance, retention policies, and safety protocols to support patient care, legal compliance, and organizational efficiency.	K5/K6

CORE COURSE-VII		
PERSONNEL MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Recall and describe the fundamental principles, objectives, and scope of Personnel Management, including its functions in recruitment, promotion, wage administration, industrial relations, and e-HRM practices.	K1
CO 2	Demonstrate understanding of the roles, qualities, and responsibilities of the Personnel Manager by relating them to effective recruitment, training, promotion, transfer, and employee participation processes.	K2
CO 3	Apply the concepts of job analysis, recruitment, selection, promotion, and wage & salary administration to solve practical personnel management issues and enhance organizational performance.	K3

CO 4	Analyze personnel problems, industrial relations issues, and collective bargaining practices while assessing their relationship with effective HR planning, motivation, and work environment management.	K4
CO 5	Evaluate and integrate traditional personnel management functions with emerging trends such as e-HRM, e-recruitment, and workers' participation mechanisms to design strategic and ethical HR practices	K5/K6

CORE COURSE-VIII		
VITAL STATISTICS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Describe key health indicators, hospital statistics, epidemiological concepts, measurement techniques, and statistical tools essential for healthcare analysis.	K1
CO 2	Summarize understanding of various health, hospital, and epidemiological indicators and interpret statistical data to assess the health status of populations.	K2
CO 3	Illustrate epidemiological and statistical methods such as morbidity and mortality measures, hospital indicators, and measures of central tendency in real-world healthcare settings.	K3
CO 4	Infer health trends and disease patterns using epidemiological data, mortality and morbidity rates, and hospital statistics to draw evidence-based conclusions.	K4
CO 5	Elaborate the effectiveness of healthcare services and public health programs through the integrated application of health indicators, epidemiological measures, and statistical tools for quality improvement.	K5/K6

CORE COURSE-IX		
HOSPITAL INFORMATION SYSTEM		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Enumerate the fundamental concepts of computers, programming languages and their applications in healthcare information systems and telemedicine.	K1
CO 2	Summarize understanding of the components and functions of management and hospital information systems, including computerized patient records and cyber medicine.	K2

CO 3	Interpret information technology tools, data management processes, and software systems to hospital administration, patient data management and healthcare decision-making.	K3
CO 4	Examine the integration of computerized hospital systems, patient record mechanisms and telemedicine technologies to improve healthcare delivery and management efficiency.	K4
CO 5	Justify to the effectiveness, security, and ethical implications of computerized information systems, telemedicine and cyber medicine for sustainable healthcare innovation.	K5/K6

CORE FIELD WORK		
HOSPITAL IN-PLANT TRAINING-FIELD WORK		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Describe the key operational procedures and administrative functions observed in registration, billing, medical records, and hospital departments.	K1
CO 2	Demonstrate understanding of hospital layout, departmental coordination, and the importance of patient-care procedures such as bed-making, consent, and vital sign monitoring.	K2
CO 3	Apply theoretical knowledge of hospital management to practical situations through observation of clinical and administrative processes including HR, marketing, insurance, and housekeeping.	K3
CO 4	Infer the interrelationship between clinical care practices, documentation standards, and administrative efficiency in ensuring patient safety and service quality.	K4
CO 5	Elaborate hospital operational practices, identify areas for improvement, and propose recommendations for effective patient care, workflow optimization, and resource management.	K5/K6

MAJOR BASED ELECTIVE - I		
PHARMACOLOGY		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Recall the fundamental principles of pharmacology, including drug absorption, distribution, mechanism of action, and the pharmacological basis of therapeutic, hormonal, cardiovascular, respiratory, gastrointestinal, and chemotherapeutic agents.	K1

CO 2	Classify various drugs acting on major body systems such as cardiovascular, respiratory, central nervous, gastrointestinal, and endocrine systems, and describe their pharmacokinetics, pharmacodynamics, and therapeutic applications.	K2
CO 3	Apply the mechanism of drug action, therapeutic uses, and adverse reactions of drugs including hormones, cardiac glycosides, anaesthetics, antibiotics, and chemotherapeutic agents.	K3
CO 4	Infer the knowledge of pharmacology to correlate drug actions with disease conditions, selecting appropriate routes, dosages, and combinations of drugs for effective and safe therapy.	K4
CO 5	Elaborate the clinical significance, toxicity, and rational use of drugs in the management of disorders related to cardiovascular, respiratory, nervous, endocrine, gastrointestinal systems, and in chemotherapy	K5/K6

SKILL BASED ELECTIVE - III		
NUTRITION AND THERAPEUTIC DIET		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Enumerate the principles of food, nutrition, and dietetics, including classification of foods, nutrients, vitamins, therapeutic diets and food standards, and relate them to health and disease prevention.	K1
CO 2	Classify the relationship between nutrition, health, and social factors and describe the functions and sources of macro and micronutrients, vitamins and therapeutic diets in maintaining good health.	K2
CO 3	Write the nutritional knowledge to plan balanced and therapeutic diets, identify food adulteration and ensure food hygiene and safety in various health settings.	K3
CO 4	Examine the impact of malnutrition, faulty food habits and food adulteration on community health and propose appropriate nutritional interventions.	K4
CO 5	Interpret food standards, diet therapy principles, and the role of nutrition education in promoting optimal health, preventing disease and improving hospital dietary practices.	K5/K6

CORE COURSE-X		
HOSPITAL MATERIALS MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Enumerate the fundamental concepts, objectives and scope of materials management, including planning, purchasing, inventory control, stores management and inventory control techniques.	K1
CO 2	Explain the principles and functions of materials management, inventory control, purchasing systems, stores management and the use of computers in material operations.	K2
CO 3	Apply the knowledge of materials planning, inventory control, purchasing and storekeeping to ensure effective utilization of resources and cost efficiency in materials management.	K3
CO 4	Analyze various materials management techniques such as EOQ, ABC, VED and JIT, and evaluate purchasing strategies, vendor relationships, and storekeeping practices for better operational performance.	K4
CO 5	Evaluate the integration of materials management processes, control measures for obsolescence and surplus and the role of technology in optimizing materials flow within an organization.	K5/K6

MAJOR BASED ELECTIVE -II		
HEALTH CARE MANAGEMENT		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Describe the fundamental concepts of health, disease, health planning, maternal and child health, and family welfare services, emphasizing their interrelationship and importance in community health.	K1
CO 2	Discuss the determinants of health, causation and prevention of diseases, national and international health policies and the roles of maternal, child and family health services.	K2
CO 3	Illustrate principles of health promotion, disease prevention and family welfare to plan and implement community health programs and child health services.	K3

CO 4	Infer the structure of health systems, the epidemiological triad, maternal and child health interventions and the contributions of global and national organizations in improving public health	K4
CO 5	Elaborate community-based health initiatives, preventive and promotive health services, and family and child health programs for enhancing the overall quality of life and well-being	K5/K6

MAJOR BASED ELECTIVE - III		
HOSPITAL ORGANISATIONAL SERVICES		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Enumerate the principles of hospital organization, planning, administration, leadership, marketing, and accreditation for effective healthcare management.	K1
CO 2	Explain the structure, types, and functions of hospitals along with planning procedures, ethical codes, and quality standards essential for efficient hospital operations.	K2
CO 3	Illustrate management concepts in hospital planning, marketing, public relations, and accreditation to improve the quality of healthcare services.	K3
CO 4	Infer the roles and responsibilities of hospital administrators, CEOs, and committees in ensuring organizational accountability, ethical practice, and quality patient care.	K4
CO 5	Elaborate the integration of hospital administration, planning, ethical conduct, marketing strategies, and accreditation systems to achieve excellence in healthcare delivery.	K5/K6

INTERNSHIP		
HOSPITAL INTERNSHIP		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	CO No.
	On successful completion of this course, students will be able to	
CO 1	Recall and perform fundamental ward procedures including bed making, patient feeding, drug administration and post-operative care in various hospital settings.	K1
CO 2	Summarize the principles and techniques of clinical observations, patient preparation for operations, infection control and handling of bedside equipment.	K2
CO 3	Interpret nursing and administrative knowledge in performing ward work, assisting in medical investigations and maintaining patient records.	K3
CO 4	Infer the functioning of different hospital departments such as ICU, pediatric, post-operative, administration and medical records for effective hospital management.	K4
CO 5	Produce practical competence in patient care, teamwork, communication and observation of medical, nursing, and administrative duties in real hospital environments	K5/K6

B.Sc. MATHEMATICS

FIRST ALLIED COURSE-I		
FOUNDATION MATHEMATICS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	Knowledge Level
	On completion of this course, students will be able to	
CO1	Identify the series. Define the types of matrices. Recall the types of sets. List out the simple and compound interest formulae.	K1
CO2	Classify the sequences and series and describe laws and properties of sets. Discuss about Determinants. Explain Effective Rate and Nominal Rate of Interest.	K2
CO3	Construct rules of drawing diagrams. Practice venn diagrams laws and properties of sets. Apply the different types of formulae to compute Compound Interest.	K3
CO4	Categorize the methods of description of sets. Illustrate the simple and compound interest problems. Classify the types of matrices and Outline the series.	K4
CO5	Evaluate the sum of Arithmetic progression, Geometric Progression and Harmonic Progression. Determine the Rank of a matrix. Estimate and justify the Amortization table and Discounting.	K5/K6
FIRST ALLIED COURSE – I		
BUSINESS MATHEMATICS AND STATISTICS		
Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	Knowledge Level
	On completion of this course, students will be able to	
CO1	Define the derivative of a function. Know about matrices, various measures of central tendency and dispersion. Describe correlation and regression.	K1
CO2	Differentiate constant and power function. Classify the matrices. Compute mean, median, mode, range. Discuss the types of correlation and properties of regression.	K2
CO3	Determine the derivative of Quotient function and function of a function, determinant of a matrix. Demonstrate various measures of central tendency and dispersion. Illustrate correlation and regression.	K3

CO4	Calculate the derivative of trigonometric and logarithmic functions, Minors, cofactor of a matrix. Evaluate Geometric mean, Harmonic mean, mean deviation and standard deviation. Correlate the variables and Analyze the regression lines.	K4
CO5	Construct the Inverse of a matrix, maxima and minima of a function. Solve the simultaneous equations. Estimate various measures of central tendency and dispersion, correlation coefficient and regression lines.	K5/K6

FIRST ALLIED COURSE – I

ANCILLARY MATHEMATICS-I

Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	Level
	On completion of this course, students will be able to	
CO1	Recognize the concepts of Arithmetic progression, Geometric Progression, Harmonic Progression and determine the maxima and minima of the given function	K1
CO2	Explain the consistency of a system of simultaneous linear equations	K2
CO3	Solve the Simple Interest and Compound Interest.	K3
CO4	Analyse the linear programming problem through different techniques	K4
CO5	Explain the transportation problem and assignment problem	K5/K6

FIRST ALLIED COURSE – I

MATHEMATICAL TECHNIQUES-I

Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	Level
	On completion of this course, students will be able to	
CO1	Define and identify different types of matrices. Define determinants of matrices. Study the concept of consistency of a system of simultaneous linear equations	K1
CO2	Define and explain key probability concepts. Compare and contrast addition and multiplication theorems of probability. Explain conditional probability and Bayes theorem to solve problems.	K2
CO3	Calculate mean ,median, mode for the given data. Apply geometric mean and harmonic mean to solve the problems.	K3

	Use positional measures to solve the problems.	
CO4	Explain various measures of dispersion. Calculate range, quartile deviation, mean deviation, standard deviation. Analyze data using moments.	K4
CO5	Summarize the definition and existence of Laplace transforms. Express functions in the Laplace transform properties. Solve the Laplace transform problems.	K5/K6
FIRST ALLIED COURSE – II		
FOUNDATION STATISTICS		
Course Outcomes (CO)		Knowledge Level
	CO-Statements	
CO No.	On completion of this course, students will be able to	
CO1	Identify statistical data. Recall the measures of central tendency and dispersion. List out the types of correlation. Memorize Correlation and Regression to understand statistical problems.	K1
CO2	Classify the statistical data and describe types of diagram. Discuss about Measures of dispersion. Explain scatter diagram. Recognize simple linear correlation and regression.	K2
CO3	Construct rules of drawing diagrams. Practice diagrams and graphs of statistical data. Apply measures of dispersion to compute coefficient of variation. correlation and Regression,	K3
CO4	Categorize the graphs of frequency distribution. Illustrate the methods of measures of dispersion. Classify the types of correlation and Outline the regression lines.	K4
CO5	Evaluate measures of central tendency and dispersion. Determine Rank correlation. Estimate and justify linear correlation and design regression.	K5/K6
FIRST ALLIED COURSE – II		
OPERATIONS RESEARCH		
Course Outcomes (CO)		Knowledge Level
	CO-Statements	
CO No.	On completion of this course, students will be able to	
CO1	Identify the Linear programming problem, Transportation problem, Assignment problem. List the various types of Inventories. Know the basic concepts of Games and Replacement problems.	K1
CO2	Explain the various methods and Give examples for finding	K2

	the solutions to Linear programming problem, Transportation & Assignment problems, deterministic inventory problems, two-person zero sum games and replacement problems.	
CO3	Apply the graphical method, North west corner rule, Vogels approximation method, Least cost method and MODI method. Solve Travelling Salesman problem, Games with and without saddle points, Inventory problems with uncertain demand	K3
CO4	Classify and Outline the concepts of Linear programming problem, Transportation problem, Assignment problem, Inventory control problems and Replacement problems.	K4
CO5	Design the Mathematical formulation. Predict the solutions for LPP through various methods. Estimate the optimality in Transportation and Assignment problems. Conclude the Mixed strategies in Games, Inventory Decisions and replacement policies.	K5/K6

FIRST ALLIED COURSE – II

ANCILLARY MATHEMATICS-II

Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify the basic concepts of probability.	K1
CO2	Describe the different methods used in Measures of Central Tendency , Measures of dispersion , Index numbers	K2
CO3	Analyze and interpret the real valued problem using Measures of Central Tendency , Measures of dispersion and Correlation and Regression, , Index numbers	K3
CO4	Classify and differentiate the methods used in Measures of Central Tendency , Measures of dispersion	K4
CO5	Predict the solutions of the real valued problem through Measures of Central Tendency , Measures of dispersion and Correlation and Regression, Index numbers	K5/K6

FIRST ALLIED COURSE – II

MATHEMATICAL TECHNIQUES-II

Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Apply various numerical methods such as Bisection, False position, Iteration and Newton Raphson methods to solve	K1

	algebraic and transcendental equations. To Develop algorithm to solve numerical equations.	
CO2	Describe the steps involved in the Gauss Elimination and Gauss Jordan method for solving systems of linear equations. Explain the concept of triangularization and solving system of equations	K2
CO3	Apply Gregory-Newton forward and Backward formula to estimate values of a function. Use Central difference formula to find the values of a function. Solve the problem to apply Gauss's forward and Backward formula.	K3
CO4	Classify the type of arbitrary constants or functions in a partial differential equations. Distinguish the differences between various standard types of first-order partial differential equations.	K4
CO5	Categorize functions as even or odd. Criticize the limitations and assumptions of Fourier series expansions. Justify the convergence of a Fourier series.	K5/K6
FIRST ALLIED COURSE – PRACTICAL		
PRACTICAL:FOUNDATIONS IN MATHEMATICS		
Course Outcomes (CO)		Knowledge Level
	CO-Statements	
CO No.	On completion of this course, students will be able to	
CO1	Understand the concepts of classification, diagrams and graphs of statistical data. Identify the concepts of sequences and series. Recall measures of central tendency and dispersion. List out the types of correlation.	K1
CO2	Classify simple interest and compound interest. Describe types of diagram. Discuss about standard deviation. Recognize simple linear correlation and regression.	K2
CO3	Construct the graphs of frequency distribution. Practice diagrams and graphs of statistical data. Apply measures of dispersion to compute coefficient of variation.	K3
CO4	Categorize the graphs of frequency distribution. Illustrate the methods of measures of dispersion. Classify the types of correlation and Outline the regression lines.	K4
CO5	Solve the simultaneous equations. Determine the rank of matrices. Estimate and justify linear correlation and design regression.	K5/K6
FIRST ALLIED COURSE – PRACTICAL		
PRACTICAL:MATHEMATICS FOR BUSINESS ADMINISTRATION		
Course Outcomes (CO)		Knowledge

	CO-Statements	Level
CO No.	On completion of this course, students will be able to	
CO1	Discuss the basic concepts and Identify application of Differentiation and Inventory control. Revise the fundamental and common operations of Matrices.	K1
CO2	Outline the concepts of Statistical methods and Estimate the solutions.	K2
CO3	Classify the coefficient of correlation. Design and Predict the lines of regression.	K3
CO4	Reconstruct the real valued problem through linear programming problem	K4
CO5	Conclude the real valued problems through transportation and assignment problems. Know and Practice the concepts of Inventory control, Replacement policies.	K5/K6

FIRST ALLIED COURSE – PRACTICAL

PRACTICAL: MATHEMATICS FOR COMPUTER APPLICATIONS

Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	
CO1	Identify the basic concepts of Mathematics	K1
CO2	Describe the different methods used in linear programming problem, Measures of Central Tendency , Measures of dispersion , Index numbers	K2
CO3	Analyze and interpret the real valued problem using linear programming problem, Measures of Central Tendency , Measures of dispersion and Correlation and Regression, Index numbers	K3
CO4	Classify and differentiate the methods used in linear programming problem , Measures of Central Tendency , Measures of dispersion	K4
CO5	Predict the solutions of the real valued problem through linear programming problem, Measures of Central Tendency , Measures of dispersion and Correlation and Regression, Index numbers	K5/K6

FIRST ALLIED COURSE – PRACTICAL

PRACTICAL: MATHEMATICS FOR ELECTRONICS

Course Outcomes (CO)		Knowledge Level
CO No.	CO-Statements	
	On completion of this course, students will be able to	

CO1	List the basic concepts of matrices and identify the rank consistency of a system of simultaneous linear equations	K1
CO2	Describe the experiment and its outcomes of probability	K2
CO3	Solve the real valued problems through measures of central tendency and dispersion	K3
CO4	Classify the differential equations using Laplace transform technique in the field of electronics.	K4
CO5	classify the techniques to solve the partial differential equations and Justify the way of representing a periodic function as a sum of sine and cosine functions through Fourier series	K5/K6