ADHIPARASAKTHI COLLEGE OF ARTS AND SCIENCE
(AUTONOMOUS)
G.B. NAGAR, KALAVAI – 632 506, RANIPET DISTRICT.
DEPARTMENT OF BIOCHEMISTRY

PROGRAMME OUTCOMES FOR THE ACADEMIC YEAR 2023-2024
B.Sc. BIOCHEMISTRY

PROGRAMME OUTCOMES- B.SC. BIOCHEMISTRY	
PO1	Acquire, understand and demonstrate scientific knowledge in the basic principle of biochemistry and apply that knowledge in their day to day life for the betterment of self and society
PO2	Develop critical thinking, analytical reasoning and problem solving capability skillsby acquiring and familiarizing with broad knowledge in the major subject and exposure to these qualities.
PO3	Develop research related skills in understanding and defining the problem, formulateand test the hypothesis critically analyze interpret and draw conclusion from data.
PO4	Understand, analyze, address and develop solutions for social and environmentalneeds of local regional and national development'
PO5	Imparting knowledge on the principles of the experimental techniques and training extensively using modern instrumentation.
PO6	Work effectively independently respectfully critically evaluate ideas evidence and engage experience in lifelong learning and enduring proficient progress.
PO7	Ability to analyze, interpret and draw conclusion effectively communicate scientific information.
PO8	Entitle students to appreciate the prominence of biochemistry in basic and applied research in varied branches of industry, medicine, agriculture pharmacy, food technology, biotechnology, etc.

PROGRAMME SPECIFIC OUTCOMES	
PSO1	To create comprehend knowledge to the students who will develop scientific temperament and attitude. Impact principles and application along with laboratory expertise in modern biochemical techniques.
PSO2	Provide wide knowledge and training in biochemistry and other science and develop intellectual independence, analytical and critical thinking and versatility for problem solving in biochemistry and other related colours.
PSO3	Acquire knowledge to produce employable, ethical innovate professionals to sustain in the dynamic technique related to biochemistry.

M.Sc. BIOCHEMISTRY
PROGRAMME OUTCOMES FOR THE ACADEMIC YEAR 2023-2024

PO1	Acquire, understand and demonstrate scientific knowledge in the basic principle of biochemistry and apply that knowledge in their day to day life for the betterment of self and society
PO2	Develop critical thinking, analytical reasoning and problem solving capability skills by acquiring and familiarizing with broad knowledge in the major subject and exposure to these qualities.
PO3	Develop research related skills in understanding and defining the problem, formulate and test the hypothesis critically analyze interpret and draw conclusion from data.
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PO5	Imparting knowledge on the principles of the experimental techniques and training extensively using modern instrumentation.
PO6	Work effectively independently respectfully critically evaluate ideas evidence and engage experience in life long learning and enduring proficient progress.
PO7	Ability to analyze, interpret and draw conclusion effectively communicate scientific information.
PO8	Entitle students to appreciate the prominence of biochemistry in basic and applied research in varied branches of industry, medicine, agriculture pharmacy, food technology, biotechnology, etc.

M.SC. BIOCHEMISTRY	
PSO1	Acquire, integrate and generate in-depth relevant scientific knowledge and understanding of the biochemical principles, with scientific temperament and attitude, professional, ethical, environmental and social responsibilities.
PSO2	Provide foundation for a better understanding of classification, structure and functions of biological molecules, both individually and as the members of complex macromolecules.
PSO3	To impart laboratory expertise in modern biochemical techniques, including the ability to analyze data and prepare scientific reports.

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CURRICULAR ASPECTS
COURSE OUTCOMES FOR THE ACADEMIC YEAR 2023-2024
B.Sc. BIOCHEMISTRY

SEMESTER – I		
COs	**Course Name: NUTRITIONAL BIOCHEMISTRY**	**Code: U1BC41MT Credits: 4**
CO1	Understand the basic knowledge on basic food groups, ability to analyse calorific value of foods	
CO2	Imparting knowledge, to analyse, interpret, the Carbohydrates, proteins and lipids and evaluate the nutritional values.	
CO3	Acquire, understand, analyse and formulate the Balanced Diet requirements	
CO4	Basic Knowledge , understand , analyse, critical thinking, on Nutraceuticals types and its function.	
CO5	Ability to analyse Develop, Critical thinking, Experimental techniques and importance of food preservation techniques and Importance	
SEMESTER – I		
COs	**Course Name: CHEMISTRY – I**	**Code: U1CH41AT Credits: 4**
CO1	Familiarity with basic knowledge on chemical bonding and able to understand the formation of molecular structure through hybridization.	
CO2	Impart the knowledge on organic molecule types of reaction, reaction of heterocyclic compound.	
CO3	Develop critical thinking, gain knowledge and capacity to analyse radioactive isotope and its industrial application.	
CO4	Gain knowledge on various aspect of chemistry, understanding the basic information about the fuels, fertilizer and its significance.	
CO5	Able to analyse evaluate and translate application of chemistry and enumerates various research ideas related to antibiotics, artificial sweeteners and organic halogen compounds.	
SEMESTER – I		
COs	**Course Name: NUTRITIONAL BIOCHEMISTRY PRACTICAL**	**Code: U1BC41MP Credits: 3**
CO1	Gain knowledge analyze, evaluate, the ascorbic acid in fruit and understand the significant of vitamin C.	

CO2	Acquire, understand and scientific knowledge in the isolation of calcium in milk and their important	
CO3	Develop research related skills in understanding and knowledge and knowledge to analyse nutrient from the source	
CO4	Gain knowledge to understand, analyse ash and moisture content in the food samples.	
CO5	Important practical knowledge in the extraction of lipid from oil source by using soxhlets techniques.	
SEMESTER – I		
COs	**Course Name: ALLIED CHEMISTRY PRACTICAL – I**	**Code: U1CH41AP Credits: 2**
CO1	Acquire, understand and demonstrate basic knowledge on preparation of reagent.	
CO2	Able to gain a practical knowledge and understand of the use of standard flask , burette and volumetric pipettes.	
CO3	Develop critical thinking, analytical reasoning, and problem solving knowledge to carry out record and interpret the result of volumetric titration.	
CO4	Understand, apply the skill to analyse and evaluate the hardness of water.	
CO5	Impart broad knowledge in the laboratory expertise in modern techniques in volumetric analysis and evaluate the result.	
SEMESTER – I		
COs	**Course Name: LIFESTYLE DISEASES**	**Code: U2BC31MT Credits: 4**
CO1	Basic knowledge to understand, evaluate, problem solving capability, Identify the relationship between lifestyle and health.	
CO2	Impart wide knowledge , Recognize the basic factors contributing, evaluate the reason, draw conclusion to lifestyle disease and prevention of lifestyle diseases.	
CO3	Wide knowledge, ability to self- screen, evaluate the report, employability, work effectively in independently with instruments to analyse the diabetes and cardiovascular diseases.	
CO4	Ability to analyse, self-study, interpret, develop solution, work effectively and draw the conclusion for the obesity and stroke and COPD.	
CO5	State basic knowledge, ability to Recognize, women-specific lifestyle diseases, analyse, interpret, evaluate idea to control and prevent the lifestyle diseases.	
SEMESTER – I		
COs	**Course Name: PRINCIPLES OF BASIC BIOCHEMISTRY**	**Code: U1BC41FC Credits: 2**
CO1	Acquiring knowledge and significance of biomolecules as well as familiarize with subjects of basic biochemistry	
CO2	Acquire, understand and express the basic knowledge about the carbohydrates and Lipids	
CO3	Understanding the significance of nucleic acid and its types as well as the role in biological systems	

CO4	An essential knowledge on enzymes and awareness on requirement, biological roles and deficiency diseases of vitamins and minerals	
CO5	Acquire knowledge by learning the fundamental concepts about the enzymes and Hormones	
SEMESTER – II		
COs	**Course Name: CELL BIOLOGY**	**Code: U2BC41MT Credits: 4**
CO1	Understanding the relationship between cellular organization and biological function of normal cell, prokaryotic and eukaryotic cells	
CO2	Broad knowledge on the cell membrane and transport mechanism	
CO3	Knowledge on basic cell organelles and their functions	
CO4	Understand the types of microfilaments and Cell-cell interactions	
CO5	Able to explain the structure and functions of nucleus cell cycle, Meiotic and mitotic cell divisions	
SEMESTER – II		
COs	**Course Name: PRACTICAL –II CELL BIOLOGY**	**Code: U2BC41MP Credits:3**
CO1	Students can able to Identify the parts of microscope.	
CO2	Knowledge on blood collection and identification of blood group	
CO3	Able to identify the stages of mitosis & meiosis	
CO4	Visualize nucleus and mitochondria by staining methods	
CO5	Identify the spotters of cells, organelles	
SEMESTER – II		
COs	**Course Name: ALLIED – II -CHEMISTRY – II**	**Code: U2CH41AT Credits: 4**
CO1	To impart basic knowledge on coordination compound , able to understand and analyse and evaluate quality of water.	
CO2	Acquire, understand and basic knowledge on organic compound and sterio isomerism effects.	
CO3	Understanding the basic information and gain knowledge food and dairy product and its application.	
CO4	Develop critical thinking, impart knowledge capacity to analyse electroplating and application of electrode.	
CO5	Ability to analyse interpret evaluate and impart knowledge of buffer, photochemistry in the field of biochemistry	
SEMESTER – II		
COs	**Course Name: SKILL ENHANCEMENT COURSE – II FIRST AID**	**Code: U2BC41SE Credits: 2**
CO1	Acquire, understand, analyse the Basic knowledge on First aid.	

CO2	Wide Knowledge to Analyse, capability skills on Various Medical Emergencies	
CO3	Understanding the basic information, effectively communicate, employability on first aid for cuts and wounds	
CO4	Ability to analyse , identify the causes and effects of common aliments.	
CO5	Develop critical thinking, impart knowledge capacity to analyse , ability to identify the causes and effects of Poisoning and its treatment	
SEMESTER – II		
COs	**Course Name: SKILL ENHANCEMENT COURSE – III (NME)** **HEALTH AND NUTRITION**	**Code: U2BC42SE** **Credits: 2**
CO1	Acquire basic knowledge and Understand about the importance of health and diet	
CO2	Acquire knowledge ,Understood, ability to access the importance of various types of vitamins and its functions.	
CO3	Wide Knowledge on composition and functions of trace elements, ability to understand, interpret and evaluate the trace elements.	
CO4	Familiar basic knowledge on therapeutic diets and aware of Deficiency and disorders caused by vitamins and minerals	
CO5	Will be able to identify the heart disease, obesity, Diabetes Mellitus and gain Knowledge on sources and functions of dietary fats.	
SEMESTER – II		
COs	**Course Name: ALLIED PRACTICAL** **SYSTEMATIC ANALYSIS OF ORGANIC COMPOUNDS**	**Code: U2CH41AP** **Credits: 2**
CO1	Provide foundation for a better understanding and basic knowledge on structure and functional group of organic compounds.	
CO2	Ability to understand, analyse and evaluate the element present in the organic sample.	
CO3	Gain knowledge to analyse, nature of functional group and their chemical constituents present in the organic sample.	
CO4	Acquire, understand and demonstrate knowledge to analyse a chemical constituent present in the milk.	
CO5	Impart wide knowledge to analyse and evaluate the structure of given organic sample.	
SEMESTER – III		
COs	**Course Name: MEDICAL LABORATORY TECHNOLOGY**	**Code: U3BC31MT** **Credits: 4**
CO1	Clear outline about the good laboratory practices.	
CO2	Basic knowledge on clinical pathology of body fluids.	
CO3	Ability to understand haemopoiesis and serology.	

CO4	Understanding of haemopoiesis, serology, and blood banking	
CO5	Knowledge on writing and releasing the lab reports.	
CO6	Ability to handle the instruments used in laboratory	
CO7	Familiarity in specimens collection	
SEMESTER – III		
COs	**Course Name: FIRST AID**	**Code: U3BC32ST Credits: 2**
CO1	Discuss on the rules of first aid, dealing during emergency and first aid techniques	
CO2	Understand the first aid techniques to be given during different Medical Emergencies	
CO3	Wide Knowledge on Various Medical Emergencies	
CO4	Provide first aid for cuts and wounds	
CO5	Provide first aid for injuries, shocks and head injury	
SEMESTER – IV		
COs	**Course Name: HUMAN ANATOMY AND PHYSIOLOGY**	**Code: U4BC31MT Credits: 4**
CO1	Basic knowledge on the basic structure of human body - bone, cartilage, ligaments and tendons the structure and function of kidney	
CO2	Familiarity in the structure and functions of lungs and heart, mechanism of Respiration as well as the pulmonary and systemic circulations ,General awareness of nervous and muscular system and mechanism of muscle contraction	
CO3	Knowledge in characteristics of skin, nail, and hair along with various methods and radiology techniques used in anatomy	
CO4	Broad knowledge on anatomical structure and functional activities of the plasma membrane.	
CO5	Knowledge on the mechanism of digestion and absorption of food, structure of kidney and formation of urine	
SEMESTER – IV		
COs	**Course Name: MUSHROOM CULTIVATION**	**Code: U4BC32ST Credits: 2**
CO1	Familiarity with history, morphology and types of mushrooms	
CO2	General awareness on casing and well versed with casing methods.	
CO3	Gain knowledge on mushroom cultivation technology	
CO4	To be able to exploit the stages of storage of mushroom	
CO5	Have awareness on national mushroom research center in India.	

SEMESTER – IV		
COs	**Course Name: MEDICAL LABORATORY TECHNOLOGY**	**Code:** **Credits:**
CO1	Understanding and application of the hands-on knowledge gained in medical laboratory technology in their future career as well as while establishing clinical laboratories	
CO2	To gain Basic knowledge on clinical biochemistry experiments further interpret analyse and draw conclusion using modern instruments	
CO3	Work effectively, independently and critically evaluate the qualitative analysis of urine sample.	
CO4	Impart basic knowledge on the experiment techniques for media preparation, and microbial techniques.	
CO5	To demonstrate the estimation of biological sample by using modern techniques	
SEMESTER – V		
COs	**Course Name: BASIC ENZYMOLOGY**	**Code:U5BC21MT** **Credits: 5**
CO1	Understanding the basics regarding the enzymes and their properties	
CO2	Acquiring knowledge on coenzyme and cofactors	
CO3	Understanding the kinetics of enzyme catalyzed reactions	
CO4	Familiarity with enzyme inhibitory and regulatory process	
CO5	Knowledge on applications of enzymes in industries	
SEMESTER – V		
COs	**Course Name: INTERMEDIARY METABOLISM**	**Code: U5BC22MT** **Credits: 5**
CO1	Knowledge, Understanding, work efficiently on carbohydrate pathways and metabolism	
CO2	Understand the Electron Transport Chain and ability to analyse the Photosynthesis	
CO3	Ability to Analyse, Understanding the importance of metabolism of lipids	
CO4	Acquiring the knowledge and analytical reasoning and problem solving in protein metabolism.	
CO5	Scientific Knowledge, able to Develop Solution on biosynthesis and degradation of nucleic acids	
SEMESTER – V		
COs	**Course Name: GENETICS AND MOLECULAR BIOLOGY**	**Code: U5BC23MT** **Credits: 5**
CO1	Imparting basics knowledge and develop research related skills onthe genes, DNA, Chromosome and Mendalian laws	
CO2	Acquiring knowledge and Significance of various factors and enzymes involved in DNA synthesis in prokaryotes	
CO3	Ability to review and capacity to analyze the mechanism of prokaryotic RNA biosynthesis and post-transcriptional modifications of various RNAs	

CO4	Address, understand and capacity to analyze the genetic code dictionary and stages of protein synthesis in bacteria	
CO5	Understanding the basic concepts and develop the critical thinking about the Gene Regulation, Mutation and DNA repair Mechanism in prokaryotes	
SEMESTER – V		
COs	**Course Name: HORMONAL AND NUTRITIONAL BIOCHEMISTRY**	**Code:U5BC24ET Credits:5**
CO1	To acquire detailed knowledge regarding the biological basis of hormones	
CO2	Acquire thorough knowledge on the physiological actions of hormones and able to interpret human disorders.	
CO3	Impart knowledge on adrenal and gonadal hormone, able to analyse and evaluate the hormonal disorder related to infertility.	
CO4	Gain knowledge o nutritive value of protein and their application in human health.	
CO5	Acquire knowledge and develop critical thinking and analyse the reasoning in the vitamin deficiency.	
SEMESTER – V		
COs	**Course Name: BIOCHEMICAL AND ENVIRONMENTAL TOXICOLOGY**	**Code: U5BC25ET Credits: 5**
CO1	Imparting knowledge, understanding, able to improve the research, experimental analysis and able to interpret electrochemical techniques and their applications	
CO2	Ability to understand, analyze, interpret, work effectively and provoke self employability in instrument and biological applications of various chromatography techniques.	
CO3	Understanding, analyze, ability to think critically, defining the problem, evaluate, identify and provoke the employability on and its spectral data.	
CO4	Scientific Knowledge, problem solving capability, handling and impart the research knowledge on the centrifugation and radioisotopes	
CO5	Basic knowledge, analyze, awareness, problem solving capability and experimental analysis using radioisotopes.	
SEMESTER – VI		
COs	**Course Name: HUMAN ANATOMY AND PHYSIOLOGY**	**Code:U6BC21MT Credits:5**
CO1	Basic knowledge on the basic structure of human body - bone, cartilage, ligaments and tendons the structure and function of kidney	
CO2	Familiarity in the structure and functions of lungs and heart, mechanism of respiration as well as the pulmonary and systemic circulations ,General awareness of nervous and muscular system and mechanism of muscle contraction	

CO3	Knowledge in characteristics of skin, nail, and hair along with various methods and radiology techniques used in anatomy	
CO4	Broad knowledge on anatomical structure and functional activities of the plasma membrane.	
CO5	Knowledge on the mechanism of digestion and absorption of food, structure of kidney and formation of urine	
SEMESTER – VI		
COs	**Course Name: CLINICAL BIOCHEMISTRY**	**Code:U6BC22MT Credits:5**
CO1	Imparting knowledge, understanding, able to analysis and able to interpret the disorders of carbohydrate metabolism	
CO2	Ability to understand, analyze, interpret and solving the problem of lipid and amino acid metabolism.	
CO3	Understanding, analyze, ability to think critically, defining the problem, evaluate, identify the liver functions and disorders	
CO4	Scientific Knowledge, problem solving capability, able to analyze in kidney and gastric functions tests.	
CO5	Basic knowledge, analyze, awareness, Enzyme markers used for diagnostic studies	
SEMESTER – VI		
COs	**Course Name: BIOTECHNOLOGY**	**Code:U6BC23ET Credits: 5**
CO1	Understanding of the basic concepts and demonstrate the scientific knowledge on various genetic engineering tools and cloning vectors in Biotechnology	
CO2	Acquire knowledge and capacity to analyze along with develop research related skills on various gene transfer methods and techniques used for DNA manipulation	
CO3	Imparting knowledge to enumerate various research ideas using the plant tissue culture techniques to provoke the employability	
CO4	Comprehend knowledge to develop intellectual independence, analytical and critical thinking and establishment of animal cell culture technique	
CO5	Acquire knowledge to provoke employability and entrepreneurship by learning the synthesis and applications of recombinant proteins/compounds from cell cultures, plants and in animals.	
SEMESTER – VI		
COs	**Course Name: PLANT BIOCHEMISTRY AND PLANT MOLECULAR BIOLOGY**	**Code:U6BC24ET Credits:5**
CO1	Understanding the Basic concept and knowledge on photosynthesis	
CO2	Acquire Information, capability to analyze and understanding of plant hormones and nitrogen metabolism	

CO3	Ability to critically evaluate plant disease and secondary metabolites	
CO4	Understanding of plant physiology and ability to analyze mechanism of water absorption	
CO5	Comprehensive knowledge on tissue culture and plant molecular biology techniques.	
SEMESTER – VI		
COs	**Course Name: IMMUNOLOGY**	**Code: U6BC25ET Credits:5**
CO1	Basic knowledge, ability to analyse, to create awareness and role of immune cells on Immunity	
CO2	Understanding, ability to evaluate, interpret, defining and problem solving capability on the cells involving in immune system.	
CO3	Familiarity to work effectively, to create awareness, efficient to work in reactions of antigen , antibody and its immune disease.	
CO4	Ability to create awareness on the transplantation process and easily can evaluate, problem solving ideas, to handle modern instruments on immunodeficiency disorders	
CO5	Understanding, detail knowledge on Allergy, ability to create awareness on hypersensitivity and capacity to solve the autoimmune disorders	
SEMESTER – VI		
COs	**Course Name: BIONANOTECHNOLOGY**	**Code:U6BC26ET Credits:5**
CO1	Basic knowledge and understanding of in Nano biomaterials used in Bio nanotechnology.	
CO2	Acquire, interpret, and generate Knowledge on interaction between biomolecules and nanoparticle surface	
CO3	Develop a knowledge to synthesis and analyse various type of Nano medicines	
CO4	Imparting the knowledge and Understanding the experimental technique for the evaluation of nanoparticles.	
CO5	Ability to develop, understanding, critical thinking, analyse the nanotechnology and their application in biomedical engineering.	
SEMESTER – VI		
COs	**Course Name: PHARMACOLOGY AND PHARMACEUTICAL BIOCHEMISTRY**	**Code:U6BC27ST Credits:2**
CO1	Understanding the basic Knowledge on general pharmacology and familiarizing drug metabolism and excretion of drugs	
CO2	Ability to Understand, critically evaluating and analyzing the biological mechanism of drug action	
CO3	Develop critical thinking, capability to analyze and understand the action of drugs acting on central and autonomous nervous system	

CO4	Acquiring the knowledge on chemotherapeutic drugs and cardiovascular drugs	
CO5	Comphersensive knowledge and familiarity with novel therapeutics such as enzymes, antioxidants, gene therapy, recombinant vaccines and monoclonal antibodies.	
SEMESTER – VI		
COs	**Course Name: BLOOD ANALYSIS AND ENZYMOLOGY**	**Code:U6BC21MP Credits:5**
CO1	The student will be able to understand, analyze, work effectively, interpret and provoke to work efficiently in blood analysis.	
CO2	Ability to understand, analyze, clarify, proper reasoning and able to interpret the enzyme activity.	
CO3	Familiar in handling, evaluate, take solution in critical conditions in separation techniques.	
CO4	Ability to demonstrate, provoke entrepreneurship, employability in protein separation techniques.	
CO5	Understanding, analyzing, problem solving techniques in colorimetric estimations.	
SEMESTER –VI		
COs	**Course Name: FOOD ANALYSIS, MICROBIOLOGY AND SEPARATION TECHNIQUES**	**Code: U6BC22EP Credits: 4**
CO1	The student will be able to understand, analyse, work effectively, interpret and provoke to work efficiently in food analysis.	
CO2	Ability to understand, analyse, clarify, and able to interpret the microbial samples	
CO3	Familiar in handling, evaluate, take solution in critical conditions in separation techniques.	
CO4	Ability to demonstrate, provoke entrepreneurship, employability in bio chemical Compounds	
CO5	Understanding, analyzing, problem solving techniques in biological molecules	

COURSE OUTCOMES FOR

M.Sc. BIOCHEMISTRY

SEMESTER – I		
COs	**Course Name: BASICS OF BIOCHEMISTRY**	**Code: P1BC41MT Credits:4**
CO1	Acquire basic knowledge and Understand the basics of carbohydrates and bacterial cell wall polysaccharides	
CO2	Analyse and understand the various types of lipids, lipoproteins, and their biological significance.	
CO3	Understand basic knowledge on Amino acids classification and gain Broad knowledge on Amino acids sequence	
CO4	Impart basic knowledge , role of macromolecules and analyze the composition , structure of proteins	
CO5	Develop critical thinking and different types of nucleic acids and their sequence, major and minor classes of RNA and their biological functions.	
SEMESTER – I		
COs	**Course Name: BIOCHEMICAL AND MOLECULAR BIOLOGY TECHNIQUES**	**Code: P1BC42MT Credits: 4**
CO1	Imparting knowledge, understanding, able to improve the research, experimental analysis and able to interpret, provoke self-employability in chromatography techniques and their applications	
CO2	Acquire basic idea , principles, working with instrument, interpretation, work independently, employability to evaluate the DNA, protein sample	
CO3	Ability to identify the presence of inorganic compound, ability to sample handling, evaluating, self-employability, to create awareness, problem solving teachings and Interpret the spectra data.	
CO4	Wide Knowledge on identifying, analyse, handling the biological samples, radioactive samples, interpret, critical thinking to solve the problems, employability, in centrifugation methods and radioisotopes.	
CO5	Impart idea on molecular samples to handle, analysis, interpret, critical thinking, problem solving ability, self employability, ability to research individually in antimutagenic compounds.	
SEMESTER – I		
COs	**Course Name: HUMAN PHYSIOLOGY AND CELL BIOLOGY**	**Code: P1BC43ET Credits:3**
CO1	Obtain a deep knowledge regarding blood and its components.	
CO2	Attain an information on anemia.	
CO3	Ability to discuss about an anatomy of heart and the cardiac cycle.	
CO4	Ability to describe the composition, functions and regulation of digestive secretion.	

CO5	Familiar with Neurons and gross neuroanatomy.	
CO6	Familiar with hormones and its functions.	
CO7	Understanding of the Muscle physiology.	
SEMESTER – I		
COs	**Course Name: PLANT BIOCHEMISTRY (ELECTIVE)**	**Code: P1BC34ET** **Credits: 3**
CO1	Broad knowledge on anatomical structure and functional activities of the plasma membrane.	
CO2	Impart basic awareness on cell junctions, cell-cell interaction, microtubules.	
CO3	Knowledge on the mechanism of digestion and absorption of food, structure of kidney and formation of urine	
CO4	Understanding the physiology of human respiratory system, mechanism of the movement of gases and Knowledge on structure and function of human heart and cardiac cycle.	
CO5	Awareness on physiology of nervous system, nerve cells, action potential, impulse transmission, neurotransmitter and Mechanism of muscle contraction	
SEMESTER – I		
COs	**Course Name: ELECTIVE -MICROBIOLOGY AND IMMUNOLOGY**	**Code: P1BC44ET** **Credits:3**
CO1	Understand basic knowledge, ability to identify, work effectively on Taxonomical classification, culture media and food poisoning caused by bacterial species.	
CO2	Familiar with the reason for food contamination and understand the modern and tradition methods of food preservation.	
CO3	Imparting knowledge on immune system, role of the lymphoid organ, ability to understand working, interpretation, ability to exposure with immune system.	
CO4	Acquire wide knowledge, understand the immunity, critical thinking, defining problem, handling instruments, work effectively and independently with immune cells.	
CO5	Wide knowledge in autoimmune disease, immunity, ability to explain the immunodeficiency and its causes, critical thinking to outcome from the disease, work independently, employability, ability to work in medicine.	

SEMESTER –I		
COs	**Course Name: LABORATORY COURSE ON BIOMOLECULES AND BIOCHEMICAL TECHNIQUES**	**Code: P1BC41MP Credits: 4**
CO1	Acquire knowledge on biochemistry, familiarizing with quantitative analysis, developing research related skills, focus environmental needs, work effectively and evaluate the biological samples.	
CO2	Ability to understand and demonstrate the scientific knowledge, analysis, interpret the denaturation of DNA and protein.	
CO3	Broad knowledge in the minerals, ability to analysis, develop solution, experimental techniques, enduring proficient progress.	
CO4	Ability to gain knowledge, analyse, interpret, work effectively, to develop research related the secondary compounds present in the plant samples.	
CO5	Impart knowledge on to formulate, identify, and to defining the problem and capability to solving, experimental handling to separate the secondary compounds from the samples , ability to work in various fields.	
SEMESTER –I		
COs	**Course Name: ENZYMOLOGY**	**Code: P2BC41MT Credits:5**
CO1	Gain basic knowledge and understanding capacity on theoretical and practical aspects of enzymology	
CO2	Familiar with problem solving and understanding the basic knowledge on enzyme Kinetics	
CO3	Impart the problem solving and analysing Knowledge on the structure, functions and the mechanisms of action of co-enzymes.	
CO4	Address understand and capacity to analyse and gain knowledge on enzyme inhibition and catalytic action.	
CO5	A through knowledge, ability to analyse, critical thinking and evaluation of Industrial and clinical application of enzymes	
SEMESTER –I		
COs	**Course Name: CELLULAR METABOLISM**	**Code: P2BC42MT Credits:5**
CO1	Acquire knowledge and understanding the basic principle of oxidative phosphorylation and mitochondrial transport system	
CO2	Understanding capacity to solve the problem and knowledge on carbohydrate metabolism and production of ATP.	
CO3	Ability to analyse, evaluate and gain knowledge on lipid and cholesterol metabolism.	
CO4	Acquire basic knowledge and analysing capacity on amino acid metabolism	

CO5	To create comprehend knowledge on metabolism of purine and pyrimidine and ability to evaluate and analyse disorder related to each metabolism	
SEMESTER –I		
COs	**Course Name: ELECTIVE PAPER – I BIOCHEMICAL TOXICOLOGY**	**Code: P2BC41ET Credits:3**
CO1	Acquire basic knowledge and ability to understand toxicological biomarkers to assess drug toxicities.	
CO2	Impart knowledge on disposition of drug in human system and analyse their metabolism and understanding the methodologies pertaining to toxicological studies.	
CO3	Understand evaluate and gain knowledge on the functions of different organs on drug disposition and associated drug toxicities.	
CO4	Ability to understand and develop knowledge on research related skill in the study of toxicity testing of drugs and chemicals in animal models and by *in* vitro methods.	
CO5	Understand and ability to analyse and evaluate the basic knowledge on toxicological response to foreign compounds and their pharmacological, physiological and biochemical effects.	
SEMESTER – II		
COs	**Course Name: ELECTIVE PAPER – II BIOSAFETY, LAB SAFETY AND IPR**	**Code: P2BC42ET Credits:3**
CO1	Acquire basic knowledge , understand and implement various aspects of biosafety methods followed in the laboratory	
CO2	Understand and familiarize the basic concepts of intellectual property and related rights in the clinical and chemical lab	
CO3	Appreciate the intellectual property rights and its implementation of on the invention related to biological research.	
CO4	Understand the statutory bodies that regulate the property rights and its validity in various countries	
CO5	Impart basic knowledge and gain capability on applying patent for their invention	
SEMESTER – III		
COs	**Course Name: NON MAJOR ELECTIVE NUTRITIONAL BIOCHEMISTRY**	**Code: P2BC41NM Credits: 2**
CO1	Acquire basic plan a balanced diet based on an individual's energy requirement, Assess nutritional status of an individual	
CO2	Understand the biochemical, physiological and nutritional functions of macronutrients and their integrated role. Understand the role played by anti-nutritional factors	

CO3	Evaluate the functions of vitamins and minerals ,and fluids and electrolyte balance in different physiological states and in sports persons	
CO4	To impart basic knowledge on nutritional deficiency conditions , , able to explain malnutrition and its prevention	
CO5	Acquire knowledge about the importance of balanced diet and diet therapy, various dietary disorders	
SEMESTER – II		
COs	**Course Name: LAB COURSE IN ENZYMOLOGY, MICROBIOLOGY AND CELL BIOLOGY**	**Code: P2BC41MP Credits: 5**
CO1	Ability to acquire knowledge on the relevant techniques for isolation and purification of enzymes.	
CO2	Acquire broad knowledge on kinetic studies, ability to analyse, interpret, work independently in research activity.	
CO3	Student will acquire ability in performing enzyme assay and explicate the methods, develop research sill, work effectively that form the basis of enzyme characterization.	
CO4	Learn the Basic concepts in microbiology, work effectively and independently in interdisciplinary research work.	
CO5	Students will be trained in separation techniques used in molecular Biology which will be supportive in their future research. Industrial visits will provide the students with an opportunity to learn practically through interaction, working methods and employment practices.	
SEMESTER – III		
COs	**Course Name: CELL SIGNALLING AND HORMONAL MECHANISM**	**Code: P3BC31MT Credits: 4**
CO1	Understanding of the basic concepts of cell communication and Signalling, types of receptors, significance of Signalling and their role in manipulating life processes..	
CO2	Ability to review the onward transmission of signal via downstream Signalling molecules from cell surface to the nucleus by different pathways by comparing and contrasting them.	
CO3	Understanding of the role of enzymes in activating transcription factors by modification such as phosphorylation, proteolysis, removal from inhibitor.	
CO4	Ability to appreciate the involvement of Signalling pathways in regulating cell cycle.	
CO5	Capacity to analyze the organisation of nuclear receptor and their involvement in gene transcription	

SEMESTER – III		
COs	**Course Name: RESEARCH METHODOLOGY**	**Code: P3BC32MT** **Credits:4**
CO1	Knowledge on research problem and finding scientific articles with Internet.	
CO2	Methodology on collection and analysis of data using statistical tools.	
CO3	Awareness on bioinformatics and biological databases	
CO4	Basic knowledge on animal experimentation and intellectual property rights.	
CO5	Knowledge on preparation of research reports.	
SEMESTER – III		
COs	**Course Name: APPLIED BIOTECHNOLOGY**	**Code: P3BC33MT** **Credits: 4**
CO1	Understanding of the basic concepts and demonstrate the scientific knowledge on various genetic engineering tools and cloning vectors in Biotechnology	
CO2	Acquire knowledge and capacity to analyze along with develop research related skills on various gene transfer methods and techniques used for DNA manipulation	
CO3	Imparting knowledge to enumerate various research ideas using the plant tissue culture techniques to provoke the employability	
CO4	Comprehend knowledge to develop intellectual independence, analytical and critical thinking and establishment of animal cell culture technique	
CO5	Acquire knowledge to provoke employability and entrepreneurship by learning the synthesis and applications of recombinant proteins/compounds from cell cultures, plants and in animals.	
SEMESTER – III		
COs	**Course Name: IMMUNOLOGY**	**Code: P3BC34ET** **Credits: 3**
CO1	Basic knowledge, ability to analyse, to create awareness and role of immune cells on immunity	
CO2	Understanding, ability to evaluate, interpret, defining and problem solving capability on the cells involving in immune system.	
CO3	Familiarity to work effectively, to create awareness, efficient to work in reactions of antigen , antibody and its immune disease.	
CO4	Ability to create awareness on the transplantation process and easily can evaluate, problem solving ideas, to handle modern instruments on immunodeficiency disorders	
CO5	Understanding, detail knowledge on Allergy, ability to create awareness on hypersensitivity and capacity to solve the autoimmune disorders	
SEMESTER – III		
COs	**Course Name: HEALTH AND NUTRITION**	**Code: P3BC01OE** **Credits: 3**
CO1	Acquire basic knowledge and Understand about the importance of health and diet	
CO2	Acquire knowledge , Understand, ability to access the the importance of various types of vitamins and its functions.	
CO3	Wide Knowledge on composition and functions of trace elements, ability to understand ,interpret and evaluate the trace elements.	
CO4	Will be able to identify the heart disease, obesity, Diabetes Mellitus and gain Knowledge on sources and functions of dietary fats.	

CO5	Familiar basic knowledge on therapeutic diets and aware of Deficiency and disorders caused by vitamins and minerals	
SEMESTER – IV		
COs	**Course Name: ADVANCED CLINICAL BIOCHEMISTRY**	**Code: P4BC31MT Credits: 4**
CO1	Imparting Knowledge able to analysis and able to interpret on the disorders of carbohydrate metabolism and nucleic acid metabolism, diabetes, glycogens storage disease, gout, orotic aciduria, etc.	
CO2	Familiarity, Ability to understand, analyze, interpret and solving the problem with disorders of lipid metabolism and amino acid metabolism, such as fatty liver, arthrosclerosis, obesity, inborn errors of metabolism and protein abnormalities	
CO3	Basic knowledge, Understanding, analyze, ability to think critically, defining the problem, evaluate, identify on diseases of liver, pancreas, kidney and GIT	
CO4	Knowledge on the concept of diagnostic enzymology and hormone assays, Scientific Knowledge, problem solving capability, able to analyze in kidney and gastric functions tests.	
CO5	Comprehensive knowledge , Awareness, on the basic concepts of free radicals, antioxidants and tumour markers	
SEMESTER – IV		
COs	**Course Name: HORMONAL AND NUTRITIONAL BIOCHEMISTRY**	**Code: P4BC32MT Credits: 4**
CO1	Acquire detailed knowledge, analyse, ability to understand the regarding the biological basis of hormones	
CO2	Acquire thorough knowledge on the physiological actions of hormones and able to interpret human disorders.	
CO3	Impart knowledge on adrenal and gonadal hormone, able to analyse and evaluate the hormonal disorder related to infertility.	
CO4	Gain knowledge on nutritive value of protein and capability to work independently, self-employability their application in human health.	
CO5	Acquire knowledge and develop critical thinking and analyse the reasoning in the vitamin deficiency and work effectively for socio economic.	
SEMESTER – IV		
COs	**Course Name: PHYTOCHEMISTRY AND PHYTOTHERAPY**	**Code: P4BC33ET Credits: 3**
CO1	Knowledge on Indian systems of medicines – Siddha, Ayurveda, Unani and classification of crude drugs.	
CO2	Cultivation, collection and processing of herbal plant and evaluation of herbal drugs as per WHO guidelines.	
CO3	Basic knowledge on extraction, spectral analysis and chromatographic evaluation of phytochemicals.	
CO4	Understanding the biological evaluation of herbal drugs by toxicity studies and induction of diseases in animal models.	
CO5	Knowledge on *in-vitro* antioxidant assay of plant extract - DPPH, H_2O_2, OH^-, herbal plant used for treating different disorders.	

SEMESTER – IV		
COs	**Course Name: CHEMISTRY AND NANOSCIENCE FOR BIOLOGISTS**	**Code: P4BC35ET Credits: 3**
CO1	Basic knowledge, ability to access and evaluate the atoms, molecules and chemical bonding.	
CO2	Wide knowledge , Understanding on the role on metal ions in biological systems	
CO3	Understanding the nomenclature and reaction mechanisms of organic compounds.	
CO4	Awareness on synthesis, characterization and applications of nanomaterials.	
CO5	Understanding atoms, molecules and chemical bonding, the role on metal ions in biological systems and nomenclature and reaction mechanisms of organic compounds. Basic knowledge on biomedical applications of nano material	
SEMESTER – IV		
COs	**Course Name: STEM CELL TECHNOLOGY**	**Code: P4BC35ET Credits:3**
CO1	Familiarity, ability to understand, creative thinking, problem solving capability. with human embryonic stem cells and xeno-free derivation of stem cells.	
CO2	Wide Knowledge on stem cell therapeutics, create awareness, skill development, ability to work independently , trans differntiation of stem cells and in vivo and in vitro differentiation of stem cells.	
CO3	Impart knowledge on cloning strategies, importance, analysis and to interpret, to impart Awareness on application of stem cells.	
CO4	Broad Knowledge on hematopoietic stem cell, ability to understand about gene therapy, ability to develop knowledge on gene therapy, help in social development, critical thinking, work independently.	
CO5	Basic Knowledge on gene therapy, ability to understand stem cells, develop research skill, ability to work independently, developing employability sill, improve socio economic development and knowledge on mesenchymal stem cells.	
SEMESTER – IV		
COs	**Course Name: CORE PRACTICAL – III BIOCHEMICAL ANALYSIS OF BLOOD, ANTIOXIDANT AND IMMUNOLOGICAL STUDIES**	**Code: P4BC31MP Credits: 4**
CO1	Proficiency in biochemical analysis of blood biomarkers	
CO2	Interpreting the results of blood markers	
CO3	Basic knowledge on using semi auto analyzer, analyse and evaluation of lipid profile	
CO4	Hands on experience on flame photometer, analyse and evaluation of electrolyte in body fluids.	
CO5	Impart knowledge on antioxidants and the role in scavenging of free radicals in pathological conditions.	
	SEMESTER – IV	
COs	**Course Name: CORE PRACTICAL – IV HAEMATOLOGICAL METHODS, URINE ANALYSIS AND PLANT BIOCHEMISTRY**	**Code: P4BC32MP Credits: 3**
CO1	Acquire Knowledge on collection and storage of blood and urine samples.	

CO2	Comprehensive Knowledge on the analysis of blood cell components and evaluation of hematological disorders	
CO3	Research related with haemoglobin and ability to analyse and evaluate anemic and bleeding disorders.	
CO4	Ability to identify, analyse and evaluate diseases related with abnormal urinary constituents. Knowledge on various blood related disorders	
CO5	Ability to understand, analyse and interpret the renal functions.	
SEMESTER – IV		
Cos	**Course Name: PROJECT / DISSERTATION WITH VIVA-VOCE**	**Code:P4BC31PV Credits: 6**
CO1	Retrieve, evaluate, and interpret professional literature and use this information to develop theoretical framework, testable hypothesis and ability to use various research methods for research work.	
CO2	Design realistic and feasible research projects and prepare necessary protocol.	
CO3	Develop and communicate educational research, able to communicate with researchers and practitioners through writing and/or presentations.	
CO4	Ability to isolate, analyze, critical thinking and problem solving capability in research work.	
CO5	Familiar in research hypothesis, able to create self-employability and entrepreneur in their research work.	

ADHIPARASAKTHI COLLEGE OF ARTS AND SCIENCE (AUTONOMOUS)
G.B. NAGAR, KALAVAI– 632 506, RANIPET DISTRICT
DEPARTMENT OF COMPUTER SCIENCE AND APPLICATIONS
PROGRAMME OUTCOMES FOR THE PROGRAMME BSC-COMPUTER SCIENCE

PROGRAMME OUTCOMES FOR B.SC-CS	
PO1	Develop scientific temperament and attitude among the science graduates.
PO2	Provide a broad foundation in the major subjects of their choice with scientific reasoning, problem solving and analytical skills and exposure to the qualities of science – observation, precision, analytical mind, logical thinking, clarity of thought and expression, systematic approach, qualitative and quantitative decision making.
PO3	Training in breadth and depth of experimental techniques using modern instrumentation.
PO4	Training the learners to extract information, formulate and solve problems in a systematicand logical manner.
PO5	Enable the learners to perform the jobs in diverse fields such as science, industries, education, development-planning, business, public service, etc. efficiently and to help them to take up higher education or jobs after the course.
PO6	Develop the ability to effectively communicate scientific information in written and oralformats and to work in teams and apply basic ethical principles.
PO7	Empowering the graduates to appear for various competitive examinations or choose thepost graduate programme of their choice.
PO8	Design, correctly implement and document solutions to significant Computational problems.

	PROGRAM SPECIFIC OUTCOMES FOR B.SC-CS
PSO1	To understand the concepts of Mathematics and Computer Science and apply problem solving and logical thinking in Software Development, Web designing, computer networking, etc.
PSO2	Learn to use tools and technologies for solving real world problems. Develop Software applications for variety of business and social problems.
PSO3	Enhance the communication skills to transfer information efficiently between different clients in the professional practice.

ADHIPARASAKTHI COLLEGE OF ARTS AND SCIENCE(AUTONOMOUS)
G.B. NAGAR, KALAVAI – 632 506.
COURSE OUTCOMES FOR THE ACADEMIC YEAR 2023-2024
BSC-COMPUTER SCIENCE

SEMESTER – I		
COs	**Course Name: OBJECT ORIENTED PROGRAMMING CONCEPT USING C++**	**Code: U1CS41MT Credits: 5**
CO1	Upon completion of the course the students would be able to:	
CO2	Remember the program structure of C with its syntax and Semantics	
CO3	Understand the programming principles in C (data types,operators, branching and looping, arrays, functions, structures, pointers and files)	
CO4	Apply the programming principles learnt in Real time problems	
CO5	Analyse the various methods of solving a problem and choose the best method	
SEMESTER – I		
COs	**Course Name: INTRODUCTION TO HTML**	**Code: U1CS41SE Credits: 3**
CO1	Knows the basic concept in HTML, Concept of resources in HTML	
CO2	Knows Design concept.Concept of Meta Data, Understand the concept of save the files.	
CO3	Understand the page formatting.Concept of list	
CO4	Creating Links. Know the concept of creating link to email address	
CO5	Concept of adding images. Understand the table creation.	
SEMESTER – I		
COs	**Course Name: PROBLEM SOLVING TECHNIQUE**	**Code: U1CS41FC Credits: 2**
CO1	Study the basic knowledge of Computers and Analyze the programming Languages.	
CO2	Study the data types and arithmetic operations.Know about the algorithms. Develop program using flow chart and pseudo code.	
CO3	Determine the various operators.Explain about the structures. Illustrate the concept of Loops	
CO4	Study about Numeric data and character-based data. Analyze about Arrays.	
CO5	Explain about DFD. Illustrate program modules.Creating and reading Files	
SEMESTER – II		
Cos	**Course Name: DATA STRUCTURES USING C++**	**Code: U2CS41MT Credits: 3**
CO1	Evaluate algorithms and data structures in terms of time and memory complexity of basic operations	
CO2	Define basic static and dynamic data structures and relevant standard algorithms for them: stack, queue.	
CO3	Determine and demonstrate bugs in program, recognize needed basic operations with data structures	
CO4	Formulate new solutions for programming problems or improve existing code using learned algorithms and data structures	
CO5	To learn dynamically linked lists, trees, graphs, heap, priority queue, hash tables, sorting algorithms, min-max algorithm	

SEMESTER – II		
COs	**Course Name: OBJECT ORIENTED ANALYSIS AND DESIGN**	**Code: U2CS41SE** **Credits: 3**
CO1	Express software design with UML diagrams	
CO2	Design software applications using OO concepts.	
CO3	Identify various scenarios based on software requirements	
CO4	Transform UML based software design into pattern based design using design patterns.	
CO5	Understand the various testing methodologies for OO software	
SEMESTER – II		
COs	**Course Name: OFFICE AUTOMATION**	**Code: U2CS42SE** **Credits: 2**
CO1	Abe to prepare any documents using MS Office	
CO2	Able to handle Excel formulas, pivot table, conditional formatting.	
CO3	Able to produce professional looking presentations.	
CO4	Able to complete CRUD operations using MS Access	
CO5	Able to create, Presentation read and send emails	
SEMESTER – III		
COs	**Course Name: PROGRAMMING IN JAVA**	**Code: U3CS31MT** **Credits: 5**
CO1	Design problem solutions using Object Oriented techniques	
CO2	Apply the concepts of data abstraction, encapsulation, Polymorphism, overloading, and inheritance for problem solutions	
CO3	Use the OOP concepts of C++ and Java appropriately in problem solving.	
CO4	Use the syntax and semantics of java programming language and basic concepts of OOP	
CO5	Develop reusable programs using the concepts of inheritance, polymorphism, interfaces and packages	
SEMESTER – III		
COs	**Course Name: DIGITAL LOGIC DESIGN AND COMPUTER ORGANIZATION**	**Code: U3CS31ST** **Credits: 2**
CO1	To understand Boolean algebra and basic gates.	
CO2	To understand how to simplify expression using K - Map.	
CO3	To understand how to build combinational circuits.	
CO4	To know about registers and addressing modes	
CO5	To understand types of memories.	
SEMESTER – III		
COs	**Course Name: FUNDAMENTAL OF COMPUTERS**	**Code: U3CS31NM** **Credits: 2**
CO1	Students will develop skills for productivity software and OS	
CO2	Students will develop interests in using computers for professional work	

CO3	Students will be able to discover their interests in working in MS WORD	
CO4	Students will be able to discover their interests in working in MS EXCEL	
CO5	Students will be able to create presentations	
SEMESTER – IV		
COs	**Course Name: RELATIONAL DATABASE MANAGEMENT SYSTEMS**	**Code: U4CS31MT Credits: 5**
CO1	Classify modern and futuristic database applications based on size and complexity	
CO2	Map ER model to Relational model	
CO3	Write queries using normalization criteria	
CO4	Compare and contrast various indexing strategies in different database systems	
CO5	Appraise how advanced databases differ from traditional databases.	
SEMESTER – IV		
COs	**Course Name: COMPUTER NETWORKS**	**Code: U4CS31ST Credits: 2**
CO1	Ability to trace the flow of information from one node to another node in the network.	
CO2	Identify the purpose and use of Network Hardware Devices	
CO3	Finding the Shortest Route to routing packets	
CO4	Develop own protocol	
CO5	Ability to choose functionalities at each layer for different applications	
SEMESTER – IV		
COs	**Course Name: COMPUTER APPLICATIONS**	**Code: U4CS31NM Credits: 2**
CO1	Able to know about various applications.	
CO2	Able to know about database and applications.	
CO3	Able to apply computer in various fields.	
CO4	Able to do E-Commerce efficiently	
CO5	Know about various payments systems	
SEMESTER – V		
Cos	**Course Name: RELATIONAL DATABASE MANAGEMENT SYSTEM**	**Code: U5CS21MT Credits: 5**
CO1	Classify modern and futuristic database applications based on size and complexity	
CO2	Map ER model to Relational model	
CO3	Write queries using normalization criteria	
CO4	Compare and contrast various indexing strategies in different database systems	
CO5	Appraise how advanced databases differ from traditional databases.	
SEMESTER – V		
COs	**Course Name: OPEN SOURCE PROGRAMMING**	**Code: U5CS22MT Credits: 5**
CO1	Install and run open-source operating systems	
CO2	Gather information about Free and Open Source Software projects from software releases and from sites on the internet.	
CO3	Build and modify one or more Free and Open Source Software packages	

CO4	Study and Use version control system	
CO5	Contribute software to and interact with Free and Open Source Software development projects.	
SEMESTER – V		
COs	**Course Name: DATA AND COMMUNICATION NETWORKS**	**Code: U5CS23ET Credits: 4**
CO1	Ability to trace the flow of information from one node to another node in the network	
CO2	Develop own protocol	
CO3	Ability to choose functionalities at each layer for different applications	
CO4	Evaluate the protocols in network layer from QoS perspective	
CO5	Knowledge on various topology and networks	
SEMESTER – V		
COs	**Course Name: COMPUTER GRAPHICS**	**Code: U5CS24ET Credits: 4**
CO1	Gain a proficiency with OpenGL, a standard specification defining a cross-language	
CO2	Learn the principles and commonly used paradigms and techniques of computer graphics	
CO3	Develop a facility with the relevant mathematics of computer graphics	
CO4	Able to write basic graphics application programs including animation	
CO5	Able to design programs to display graphic images to given specifications	
SEMESTER – V		
COs	**Course Name: OPERATING SYSTEM**	**Code: U5CS25ST Credits: 3**
CO1	Define the fundamentals of OS and identify the concepts relevant to process, process life cycle, Scheduling Algorithms.	
CO2	know the critical analysis of process involving various algorithms, an exposure to threads and semaphores.	
CO3	Have a complete study about Deadlock and its impact over OS. Knowledge of handling Deadlock with respective algorithms.	
CO4	Have complete knowledge of Scheduling Algorithms and its types.	
CO5	Understand memory organization and management	
SEMESTER – VI		
Cos	**Course Name: VISUAL PROGRAMMING**	**Code: U6CS21MT Credits: 5**
CO1	Design, create, build, and debug Visual Basic applications.	
CO2	Explore Visual Basic's Integrated Development Environment (IDE).	
CO3	Implement syntax rules in Visual Basic programs	
CO4	Explain variables and data types used in program development	
CO5	Apply arithmetic operations for displaying numeric output	
SEMESTER – VI		
COs	**Course Name: WEB TECHNOLOGY**	**Code: U6CS22MT Credits: 5**
CO1	The learn the components and technologies of World Wide Web as a platform and the concepts of HTML	
CO2	Design and develop the websites using fundamental web languages, technologies, and tools and able to implement the tags in XHTML	

CO3	Distinguish and analyze the various featuresofHTML5	
CO4	Describe and implement the various trends and issues in JavaScript concepts.	
CO5	Analyze and develop the dynamic webpage using JavaScript with their objects.	
SEMESTER – VI		
COs	**Course Name: SOFTWARE PROJECT MANAGEMENT**	**Code: U6CS22ET Credits: 4**
CO1	Comprehend the roles of the project manager.	
CO2	Identify the threats and opportunities in project management.	
CO3	Gain knowledge about size, effort and cost estimation techniques.	
CO4	Apply the techniques available to keep the project‘s aims and objectives, under control.	
CO5	Analyze the different approaches of non-technical problems.	
SEMESTER – VI		
Cos	**Course Name: ARTIFICIAL INTELLIGENCE**	**Code: U6CS23ET Credits: 4**
CO1	Demonstrate an understanding of the history of AI and its foundations.	
CO2	Apply basic principles of AI in problem-solving that require perception, knowledge representation, inference, and learning.	
CO3	Demonstrate awareness and a fundamental understanding of various applications of AI and Machine Learning techniques in real-world problem solving.	
CO4	Demonstrate proficiency in developing various real-world AI and ML applications using the latest programming languages and software tools.	
CO5	Demonstrate an ability to share in discussions of AI and ML, its current scope and limitations, and its impact on society.	
SEMESTER – VI		
COs	**Course Name: DATA MINING AND WAREHOUSING**	**Code: U6CS24ET Credits: 4**
CO1	Build a data warehouse for a real-world system	
CO2	Write programs for classification and clustering	
CO3	Evaluate various mining techniques on complex data objects	
CO4	Develop applications using Big Data Mining Tools.	
CO5	Expose the students to the concepts of Data warehousing Architecture and Implementation**.**	
SEMESTER – VI		
Cos	**Course Name: MULTIMEDIA SYSTEM**	**Code: U6CS25ET Credits: 4**
CO1	Import the basic concepts, importance, application and the process of developing multimedia.	
CO2	Analyze data compression techniques, image compression techniques like JPEG, Image related processing.	
CO3	Study the basic concepts of multimedia animations and sounds.	
CO4	Develop an interactive multimedia project by using multimedia applications and how it works.	
CO5	To understand the fundamentals of Internet and multimedia and its implementation.	
SEMESTER – VI		
COs	**Course Name: CLOUD COMPUTING**	**Code: U6CS26ST Credits: 3**
CO1	Articulate the main concepts, key technologies, strengths and limitations of cloud computing	
CO2	Identify the architecture, infrastructure and delivery models of cloud computing	

CO3	Explain the core issues of cloud computing such as security, privacy and interoperability
CO4	Choose the appropriate technologies, algorithms and approaches for the related issues
CO5	Analyze the issues in Resource provisioning and Security governance in Clouds

ADHIPARASAKTHI COLLEGE OF ARTS AND SCIENCE (AUTONOMOUS)
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PROGRAMME OUTCOMES FOR THE PROGRAMME BCA AND MCA FOR THE ACADEMIC YEAR 2023-2024

PROGRAMME OUTCOMES	
PO1	**Computational Knowledge:** Having ability to apply computing knowledge in a wide range of applications.
PO2	**Problem Analysis:** Having ability to identify, formulate, conduct research in the relevant literature, and solve complex problems using fundamental principles from mathematics, computing sciences, and other relevant disciplines.
PO3	**Design and Development of Solutions:** Having ability to design, conduct experiments and evaluate solutions of critical problems to meet the user requirements.
PO4	**Conduct Investigations of Complex Computing Problems:** Having ability to use research-based knowledge and research procedures, such as experiment design, data analysis and interpretation, and information synthesis, to arrive at sound conclusions.
PO5	**Modern Tool Usage:** Having ability **to c**hoose, adapt, and apply appropriate approaches, resources, and current computing tools to complicated computer activities, with a grasp of the limitations.
PO6	**Life-Long Learning:** Having the ability to understand and enhance in self-directed learning as a computer professional to maintain professional progress.
PO7	**Communication Efficacy:** Having the ability to achieve successful communication within and outside the computing community by being able to interpret, produce, and present clear instructions, as well as design and create good documentation.
PO8	**Ethical, Societal and Environmental Concern:** Having the ability to Recognize and evaluate local and global concerns relating to social well-being, environmental health and safety, legal rights and responsibilities, ethical and cultural diversity consequences of professional computer practice-associated duties.

PROGRAMME SPECIFIC OUTCOMES	
PSO1	To prepare the students who will demonstrate respectable engagement with others ideas, behaviors, beliefs and apply diverse frames of reference to decisions and actions.
PSO2	To create effective entrepreneurs by enhancing their critical thinking, problem solving, decision making and leadership skill that will facilitate startups and high potential organizations.
PSO3	Design and implement Research and development systems and to produce employable, ethical and innovative professionals to sustain in the dynamic business world. Display their ability to qualified competitive examinations (NET, SET, JRF & SRF). To contribute to the development of the society by collaborating with stakeholders for mutual benefit.

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G.B. NAGAR, KALAVAI– 632 506, RANIPET DISTRICT.
COURSE OUTCOMES OF BCA
FOR THE ACADEMIC YEAR 2023-2024

SEMESTER – I		
Cos	**Course Name: PYTHON PROGRAMMING**	**Code: U1CA41MT** **Credits: 5**
CO1	Learn the basics of python , Do simple programs on python, Learn how to use an array.	
CO2	Develop program using selection statement, Work with Looping and jump statements,	
CO3	Do programs on Loops and jump statements.	
CO4	Concept of function, function arguments.	
CO5	Work with List, tuples and dictionary ,Write program using list Tuples and dictionary.	
SEMESTER – I		
Cos	**Course Name: PYTHON PROGRAMMING LAB**	**Code: U1CA41MP** **Credits: 5**
CO1	Understand the basic concepts of Python Programming	
CO2	Understand File operations, Classes and Objects	
CO3	Acquire Object Oriented Skills in Python	
CO4	Perform Data visualization and preprocessing using Python packages	
CO5	Develop web applications using Python	
SEMESTER – I		
Cos	**Course Name: FUNDAMENTALS OF INFORMATION TECHNOLOGY**	**Code: U1CA41S E** **Credits: 2**
CO1	Able to know the fundamentals of computers.	
CO2	Able to know the applications of computers.	
CO3	Able to know the basics of Programming languages.	
CO4	Able to prepare any documents using MS Office.	
CO5	Able to handle Excel formulas.	
SEMESTER – I		
Cos	**Course Name: STRUCTURED PROGRAMMING IN C**	**Code: U1CA41MP** **Credits: 52**
CO1	Understand the concepts of Constants, Variables, and Data Types, Operators and Expressions	
CO2	Learn the concepts of Managing Input and Output Operations, Decision Making and Branching, Decision Making and Looping.	
CO3	The student will be able to understand and the concepts of Arrays, Character Arrays and Strings, User Defined Functions.	
CO4	Understand the concepts of Structure and Unions, Pointers, File Management in C.	
CO5	The student will be able to understand and the concepts of Fundamental Algorithms, Factoring Methods.	
SEMESTER-II		

COs	Course Name: DATA STRUCTURES USING PYTHON	Code: U2CA41MT Credits: 5
CO1	Learn the basics of python, Do simple programs on python,	
CO2	Able to Work with Conditional, Looping and jump statements.	
CO3	Understand the Concept of function and Significance of Modules.	
CO4	Learn how to use an array.	
CO5	Implementing the string concept in various application.	
SEMESTER-II		
COs	**Course Name: DATA STRUCTURES USING PYTHON LAB**	**Code: U2CA41 MT Credits: 5**
CO1	Learn the basics of python, Do simple programs on python,	
CO2	Able to Work with Conditional, Looping and jump statements.	
CO3	Understand the Concept of function and Significance of Modules.	
CO4	Learn how to use an array.	
CO5	Implementing the string concept in various application.	
SEMESTER – II		
Cos	**Course Name: OBJECT ORIENTED PROGRAMMING CONCEPTS USING C++**	**Code: U2CA41SE Credits: 2**
CO1	Learn the concepts of object oriented programming	
CO2	Know the concepts of inheritance, exception handling	
CO3	Use the appropriate data structure in context of solution of given problem.	
CO4	The student will be able to understand the Recursion, Binary Search Tree and graphs.	
CO5	Develop programming skills which require to solve given problem.	
SEMESTER – II		
Cos	**Course Name: INTRODUCTION TO HTML**	**Code:U2CA42SE Credits: 2**
CO1	Able to understand the concepts of HTML	
CO2	Able to implement the tags in XHTML	
CO3	Able to understand the features of HTML5	
CO4	Able to understand the basic concepts in JavaScript.	
CO5	Able to develop the dynamic web page using JavaScript	
	SEMESTER – III	
COs	**Course Name: PROGRAMMING IN JAVA**	**Code: U3CA31MT Credits: 4**
CO1	Design problem solutions using Object Oriented techniques	
CO2	Apply the concepts of data abstraction, encapsulation, polymorphism, overloading, and inheritance for problem solutions	
CO3	Use the OOP concepts of C++ and Java appropriately in problem solving.	
CO4	Use the syntax and semantics of java programming language and basic concepts of OOP	

CO5	Develop reusable programs using the concepts of inheritance, polymorphism, interfaces and packages	
SEMESTER – III		
COs	**Course Name: PROGRAMMING IN JAVA LAB**	**Code:** U3CA31M P **Credits:2**
CO1	To convert the percentage into a decimal.	
CO2	To find out measure learning outcomes in distance.	
CO3	To understand various specifications such as probability density functions.	
CO4	To calculate the simple interest.	
CO5	To know the concept of compound interest..	
SEMESTER – III		
COs	**Course Name: WEB TECHNOLOGY**	**Code:U3CA31ST** **Credits: 2**
CO1	Able to understand the concepts of HTML	
CO2	Able to implement the tags in XHTML	
CO3	Able to understand the features of HTML5	
CO4	Able to understand the basic concepts in JavaScript.	
CO5	Able to develop the dynamic web page using JavaScript	
SEMESTER – III		
Cos	**Course Name: WEB TECHNOLOGY LAB**	**Code: U3CA31SP** **Credits: 2**
CO1	Analyze a web page and identify its elements and attributes.	
CO2	Create web pages using HTML tags	
CO3	Create web pages using XHTML	
CO4	Create web pages using Cascading Style Sheets	
CO5	To acquire knowledge about the measures of continuous distributions.	
SEMESTER – IV		
Cos	**Course Name: RELATIONAL DATABASE MANAGEMENT SYSTEMS**	**Code: U4CA31MT** **Credits: 5**
CO1	Classify modern and futuristic database applications based on size and complexity	
CO2	Map ER model to Relational model	
CO3	Write queries using normalization criteria	
CO4	Compare and contrast various indexing strategies in different database systems	
CO5	Appraise how advanced databases differ from traditional databases.	
SEMESTER – IV		
Cos	**Course Name: RELATIONAL DATABASE MANAGEMENT SYSTEMS LAB**	**Code: U4CA31MP** **Credits: 4**
CO1	Understand, appreciate and effectively explain the underlying concepts of database technologies	
CO2	Design and implement a database schema for a given problem-domain	
CO3	Normalize a database	
CO4	Populate and query a database using SQL DML/DDL commands.	

CO5	Declare and enforce integrity constraints on a database using a state-of-the-art RDBMS	
SEMESTER – IV		
Cos	**Course Name: COMPUTER NETWORKS**	**Code: U4CA31ST** **Credits: 2**
CO1	Ability to trace the flow of information from one node to another node in the network.	
CO2	Identify the purpose and use of Network Hardware Devices	
CO3	Finding the Shortest Route to routing packets	
CO4	Develop own protocol	
CO5	Ability to choose functionalities at each layer for different applications	
SEMESTER – V		
Cos	**Course Name: RELATIONAL DATABASE MANAGEMENT SYSTEM**	**Code: U5CS21MT** **Credits:5**
CO1	Classify modern and futuristic database applications based on size and complexity	
CO2	Map ER model to Relational model	
CO3	Write queries using normalization criteria	
CO4	Compare and contrast various indexing strategies in different database systems	
CO5	Appraise how advanced databases differ from traditional databases.	
SEMESTER – V		
Cos	**Course Name: OPEN SOURCE PROGRAMMING**	**Code: U5CS22MT** **Credits:5**
CO1	Install and run open-source operating systems	
CO2	Gather information about Free and Open Source Software projects from software releases and from sites on the internet.	
CO3	Build and modify one or more Free and Open Source Software packages	
CO4	Study and Use version control system	
CO5	Contribute software to and interact with Free and Open Source Software development projects.	
SEMESTER – V		
Cos	**Course Name: RELATIONAL DATABASE MANAGEMENT SYSTEM LAB**	**Code: U5CS21MP** **Credits: 4**
CO1	Classify modern and futuristic database applications based on size and complexity	
CO2	Map ER model to Relational model	
CO3	Write queries using normalization criteria	
CO4	Compare and contrast various indexing strategies in different database systems	
CO5	Appraise how advanced databases differ from traditional databases.	
SEMESTER – V		
Cos	**Course Name: OPEN SOURCE PROGRAMMING LAB**	**Code: U5CS22MP** **Credits: 4**
CO1	At the end of the course learners will be able to	
CO2	Install and run open-source operating systems	
CO3	Gather information about Free and Open Source Software projects from software releases and from sites on the internet.	

CO4	Build and modify one or more Free and Open Source Software packages Study and Use version control system	
CO5	Contribute software to and interact with Free and Open Source Software development projects.	
SEMESTER – V		
Cos	**Course Name: DATA AND COMMUNICATION NETWORKS**	**Code: U5CS23E**T **Credits:4**
CO1	Ability to trace the flow of information from one node to another node in the network	
CO2	Develop own protocol	
CO3	Ability to choose functionalities at each layer for different applications	
CO4	Evaluate the protocols in network layer from QoS perspective	
CO5	Knowledge on various topology and networks	
SEMESTER – V		
Cos	**Course Name: COMPUTER GRAPHICS**	**Code: U5CS24ET** **Credits: 4**
CO1	Gain a proficiency with OpenGL, a standard specification defining a cross-language	
CO2	Learn the principles and commonly used paradigms and techniques of computer graphics	
CO3	Develop a facility with the relevant mathematics of computer graphics	
CO4	Able to write basic graphics application programs including animation	
CO5	Able to design programs to display graphic images to given specifications	
SEMESTER – V		
Cos	**Course Name: OPERATING SYSTEM**	**Code: U5CS25ST** **Credits: 3**
CO1	Define the fundamentals of OS and identify the concepts relevant to process , process life cycle, Scheduling Algorithms.	
CO2	know the critical analysis of process involving various algorithms, an exposure to threads and semaphores	
CO3	Have a complete study about Deadlock and its impact over OS. Knowledge of handling Deadlock with respective algorithms.	
CO4	Have complete knowledge of Scheduling Algorithms and its types	
CO5	Understand memory organization and management	

	SEMESTER – VI	
Cos	**Course Name: VISUAL PROGRAMMING**	**Code: U6CS21MT** **Credits:5**
CO1	Design, create, build, and debug Visual Basic applications.	
CO2	Explore Visual Basic's Integrated Development Environment (IDE).	
CO3	Implement syntax rules in Visual Basic programs	
CO4	Explain variables and data types used in program development	
CO5	Apply arithmetic operations for displaying numeric output	
	SEMESTER – VI	
Cos	**Course Name: WEB TECHNOLOGY**	**Code: U6CS22MT** **Credits: 5**
CO1	The learn the components and technologies of World Wide Web as a platform and the concepts of HTML	
CO2	To design and develop the websites using fundamental web languages, technologies, and tools and able to implement the tags in XHTML	
CO3	Distinguish and analyze the various featuresofHTML5	
CO4	Describe and implement the various trends and issues in JavaScript concepts.	
CO5	Analyze and develop the dynamic webpage using JavaScript with their objects.	
	SEMESTER – VI	
Cos	**Course Name: VISUAL PROGRAMMING LAB**	**Code: U6CS21MP** **Credits: 4**
CO1	Design, create, build, and debug Visual Basic applications.	
CO2	Explore Visual Basic's Integrated Development Environment (IDE).	
CO3	Implement syntax rules in Visual Basic programs	
CO4	Explain variables and data types used in program development	
CO5	Apply arithmetic operations for displaying numeric output	
	SEMESTER – VI	
Cos	**Course Name: WEB TECHNOLOGY LAB**	**Code: U6CS22MP** **Credits: 4**
CO1	Apply the Object Oriented features of Java for programming on the internet	
CO2	Implement socket programming and Client side scripting in Java	
CO3	Design a Web application using various technologies such as Java, XML, AJAX, Servlets,PHP, JSP, Django and Jena.	
CO4	Create applications using web services such as WSDL and SOAP	
CO5	Develop application using Dreamweaver/Flex/Silver Light etc	
	SEMESTER – VI	
Cos	**Course Name: SOFTWARE PROJECT MANAGEMEN**	**Code: U6CS22ET** **Credits: 4**
CO1	Comprehend the roles of the project manager.	
CO2	Identify the threats and opportunities in project management.	
CO3	Gain knowledge about size, effort and cost estimation techniques.	
CO4	Apply the techniques available to keep the project's aims and objectives, under control.	
CO5	Analyze the different approaches of non-technical problems.	

SEMESTER – VI		
Cos	**Course Name: ARTIFICIAL INTELLIGENCE**	**Code: U6CS23ET** **Credits:4**
CO1	Demonstrate an understanding of the history of AI and its foundations.	
CO2	Apply basic principles of AI in problem-solving that require perception, knowledge representation, inference, and learning.	
CO3	Demonstrate awareness and a fundamental understanding of various applications of AI and Machine Learning techniques in real-world problem solving.	
CO4	Demonstrate proficiency in developing various real-world AI and ML applications using the latest programming languages and software tools.	
CO5	Demonstrate an ability to share in discussions of AI and ML, its current scope and limitations, and its impact on society.	
SEMESTER – VI		
Cos	**Course Name: DATA MINING AND WAREHOUSING**	**Code: U6CS24ET** **Credits: 4**
CO1	Build a data warehouse for a real-world system	
CO2	Write programs for classification and clustering	
CO3	Evaluate various mining techniques on complex data objects	
CO4	Develop applications using Big Data Mining Tools.	
CO5	Expose the students to the concepts of Data warehousing Architecture and Implementation**.**	
SEMESTER – VI		
Cos	**Course Name: MULTIMEDIA SYSTEM**	**Code: U6CS25ET** **Credits: 4**
CO1	Import the basic concepts, importance, application and the process of developing multimedia.	
CO2	Analyze data compression techniques, image compression techniques like JPEG, Image related processing.	
CO3	Study the basic concepts of multimedia animations and sounds.	
CO4	Develop an interactive multimedia project by using multimedia applications and how it works.	
CO5	To understand the fundamentals of Internet and multimedia and its implementation.	
	SEMESTER – VI	
Cos	**Course Name: CLOUD COMPUTING**	**Code: U6CS26ST** **Credits: 3**
CO1	Articulate the main concepts, key technologies, strengths and limitations of cloud computing	
CO2	Identify the architecture, infrastructure and delivery models of cloud computing	
CO3	Explain the core issues of cloud computing such as security, privacy and interoperability	
CO4	Choose the appropriate technologies, algorithms and approaches for the related issues	
CO5	Analyze the issues in Resource provisioning and Security governance in Clouds	

MCA-COURSE OUTCOMES
FOR THE ACADEMIC YEAR 2023-24

SEMESTER – I		
COs	**Course Name: OBJECT ORIENTED ANALYSIS AND DESIGN**	**Code: P1CA51MT Credits: 5**
CO1	Understand the concept of object oriented development and modeling.	
CO2	Gain the knowledge about various steps performing during object design.	
CO3	Abstract object based views for generic software system.	
CO4	Link OOAD with design process.	
CO5	Apply the basic concept of oops.	

SEMESTER – I		
COs	**Course Name: LINUX AND SHELL PROGRAMMING**	**Code: P1CA52MT Credits: 5**
CO1	Understand, apply and analyze the concepts and methodology of Linux shell programming	
CO2	Comprehend, impart and apply fundamentals of control structure and script controls	
CO3	Understand, analyses and evaluate the functions, graphical desktop interface and editors	
CO4	Collaborate, apply and review the concepts and methodology of regular expression and advanced gawk	
CO5	Comprehend, use and illustrate the advance concepts such as alternate shell script, data connectivity and bash scripting using python	

SEMESTER – I		
COs	**Course Name: PYTHON PROGRAMMING**	**Code: P1CA53MT Credits: 4**
CO1	Understand the basic concepts of Python Programming.	
CO2	Understand File operations, Classes and Objects.	
CO3	Acquire Object Oriented Skills in Python.	
CO4	Perform Data visualization and preprocessing using Python packages.	
CO5	Develop web applications using Python.	

SEMESTER – I		
COs	**Course Name: LINUX AND SHELL PROGRAMMING LAB**	**Code: P1CA51MP Credits: 2**
CO1	Demonstrate the basic knowledge of Linux commands by using Linux shell environment.	
CO2	Evaluate the concept of shell scripting programs by using an AWK and SED commands.	
CO3	Create the directory, how to change and remove the directory.	
CO4	Analyze the process of how the parent and child relationships.	
CO5	Define IPC mechanism.	

SEMESTER – I

COs	Course Name: PYTHON PROGRAMMING LAB	Code: P1CA52MP Credits: 2
CO1	Write programs in Python using OOPS concepts.	
CO2	Understand the concepts of File operations and Modules in Python.	
CO3	Implement lists, dictionaries, sets and tuples.	
CO4	Develop web applications using Python.	
CO5	Implement various charts using Python packages.	
	SEMESTER – II	
COs	**Course Name: ADVANCED RELATIONAL DATABASE MANAGEMENT SYSTEM**	**Code: P2CA51MT Credits: 4**
CO1	Understand database concepts and query language.	
CO2	Understand the E R model and relational model.	
CO3	Design and build a database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.	
CO4	Apply PL/SQL programming using various basic and advanced concepts of RDBMS.	
CO5	Create PL/SQL according to need.	
	SEMESTER – II	
COs	**Course Name: DATA STRUCTURES USING PYTHON**	**Code: P2CA52MT Credits: 4**
CO1	Define linear and non-linear data structures.	
CO2	Implement linear and non–linear data structure operations.	
CO3	Use appropriate linear/non–linear data structure operations for solving a given problem.	
CO4	Apply appropriate graph algorithms for graph applications.	
CO5	Analyze the various searching and sorting algorithms.	
	SEMESTER – II	
COs	**Course Name: BIG DATA ANALYTICS**	**Code: P2CA53MT Credits: 3**
CO1	Understand, illustrate and evaluate the concepts and techniques of Data Science, Big Data Analytics and its tools.	
CO2	Develop, create apply and review the computing for big data in Hadoop, and NoSQL environment.	
CO3	Comprehend, create and review the concepts of data science and big data analytics projects using MapReduce, and MongoDB.	
CO4	Understand, use and analyze the concepts of big data analytics projects using HIVE database.	
CO5	Prepare, create and review the concepts of PIG database in Hadoop environment.	
	SEMESTER – II	
COs	**Course Name: HUMAN RIGHTS**	**Code: P2HR41GS Credits:2**

CO1	It will help students to understand the importance of the fundamental principle, its concept, Concern and Source of international obligations for Human Rights.
CO2	Critically assess specific areas of international human rights law with reference to relevant legal instruments and contemporary cases
CO3	Student(s) able to work in conjunction with human rights specialists and other scholars in expanding knowledge about human rights
CO4	An understanding of the principles and institutions of international human rights law.
CO5	Display a good understanding of the nature and scope of special legislations dealing with protection of human rights.

SEMESTER – II		
COs	**Course Name: ADVANCED OPERATING SYSTEM**	**Code: P2CA51ET** **Credits: 3**
CO1	Understand the design issues associated with operating systems	
CO2	Master various process management concepts including scheduling, deadlocks and distributed file systems	
CO3	Prepare Real Time Task Scheduling	
CO4	Analyze Operating Systems for Handheld Systems	
CO5	Analyze Operating Systems like LINUX and iOS.	

SEMESTER – II		
COs	**Course Name: INTERNET OF THINGS**	**Code: P2CA52ET** **Credits: 3**
CO1	Comprehend the IoT evolution with its architecture and sensors	
CO2	Understand the networking concepts for communication and underlying IoT protocols	
CO3	Assess the embedded technologies and develop prototypes for the IoT products	
CO4	Evaluate the use of Application Programming Interface and design an API for IoT in real time	
CO5	To Recognize the ethics of business models and perform security analysis.	

SEMESTER – II		
COs	**Course Name: ARTIFICIAL INTELLIGENCE**	**Code: P2CA53ET** **Credits: 3**
CO1	Understand and identify problems that are amenable to solution by AI methods.	
CO2	Analysis and apply appropriate AI methods to solve a given problem.	
CO3	Analysis and formalize a given problem in the language/framework of different AI and learning methods.	
CO4	Evaluate the AI methodologies and DL networks.	
CO5	Develop AI framework to tackle projects in our increasingly complex world.	

SEMESTER – II		
COs	**Course Name: RDBMS LAB**	**Code:P2CA51MP** **Credits: 3**
CO1	Choose appropriate SQL queries and PL/SQL blocks for the database.	
CO2	Create SQL and PL/SQL blocks for the given problem effectively.	
CO3	Analysis the problem and Exceptions using queries and PL/SQL blocks.	
CO4	Apply to Validate the database for normalization using SQL and Pl/SQL blocks.	
CO5	Design Database tables, create Procedures, user-defined functions and Triggers.	
SEMESTER – II		
COs	**Course Name: DATA STRUCTURES USING PYTHON LAB**	**Code: P2CA52MP** **Credits: 3**
CO1	Understand various data representation techniques in the real world.	
CO2	Implement linear and non-linear data structures.	
CO3	Analyze various algorithms based on their time and space complexity.	
CO4	Develop real-time applications using suitable data structure.	
CO5	Acquire knowledge about the measures of continuous distributions.	
SEMESTER – III		
COs	**Course Name: DESKTOP APPLICATIONS USING C#**	**Code: P3CA41MT** **Credits: 3**
CO1	Able to understand the fundamentals on C#.	
CO2	Able to handle, how to implement Reference types in C#.	
CO3	Understand, how to implement the OOPS concept in C#.	
CO4	Able to implement delegates and events in C# Application.	
CO5	Create and manipulate GUI components in C# for windows application.	
SEMESTER – III		
COs	**Course Name: DATA SCIENCE WITH PYTHON**	**Code: P3CA42MT** **Credits: 3**
CO1	Gain knowledge about basic concepts of Data Science.	
CO2	Able to Understand the types of data analytics.	
CO3	Gain knowledge about basic concepts of Python programming.	
CO4	Can able to choose an appropriate construct for a given problem.	
CO5	Able to handle exceptions while programming.	
SEMESTER III		
COs	**Course Name: BIG DATA ANALYTICS**	**Code: P3CA43MT** **Credits: 5**
CO1	Understand how to leverage the insights from big data analytics.	
CO2	Analyze data by utilizing various statistical and data mining approaches.	
CO3	Perform analytics on real-time streaming data.	
CO4	Understand the various SQL alternative database models.	

CO5	Understand the specialized aspects of big data with the help of different big data applications.	
SEMESTER – III		
COs	**Course Name: COMPILER DESIGN**	**Code: P3CA44MT** **Credits: 2**
CO1	Understand the different phases of compiler.	
CO2	Design a lexical analyzer for a sample language.	
CO3	Applydifferent parsing algorithms to develop the parsers for a given grammar	
CO4	Understand syntax -directed translation and run -time environment.	
CO5	Learn to implement code optimization techniques and a simple code generator.	
SEMESTER – III		
COs	**Course Name: DESKTOP APPLICATIONS USING C# LAB**	**Code: P3CA41MP** **Credits: 2**
CO1	Understand the basic concepts of C# programming.	
CO2	Understand the Object-oriented concepts of C# programming	
CO3	know the differences of Console Application and Desktop application.	
CO4	Understand GUI components in windows forms	
CO5	Understand the connectivity of ADO.Net with Desktop Applications.	
SEMESTER – III		
COs	**Course Name: DATA SCIENCE WITH PYTHON LAB**	**Code: P3CA42MP** **Credits: 2**
CO1	Develop algorithmic solutions to simple computational problems.	
CO2	Develop and execute simple Python programs.	
CO3	Structure simple Python programs for solving problems.	
CO4	Write, Test and Debug Python Programs.	
CO5	Implement Conditionals and Loops for Python Programs.	
SEMESTER – III		
COs	**Course Name: SOFTWARE TESTING**	**Code: P3CA41ET** **Credits: 2**
CO1	Various test processes and continuous quality improvement.	
CO2	Types of errors and fault models.	
CO3	Methods of test generation from requirements.	
CO4	Behavior modeling using UML: Finite state machines (FSM).	
CO5	Test generation from FSM models.	
SEMESTER – III		
COs	**Course Name: INTERNET OF THINGS**	**Code: P4CA42ET** **Credits: 2**
CO1	Student will be able to design and Develop IOT based solution for real worldapplications.	
CO2	Student will be able to realize the evolution of Internet in Mobile Devices,Cloud & Sensor Networks.	
CO3	Student will be able to understand the different protocols for IOT.	
CO4	Student will be able to build applications using IOT.	

CO5	Student will be able to learn to design IOT applications using Arduino IDE.	
SEMESTER – III		
COs	Course Name: **OBJECT ORIENTED SOFTWARE**	**Code: P3CA43ET** **Credits:2**
CO1	Student will be able to understand and demonstrate basic knowledge in object oriented software.	
CO2	Student will be able to identify requirements, analyze and prepare models.	
CO3	Student will be able to plan, schedule and track the progress of the projects.	
CO4	student will be able to design & develop the software projects	
CO5	student will be able to applytesting principles on software project and Understand the maintenance concepts.	
SEMESTER – III		
COs	**Course Name: INTRODUCTION TO C**	**Code: P3CA01OE** **Credits:2**
CO1	Understanding a functional hierarchical code organization.	
CO2	Ability to define and manage data structures based on problem subject domain.	
CO3	Ability to work with textual information, characters and strings.	
CO4	Ability to work with arrays, structures and unions.	
CO5	To use the comparisons and limitations of the various programming constructsand choosethe right one for the task in hand.	
SEMESTER – III		
COs	**Course Name: INTRODUCTION TO C#**	**Code: P3CA02OE** **Credits: 2**
CO1	Student will learn basics of computer.	
CO2	Know about the importance of programming language.	
CO3	Know the differences between desktop application and web application.	
CO4	Student will be able to construct classes, methods, and accessmodifier andinstantiate objects.	
CO5	Create and manipulate GUI components inC# for windows application.	
SEMESTER – III		
COs	**Course Name: INTRODUCTION TO PYTHON**	**Code: P3CA03OE** **Credits: 2**
CO1	Familiar with history of computer.	
CO2	Understand the input and output devices.	
CO3	Basic ideas of Hardware and software.	
CO4	Identify the role of python program basics unit.	
CO5	Understand the concepts of Lists with elements operations.	
SEMESTER – V		
COs	**Course Name: PROJECT WORK AND VIVA VOCE**	**Code: P4CA41PV** **Credits: 24**
CO1	Show Leadership Skills and Learn Time Management	
CO2	Identify various Tools to be applied to a specific Problem	

CO3	Evaluate the Reports.
CO4	Involve in the Team and Manage it to deliver the excellent Outcomes
CO5	Assess and Develop the Individual Skills to Present and Organize the Projects.

ADHIPARASAKTHI COLLEGE OF ARTS & SCIENCE (AUTONOMOUS)
G. B. NAGAR, KALAVAI – 632 506.RANIPET DISTRICT.
DEPARTMENT OF MICROBIOLOGY
PROGRAMME OUTCOMES FOR THE ACADEMIC YEAR 2023-2024

PROGRAMME OUTCOMES	
PO1	Acquire disciplinary knowledge in the subject of microbiology and understanding of one or more disciplines that form a part of an postgraduate programme of study.
PO2	Capability to apply analytic thought to a body of knowledge in the field of Microbiology
PO3	To provide fundamental and advanced knowledge and expertise in order to produce competent, creative, arguments, claims and imaginative professionals with a strong scientific intelligence.
PO4	To promote research related skills, formulate and analyze recognize cause and effect relationships, define problems, formulate hypothesis, analyze, interpret, predict cause and effect relationships, ability to plan, execute and report the results of an experiment or investigation
PO5	Develop strong basic knowledge and empower oneself for applications in various domains namely environmental, agricultural, medical, biotechnology, immunology, industrial and food microbiology.
PO6	Capability to use ICT in a variety of learning situations, demonstrate ability to access, evaluate and use a variety of relevant information sources and use appropriate software for analysis of data.
PO7	Acquire reasonable/logical skills using latent techniques and tools along with needed practical skills with an understanding of scientific, societal, safety, legal impacts, able to design and execute experiments in various fields of microbiology.
PO8	Exercise multidisciplinary professional and leadership qualities in responsive, ethical and innovative manner, through collaboration and outreach to disseminate knowledge to personal development, meeting economic, social and cultural objectives and other professionals, stake holders and public.

PROGRAMME SPECIFIC OUTCOMES	
PSO1	To prepare the students who will demonstrate respectable engagement with others ideas, behaviors, beliefs and apply diverse frames of reference to decisions and actions.
PSO2	To create effective entrepreneurs by enhancing their critical thinking, problem solving, decision making and leadership skill that will facilitate startups and high potential organizations.
PSO3	Design and implement Research and development systems and to produce employable, ethical and innovative professionals to sustain in the dynamic business world. Display their ability to qualified competitive examinations (NET, SET, JRF & SRF). To contribute to the development of the society by collaborating with stakeholders for mutual benefit.

ADHIPARASAKTHI COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
G. B. NAGAR,KALAVAI–632506. RANIPET DISTRICT.
DEPARTMENT OF MICROBIOLOGY
COURSE OUTCOMES FOR THE ACADEMIC YEAR 2023-2024
B.Sc. MICROBIOLOGY

SEMESTER – I		
COs	**Course Name: FUNDAMENTALS OF MICROBIOLOGY AND MICROBIAL DIVERSITY**	**Code: : U1MB41MT Credits: 5**
CO1	The student will be able to Understand the scope and relevance of Microbiology as a scientific Discipline	
CO2	The student will be able to Decide on the correct type of microscopy and staining	
CO3	The student will be able to Gain knowledge on the various classification of Microorganisms	
CO4	The student will be able to Study the morphology and structure of microorganism	
CO5	The student will be able to Get acquainted with various sterilization techniques	
SEMESTER - I		
COs	**Course Name: SOCIAL AND PREVENTIVE MEDICINE**	**Code: : U1MB41SE Credits: 2**
CO1	Identify the health information system	
CO2	Associate various factors with health management system	
CO3	Choose the appropriate health care services	
CO4	Appraise the role of preventive medicine in community setting	
CO5	Recommend the usage of alternate medicine during outbreaks	
SEMESTER - I		
COs	**Course Name: FUNDAMENTALS OF MICROBIOLOGY AND MICROBIAL DIVERSITY**	**Code: U1MB41MP Credits: 5**
CO1	Practice sterilization methods; learn to prepare media and their quality control.	
CO2	Learn streak plate, pour plate and serial dilution and pigment production of microbes.	
CO3	Understand Microscopy methods, different Staining techniques and motility test.	
CO4	Observe culture characteristics of microorganisms.	
CO5	Study on Microbial Diversity using Hay Infusion Broth-Wet mount	
SEMESTER - II		
COs	**Course Name: MICROBIAL PHYSIOLOGY AND METABOLISM**	**Code: U2MB41MT Credits: 4**
CO1	Describe microorganisms based on nutrition	
CO2	Know the concept of microbial growth and identify the factors affecting bacterial growth.	
CO3	Explain the methods of nutrient uptake.	
CO4	Describe anaerobic and aerobic energy production.	
CO5	Elaborate on the process of bacterial photosynthesis and reproduction.	
SEMESTER - II		
COs	**Course Name: BIOINSTRUMENTATION**	**Code: U2MB41ET Credits: 2**
CO1	Gain knowledge about the basics of instrumentation	

CO2	Exemplify the structure of atoms and molecules by using the principles of spectroscopy
CO3	Evaluate by separating and purifying the components.
CO4	Understand the need and applications of imaging techniques.
CO5	Categorize the working principle and applications of fluorescence and radiation.

SEMESTER - II

COs	**Course Name: SERICULTURE**	**Code: U2MB42SE** **Credits: 2**
CO1	Discuss the overall aspects of Sericulture and the biology and varieties of mulberry plant. Creates awareness among students about the economic importance and suitability of Sericulture in Indian conditions.	
CO2	Familiarize with the lifecycle of silk worm.	
CO3	Explain common diseases of silkworm encountered during rearing, sources of infection, disease symptoms, pre-disposing factors and their management practices.	
CO4	Attain thorough knowledge about the cultivation of mulberry, maintenance of the farm, seed technology, silkworm rearing, post cocoon techniques like stifling, reeling, and utilization of by-products.	
CO5	Plan the facilities required for establishment of insectary. Competent to transfer the knowledge and technical skills to the Seri-farmers.Analyze the importance of sericulture in entrepreneurship development and emerge as potential entrepreneur.	

SEMESTER - II

COs	**Course Name: MICROBIAL PHYSIOLOGY AND METABOLISM**	**Code: U2MB41MP** **Credits: 4**
CO1	Describe hanging drop, wet mount preparation, semi-solid agar, Craigie's tube method.	
CO2	Demonstrate Smear preparation, permanent specimen preparation, Capsular, and Acid-fast staining.	
CO3	Explain antibiotic sensitivity testing: Disc diffusion test- quality control with standard strains.	
CO4	Describe demonstration of the size of yeast, fungal filaments and protozoa.	
CO5	Elaborate on the bacterial identification- morphological, physiological, and biochemical methods.	

SEMESTER - III

COs	**Course Name: IMMUNOLOGY**	**Code: U3MB31MT** **Credits: 4**
CO1	Compare and contrast innate and adaptive immunity	
CO2	Describe the organs and cell types present in the immune response	
CO3	Illustrate the structure and functions of antigen and antibodies to regulate the immune Response	
CO4	Elucidate the reasons for the immunization and aware of different vaccination	
CO5	Exemplify the adverse effect of immune system including Ag-Ab interaction, allergy and hypersensitivity.	

SEMESTER - III

COs	**Course Name: HEMATOLOGY AND BLOOD BANKING**	**Code: U3MB34ST** **Credits: 3**
CO1	The student will be able to Discuss in detail the collection and processing of blood	

CO2	The student will be able to Understand the appropriate methods of diagnosis and management of disorders	
CO3	The student will be able to Understand how to diagnose and manage hematological disorders and blood parasites	
CO4	The student will be able to Appreciate the various types of blood group systems	
CO5	The student will be able to Know the methods of preservation, storage and transportation of blood to distant places	
	SEMESTER - III	
COs	**Course Name: MICROBIOLOGY - I**	**Code: U3MB21AT Credits: 4**
CO1	Understand the scope, foundation and importance of microbiology	
CO2	Explore the various culture and staining methods involved in identification of bacteria.	
CO3	Knowledge about the nomenclature of bacteria and the instruments uses for viewing the Bacteria	
CO4	Compare and contrast various chemotherapy methods involved in the treatment of bacterial diseases	
CO5	Learn about the various methods involved assessing microbial susceptibility	
	SEMESTER - IV	
COs	**Course Name: MICROBIAL GENETICS**	**Code: U4MB31MT Credits: 4**
CO1	Explain detailed the structure of nucleic acids.	
CO2	Describe in detail the molecular processes such as plasmids and replication of Prokaryotic	
CO3	Comprehend the various methods for gene transfer mechanisms.	
CO4	Describe the concepts of transposons mutation and DNA repair mechanism	
CO5	Understand the molecular mechanisms involved in transcription and translation	
	SEMESTER - IV	
COs	**Course Name: HISTOPATHOLOGY AND CLINICAL PATHOLOGY**	**Code: U4MB34ST Credits: 3**
CO1	Explain the method of collection of the samples.	
CO2	Collection of synovial fluid and the use of preservatives	
CO3	Explain the fixatives and fixation	
CO4	Explain the preparation of frozen sections	
CO5	Understand the mounting and staining	
	SEMESTER - IV	
COs	**Course Name: MICROBIOLOGY - II**	**Code: U4MB31AT Credits: 4**
CO1	Learn the adequate knowledge about the characteristics of soil, Biofertilizer and Biopesticides.	
CO2	Explore the Sewage treatment methods and distribution, source of air borne diseases.	
CO3	Understand the food spoilage and preservation methods and production of milk products.	
CO4	Gain the adequate knowledge about the Ag-Ab reactions.	
CO5	Illustrate the molecular technique and gene therapy methods.	

SEMESTER - IV		
COs	**Course Name: IMMUNOLOGY**	**Code: U4MB31MP** **Credits: 2**
CO1	Identify the blood grouping and its types	
CO2	Carry out serological diagnostic tests such as RA, ASO, CRP and WIDAL.	
CO3	Detection of various immune cells morphology such as WBC, RBC and platelets using various staining methods like Leishman staining and Giemsa staining.	
CO4	Give the knowledge about the precipitation reaction such as SRID and ODD methods.	
CO5	Students will be able to learn various immunological techniques.	

SEMESTER - IV		
COs	**Course Name: MICROBIOLOGY**	**Code: U4MB31AP** **Credits: 2**
CO1	Demonstrate the practical skills in microscopy and their handling techniques and staining Procedures	
CO2	Know various Culture media and their applications and also understand various physical and chemical means of sterilization	
CO3	Know General bacteriology and microbial techniques for isolation of pure cultures of bacteria, fungi and algae	
CO4	Master aseptic techniques and be able to perform routine culture handling tasks safely and Effectively	
CO5	Comprehend the various methods for identification of unknown microorganisms	

SEMESTER - V		
COs	**Course Name: MOLECULAR BIOLOGY AND GENETIC ENGINEERING**	**Code: U5MB31MT** **Credits: 4**
CO1	Students gain the knowledge on genetic materials, types of DNA and their functions	
CO2	Understand the students about gene cloning systems and preparation of genomic library and cDNA library	
CO3	Know the applications of Genetic Engineering in Medical and Agricultural field	
CO4	To provide adequate knowledge about hybridization and amplification technology	
CO5	To give detailed explanation of application of genetic engineering in pharmaceuticals	

SEMESTER - V		
COs	**Course Name: MEDICAL BACTERIOLOGY**	**Code: U5MB32MT** **Credits: 4**
CO1	Aware about the pathogenicity of medically important microorganisms associate with humans	
CO2	Gain adequate knowledge in the laboratory diagnosis of the pathogens, methodologies and safety precautions	
CO3	Better understanding of human bacterial pathogens with its different cultural characteristics and epidemiology	
CO4	Explore the treatment methods and the ways of preventing from human pathogens	
CO5	Competent enough to use medical bacteriology skills to analyze the problems involving Microorganisms and to stop the spreading of disease to the environment.	

SEMESTER - V		
COs	**Course Name: MEDICAL VIROLOGY**	**Code: U5MB33MT** **Credits: 4**

CO1	Apply rules for description of the classification and nomenclature of viruses	
CO2	Understand the structure and life cycle of Bacteriophages	
CO3	Classify the human viral diseases	
CO4	Categorize newly emerged human viral diseases	
CO5	Collect and assemble the miscellaneous viruses	
SEMESTER - V		
COs	**Course Name: MEDICAL MYCOLOGY, PARASITOLOGY& ENTOMOLOGY**	**Code: U5MB34ET Credits: 4**
CO1	Describe the fungal morphology, reproduction and lab diagnosis	
CO2	Explain the various fungal pathological events during the progression of an infectious disease	
CO3	Discuss morphology, lifecycle, pathology and lab diagnosis of human pathogenic Protozoan	
CO4	Discuss morphology, lifecycle, pathology and lab diagnosis of human pathogenic helminthes	
CO5	Apply the epidemiological sciences in studying the underlying mechanisms of spread of disease and controls required to combat the spread of medically importance vectors	
SEMESTER - V		
COs	**Course Name: HUMAN PHYSIOLOGY**	**Code: U5MB35ET Credits: 4**
CO1	Have an enhanced knowledge and appreciation of mammalian physiology	
CO2	Understand the functions of important physiological systems including the cardio-respiratory, renal, reproductive and metabolic systems	
CO3	Understand how these separate systems interact to yield integrated physiological responses to challenges such as exercise, fasting and ascent to high altitude, and how they can sometimes fail	
CO4	Be able to perform, analyse and report on experiments and observations in physiology	
CO5	Be able to recognise and identify principal tissue structures	
SEMESTER - V		
COs	**Course Name: MUSHROOM AND VERMICULTURE TECHNIQUES**	**Code: U5MB36ST Credits: 4**
CO1	Understand the Morphology of common edible mushroom and process involved in mushroom cultivation and differentiate edible and non-edible mushroom	
CO2	Develop skills for cultivating and identifying mushrooms, using them for commercial purposes	
CO3	Acquire knowledge and technical skills associated with mushroom cultivation and bed Preparation for different types of mushrooms.	
CO4	Will understand the pathology associated with mushrooms and their pre-harvest & post-Harvest management.	
CO5	Acquire basic knowledge on Soil biota, ecological classification of earthworms	
SEMESTER – VI		
COs	**Course Name: FOOD AND DAIRY MICROBIOLOGY**	**Code: U6MB31MT Credits: 4**
CO1	Apply basic principles for preservation of food	
CO2	Exemplify the microbial spoilage of vegetables, fruits, meat and fishes	
CO3	Illustrate various food borne infection that transmit through the contaminated food	

CO4	Recall the contamination, spoilage and preservation of milk	
CO5	Explain stages of various food fermentation processes	
	SEMESTER – VI	
COs	**Course Name: INDUSTRIAL MICROBIOLOGY**	**Code: U6MB32MT** **Credits: 4**
CO1	Ability the principles of physiological understanding in improvement of industrially Important microorganism.	
CO2	Appreciate the different types of fermentation processes and biochemistry of various fermentations	
CO3	Understand the rationale in medium formulation & design for microbial fermentation, sterilization of medium and air	
CO4	Appreciate how microbiology is applied in manufacture of industrial importance fermentation products	
CO5	Discuss the production of industrially importance algae and waste management	
	SEMESTER – VI	
COs	**Course Name: PHARMACEUTICAL MICROBIOLOGY**	**Code: U6MB33ET** **Credits: 4**
CO1	Identify microorganisms of relevance to healthcare and the pharmaceutical industry and Their sources.	
CO2	Understand various disinfection and sterilization techniques ,evaluate the sterility testing, microbial assays, pharmacopoeial standards of sterilization process	
CO3	Understand the mechanism of action of Non-therapeutic antimicrobial and therapeutic Antimicrobial agents.	
CO4	Recognize the biochemical and genetic basis for antibiotic resistance and ways of Controlling spread of antibiotic resistance.	
CO5	Evaluate microbial content testing and sterility testing	
	SEMESTER –VI	
COs	**Course Name: TANNERY TECHNOLOGY**	**Code: U6MB34ET** **Credits: 4**
CO1	Bright career in opportunities in technical and designing areas	
CO2	Designers are working with footwear companies as technical designers or stylist Designers	
CO3	The ability to perform design of leather products by means of design experiences Integrated throughout the professional component of the curriculum.	
CO4	An ability to function on teams, that must integrate contributions from different areas of Leather technology towards the solution of multi-disciplinary projects.	
CO5	An ability to identify, formulate, and solve Leather technology problems.	
	SEMESTER – VI	
COs	**Course Name: ENVIRONMENTAL MICROBIOLOGY**	**Code: U6MB35ET** **Credits: 4**
CO1	Gain the basic knowledge on microbial community and composition along with Environmental parameters.	
CO2	Illustrate the effect of greenhouse gases to the environment and impact of global warming	
CO3	Compare and contrast the various biogeochemical cycles involved in the environment	

CO4	Familiar with the process of degrading xenobiotic compounds present in the environment	
CO5	Perceive the importance of ecosystem and its alteration by human activities.	
	SEMESTER – VI	
COs	**Course Name: BIOCHEMICAL METHODOLOGY**	**Code: U6MB36ET** **Credits: 4**
CO1	They acquire knowledge in the quantitative and qualitative estimation of biomolecules	
CO2	This skill based course will teach the students the various instrumentations that are used in the analytical laboratories.	
CO3	This course covers both fundamental and applications of the instruments that are routinely used for the characterization of biomolecules	
CO4	At the end of the course, the student has the basic knowledge on the theory, operation and function of analytical instruments.	
CO5	They learn about various analytical techniques that are routinely used for separation of macromolecules.	
	SEMESTER – VI	
COs	**Course Name: AGRICULTURE AND BIOFERTILIZER TECHNOLOGY**	**Code: U6MB37ST** **Credits: 4**
CO1	Understand various biofertilizer organisms and their applications especially the biofertilizers and their production techniques	
CO2	Know the Microorganisms responsible for nitrogen fixers and crop response	
CO3	Describe the importance of phosphate solubilization mechanisms	
CO4	Discuss the isolation, classification and field applications of Mycorrhizae	
CO5	Comprehend the various organisms used to biopesticides	
	SEMESTER – VI	
COs	**Course Name: MEDICAL MICROBIOLOGY**	**Code: U6MB31MP** **Credits: 3**
CO1	Collection of different clinical samples, transport, culture and examination.	
CO2	Identify medically important bacteria, fungus and parasites from the clinical samples by staining and biochemical tests.	
CO3	Promote diagnostic skills; interpret laboratory tests in the diagnosis of infectious diseases.	
CO4	Perform antibiotic sensitivity tests and compare with the standard tests.	
CO5	Identify parasites from stool samples.	
	SEMESTER – VI	
COs	**Course Name: FOOD, AGRICULTURAL & ENVIRONMENTAL MICROBIOLOGY**	**Code: U6MB32MP** **Credits: 3**
CO1	Identification of Water Quality by using MPN technique.	
CO2	Isolation of Microorganisms from air & Milk samples.	
CO3	Identification of milk quality by using MBRT technique.	
CO4	Isolation of Lactobacillus from curd sample.	
CO5	Isolation of bacteria and fungi from spoiled food.	

COURSE OUTCOMES FOR THE ACADEMIC YEAR 2023-2024

M.Sc. MICROBIOLOGY

SEMESTER – I		
COs	**Course Name: GENERAL MICROBIOLOGY AND MICROBIAL DIVERSITY**	**Code: P1MB41MT Credits: 5**
CO1	Examine various microbes employing the microscopic techniques learnt. Measure and compare the size of microbes.	
CO2	Differentiate and appreciate the anatomy of various microbes. Plan the growth of microbes for different environmental conditions.	
CO3	Identify and cultivate the algae understanding their habitat. Analyze the morphology, classify and propagate depending on its economic importance	
CO4	Create aseptic conditions by following good laboratory practices.	
CO5	Categorize and cultivate a variety of extremophiles following standard protocols for industrial applications.	
SEMESTER – I		
COs	**Course Name: IMMUNOLOGY, IMMUNOMICS AND MICROBIAL GENETICS**	**Code: P1MB42MT Credits: 5**
CO1	Categorize the immune response to a variety of antigens. Identify different immune cells involved in immunity.	
CO2	Justify the significance of MHC molecules in immune response and antibody production.	
CO3	Design antibodies and evaluate immunological assays in patient samples.	
CO4	Analyze genomic DNA of prokaryotes and eukaryotes and modification	
CO5	Summarize gene transfer mechanisms for experimental study and mechanism of Transposition	
SEMESTER – I		
COs	**Course Name: FORENSIC SCIENCE**	**Code: P1MB43ET Credits: 3**
CO1	Identify the scope and need of forensic science in the present scenario.	
CO2	Plan for the organizational setup and functioning of forensic science laboratories.	
CO3	Analyze the biological samples found at the crime scene.	
CO4	Perform extraction and identification of DNA obtained from body fluids.	
CO5	Discuss the concept of forensic toxicology.	
SEMESTER – I		
COs	**Course Name: HEALTH AND HYGIENE**	**Code: P1MB44ET Credits: 3**
CO1	Identify factors affecting health and health habits.	
CO2	Execute the knowledge of ventilation and lighting. Justify Health laws for food safety and hygiene.	
CO3	Follow personal hygiene to avoid diseases and Prevent people from health-destroying habits and addictions.	
CO4	Explore Mental hygiene and maintain emotional stability microorganisms	
CO5	Participate in health education programmes	

SEMESTER – I		
COs	**Course Name: MICROALGAL TECHNOLOGY**	**Code:P1MB45ET** **Credits: 3**
CO1	Acquire knowledge in the field of microalgal technology and their characteristics.	
CO2	Identify the methods of algal cultivation and harvesting.	
CO3	Recognize and recommend the use of microalgae as food, feed and fodder.	
CO4	Promote microalgae in phycoremediation.	
CO5	Compare and critically evaluate recent applied research in these microalgal applications.	
SEMESTER – I		
COs	**Course Name: BIOINSTRUMENTATION**	**Code: : P1MB46ET** **Credits: 3**
CO1	Make use of the laboratory instruments- laminar air flow, pH meter, centrifugation methods, biosafety cabinets following SOP.	
CO2	Apply chromatography techniques in the separation of biomolecules.	
CO3	Perform molecular techniques like mutagenesis and their detection.	
CO4	Estimate molecules in biological samples by adopting UV spectroscopic techniques.	
CO5	Cultivate organisms anaerobically.	
SEMESTER – I		
COs	**Course Name: HERBAL TECHNOLOGY AND COSMETIC MICROBIOLOGY**	**Code: P1MB47ET** **Credits: 3**
CO1	Identify the applications of Indian medicinal plants in treating diseases.	
CO2	Identify and authenticate herbal plants.	
CO3	Evaluate the antimicrobial activity of medicinal plants.	
CO4	Describe the role of microorganisms and their metabolites in the preparation of cosmetics.	
CO5	Validate procedures and biosafety measures in the mass production of cosmetics.	
SEMESTER – I		
COs	**Course Name: ESSENTIALS OF LABORATORY MANAGEMENT AND BIOSAFETY**	**Code: P1MB48ET** **Credits: 3**
CO1	Employ skills on laboratory safety and avoid laboratory accidents.	
CO2	Prevent laboratory hazards by practicing safety strategies.	
CO3	Practice various first aid procedures during common laboratory accidents.	
CO4	Ensure biosafety strategies in laboratory.	
CO5	Recognize the importance of biosafety guidelines.	
SEMESTER – I		
COs	**Course Name: GENERAL MICROBIOLOGY, IMMUNOLOGY, IMMUNOMICS AND MICROBIAL GENETICS**	**Code: P1MB41MP** **Credits: 4**
CO1	Apply microscopic techniques and staining methods in the identification and differentiation of microbes.	
CO2	Apply the knowledge on the sterilization of glass wares and media by different methods and measurement of cell growth.	
CO3	Perform and evaluate immunological reactions to aid diagnosis.	
CO4	Assess the level of lymphocytes in a blood sample and purify immunoglobulin employing appropriate techniques.	
CO5	Perform DNA extraction and gene transfer mechanisms, analyze and identify by gel Electrophoresis	

SEMESTER – II		
COs	**Course Name: MEDICAL BACTERIOLOGY AND MYCOLOGY**	**Code: P2MB41MT Credits: 5**
CO1	Collect, transport and process of various kinds of clinical specimens.	
CO2	Analyze various bacteria based on morphology and pathogenesis.	
CO3	Discuss various treatment methods for bacterial disease.	
CO4	Employ various methods detect fungi in clinical samples and apply knowledge on antifungal agents..	
CO5	Apply various immunodiagnostic method to detect fungal infections.	
SEMESTER – II		
COs	**Course Name: MEDICAL VIROLOGY AND PARASITOLOGY**	**Code: P2MB42MT Credits: 5**
CO1	Cultivate viruses by different methods and aid in diagnosis. Perform purification and viral assay.	
CO2	Investigate the symptoms of viral infections and presumptively identify the viral disease.	
CO3	Diagnose various viral diseases by different methods.(serological, conventional and molecular)	
CO4	Educate public about the spread, control and prevention of parasitic diseases.	
CO5	Identify the protozoans and helminthes present in stool and blood specimens. Perform serological and molecular diagnosis of parasitic infections.	
SEMESTER – II		
COs	**Course Name: MEDICAL BACTERIOLOGY, MYCOLOGY, VIROLOGY AND PARASITOLOGY**	**Code: P2MB41MP Credits: 4**
CO1	Collection of different clinical samples, transport, culture and examination.	
CO2	Identify medically important bacteria, fungus and parasites from the clinical samples by staining and biochemical tests.	
CO3	Promote diagnostic skills; interpret laboratory tests in the diagnosis of infectious diseases.	
CO4	Perform antibiotic sensitivity tests and compare with the standard tests.	
CO5	Screening of industrially important microbes for metabolite production.	
SEMESTER – II		
COs	**Course Name: EPIDEMIOLOGY**	**Code:P2MB43ET Credits: 3**
CO1	Apply the knowledge acquired on concepts of epidemiology to clinical and public health environment.	
CO2	Plan various strategies to trace the epidemiology.	
CO3	Plan the control of communicable and non-communicable diseases.	
CO4	Analyze the implications of drug resistance in the society and design the control of antimicrobial resistance and its management.	
CO5	Employ National control programs related to Communicable and Non-Communicable diseases with the public.	
SEMESTER – II		
COs	**Course Name: CLINICAL AND DIAGNOSTIC MICROBIOLOGY**	**Code: P2MB44ET Credits: 3**

CO1	Apply Laboratory safety procedures and hospital waste disposal strategies.
CO2	Collect various clinical specimens, handle, preserve and process safely.
CO3	Identify the causative agents of diseases by conventional and molecular methods following standard protocols.
CO4	Assess the antimicrobial susceptibility pattern of pathogens.
CO5	Trace the sources of nosocomial infection and recommend control measures.

SEMESTER – II

COs	**Course Name: BIOREMEDIATION**	**Code: P2MB44ET** **Credits: 3**
CO1	Differentiate Ex-situ bioremediation and In-situ bioremediation. Assess the roles of organisms in bioremediation.	
CO2	Distinguish microbial processes necessary for the design and optimization of biological processing unit operations.	
CO3	Identify, formulate and design engineered solutions to environmental problems.	
CO4	Explore microbes in degradation of toxic wastes and playing role on biological mechanisms.	
CO5	Establish the mechanisms of Arbuscular mycorrhizal fungi and Plant growth promoting Rhizobacteria in phytoremediation.	

SEMESTER – II

COs	**Course Name: BIOINFORMATICS**	**Code: P2MB46ET** **Credits: 3**
CO1	Access to databases that provides information on nucleic acids and proteins.	
CO2	Invent algorithms for sequence alignment.	
CO3	Construct phylogenetic tree.	
CO4	Predict the structure of proteins.	
CO5	Design drugs by predicting drug ligand interactions and molecular docking.	

SEMESTER – II

COs	**Course Name: NANOBIOTECHNOLOGY**	**Code: P2MB47ET** **Credits: 3**
CO1	Employ knowledge in the field of nanobiotechnology for development.	
CO2	Identify various applications of nano materials in the field of medicine and environment.	
CO3	Examine the prospects and significance of nanobiotechnology.	
CO4	Identify recent advances in this area and create a career or pursue research in the field.	
CO5	Design non-toxic nanoparticles for targeted drug delivery.	

SEMESTER – II

COs	**Course Name: CLINICAL RESEARCH AND CLINICAL TRIALS**	**Code: P2MB47ET** **Credits: 3**
CO1	Apprehend the Drug Development process and different phases of clinical trials.	
CO2	Recognize the ethics and regulatory perspectives on clinical research trials activities.	
CO3	Accentuate about clinical trials management concepts and documentation process.	
CO4	Accomplish quality assurance and quality control to ensure the protection of human subjects and the reliability of clinical trial results.	
CO5	To nurture skills recitation to commercial start up and industriousness.	

SEMESTER – II

COs	Course Name: VERMITECHNOLOGY	Code: P2MB41SE Credits: 2
CO1	Compare and contrast the uses of vermicompost to the soil.	
CO2	Recommend different species of earthworms after acquiring knowledge on its biology.	
CO3	Design the vermicomposting process.	
CO4	Assess the Best Practices of Vermicomposting.	
CO5	Recommend the applications of vermicompost to different soils and for different crops.	
	SEMESTER – III	
COs	Course Name: MEDICAL VIROLOGY AND PARASITOLOGY	Code: P3AM31MT Credits: 5
CO1	The student will be able to describe the characteristics of viruses	
CO2	The student will be able to explain viral diseases and their clinical manifestation	
CO3	The student will be able to explain the diseases caused by parasites	
CO4	The student will be able to plan strategies for the control of viral diseases	
CO5	The student will be able to plan strategies for the control of parasitic diseases	

	SEMESTER – III	
COs	Course Name: SOIL AND AGRICULTURAL MICROBIOLOGY	Code: P3AM32MT Credits: 4
CO1	The student will be able to know the diverse group of soil microorganisms	
CO2	The student will be able to understand the nutrient sources and cycles	
CO3	The student will be able to know the concept of disease, causal agent, identification methods and Management	
CO4	The student will be able to understand microbial life in aquatic environments	
CO5	The student will be able to apply knowledge on microbial treatment of wastewater	
	SEMESTER – III	
COs	Course Name: RESEARCH METHODOLOGY	Code: P3AM33MT Credits: 4
CO1	The student will be able to collect literature and design experiments	
CO2	The student will be able to write research report	
CO3	The student will be able to measure central tendency	
CO4	The student will be able to perform Correlation analysis	
CO5	The student will be able to apply Sampling theory	
	SEMESTER – III	
COs	Course Name: CELL BIOLOGY	Code: P3AM34ET Credits: 3

CO1	Students will understand the structures and purposes of basic components of prokaryotic andeukaryotic cells and understand the cytological techniques of tissues	
CO2	Explain the components of cell and their functions	
CO3	Explain the communications of cells with other cells and to the environment	
CO4	Compare and contrast the events of cell cycle and its regulation	
CO5	To impart detailed understand of key events of molecular biology comprising of mechanism of DNA Replication, Transcription and translation in prokaryotes and Eukaryotes	
SEMESTER – III		
COs	**Course Name: DIAGNOSTIC MICROBIOLOGY**	**Code: P3AM35ET** **Credits: 3**
CO1	The student will be able to organize a clinical microbiology laboratory	
CO2	The student will be able to collect clinical specimens	
CO3	The student will be able to examine and process clinical specimens	
CO4	The student will be able to understand the concept and principles of serological methods	
CO5	The student will be able to apply the knowledge on antimicrobial resistance in reducing the effect	
SEMESTER – III		
COs	**Course Name: MARINE MICROBIOLOGY**	**Code: P3AM36ET** **Credits: 3**
CO1	The student will be able to characterize and differentiate marine Microbial Habitats	
CO2	The student will be able to appreciate the importance of Marine Extremophiles	
CO3	The student will be able to describe various methods of Cultivation of Marine Microbes	
CO4	The student will be able to understand Marine Pollution and suggest Bioremediation	
CO5	The student will be able to emphasize the use of Microbial Products from Sea.	
SEMESTER – III		
COs	**Course Name: MUSHROOM CULTIVATION**	**Code: P3MB31OE** **Credits: 3**
CO1	The student will be able to differentiate edible and non-edible mushroom	
CO2	The student will be able to describe spawn preparation	
CO3	After studying unit-3, the student will be able to explain the process of cultivation of important Mushroom	
CO4	The student will be able to appreciate the nutritional value of Mushroom	
CO5	The student will be able to apply the Economic concept of mushroom Cultivation.	
SEMESTER – III		

COs	Course Name: HERBAL TECHNOLOGY	Code: P3MB32OE Credits: 3
CO1	Explain methods for selection and processing of herbal drugs as raw materials for herbal drugpreparation	
CO2	Acquire basic knowledge on herbal medicine preparation	
CO3	Identification of herbals and Methods of preparation and also explain future prospects of herbaldrug based industry	
CO4	Apply the Method of extraction and phytochemical identification and application of herbaldrugs	
CO5	Analyze botanical sources, morphology, histology, powder characteristics, importantconstituents, identification tests and therapeutic uses of some medicinal plants	
SEMESTER – III		
COs	Course Name: INTELLECTUAL PROPERTY RIGHTS	Code: P3MB33OE Credits: 3
CO1	The student will be able to emphasize the importance of IPR	
CO2	The student will be able to understand the Nature of Copyright	
CO3	The student will be able to explain the concept of Patents and Elements of Patentability	
CO4	The student will be able to understand importance of Traditional Knowledge	
CO5	The student will be able to apply the knowledge for Patenting Biotechnological and Pharmaceutical products	
SEMESTER – III		
COs	Course Name: MEDICAL PARASITOLOGY AND VIROLOGY& SOIL AND AGRICULTURAL MICROBIOLOGY	Code: P3AM31MP Credits: 5
CO1	Collection of different sewage water for isolation of bacteriophages	
CO2	Identify and inoculation of clinical specimen in different area of the embryonated eggs	
CO3	Assessment of water quality by MPN and plate count agar techniques	
CO4	Perform the isolation of microbes consider as bio -fertilizers from soil and root nodules .	
CO5	Screening and isolation of pathogenic fungi from infected plants.	
SEMESTER – IV		
COs	Course Name: BIOLOGICAL TECHNIQUES	Code: P4AM31MT Credits: 5
CO1	Gain working knowledge of different kinds of microscopy	
CO2	Understand the principle and working mechanisms of spectrophotometer, centrifuge andbiosensors	
CO3	Identify the amino acids from different sources by using chromatography	
CO4	Identify antigen, antibodies and proteins from clinical samples by using electrophoresis	
CO5	Demonstrate different kinds of molecular techniques like PCR, Blotting	
SEMESTER – IV		

COs	Course Name: NANOBIOTECHNOLOGY AND BIOREMEDIATION	Code: P4AM34ET Credits: 3
CO1	Understand the concept of Nanoparticles formation and its functions.	
CO2	Better knowledge in the measurement of nanoparticles	
CO3	Explore the applications of nanoparticles in various fields	
CO4	Classify pollutants in air , water and soil	
CO5	Design a model for rhizofilteration	
SEMESTER – IV		
Cos	Course Name: MICROBIAL NANOTECHNOLOGY	Code: P4AM35ET Credits: 3
CO1	The student will be able to understand the role of nanotechnology in biology	
CO2	The student will be able to employ different ways of nanoparticles synthesis	
CO3	The student will be able to characterize nanoparticles	
CO4	the student will be able to appreciate applications of nanoparticles in biology and medicine. The students will gain knowledge on various application of nanoparticles	
CO5	The student will be able to assess environmental effects of nanoparticles. The student will gain overall knowledge on physical and chemical properties of nanoparticles	
SEMESTER – IV		
Cos	Course Name: BIOETHICS	Code: P4AM36ET Credits: 3
CO1	The student will be able to describe the concept of _bioethics	
CO2	The student will be able to explain Universal Declaration on Bioethics and Human Rights	
CO3	The student will be able to analyze the composition and functioning of Ethics committees	
CO4	The student will be able to interpret consequences of discrimination and stigmatization	
CO5	The student will be able to apply the knowledge on social responsibility and health	

ADHIPARASAKTHI COLLEGE OF ARTS AND SCIENCE (AUTONOMOUS)

G.B. NAGAR, KALAVAI– 632 506.RANIPET DISTRICT.

PG AND RESEARCH DEPARTMENT OF COMMERCE

PROGRAMME OUTCOMES FOR THE ACADEMIC YEAR 2023-24

PROGRAMME OUTCOMES	
PO1	**Disciplinary knowledge:** Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate programme of study.
PO2	**Communication Skills:** Ability to express thought sand ideas effectively in writing and orally ;Communicate With others using appropriate media; confidently share one's views and expresser self/ himself; demonstrate the ability to listen carefully read and write analytically, and present complex information in a clear and concise manner to different groups
PO3	**Critical thinking:** Capability to apply analytic thought to a body of knowledge; analyse and evaluate evidence, arguments, claims, beliefs on the basis of empirical evidence; identify relevant assumptions or implications; formulate coherent arguments; critically evaluate practices, policies and theories by following scientific approach to knowledge development.
PO4	**Problem solving:** Capacity to extrapolate from what one has learned and apply their competencies to solved different kinds of on familiar problems, rather than replicate curriculum content knowledge; and apply one's learning to real life situations.
PO5	**Analytical reasoning**: Ability to evaluate the reliability and relevance of evidence; identify logical flaws and holes in the arguments of others; analyse and synthesize data from a variety of sources; draw valid conclusions and support them with evidence and examples, and addressing opposing viewpoints.
PO6	**Research-related skills**: A sense of inquiry and capability for asking relevant/appropriate questions, problem arising, synthesising and articulating; Ability to recognise cause-and-effect relationships, define problems, formulate hypotheses, test hypotheses, analyse, interpret and draw conclusions from data, establish hypotheses, predict cause-and-effect relationships; ability to plan, execute and report the results of an experiment or investigation

PO7	**Cooperation/Team work:** Ability to work effectively and respectfully with diverse teams, facilitate cooperative or coordinated effort on the part of a group, and act together as a group or a team in the interests of a common cause and work efficiently as a member of a team.
PO8	**Leadership readiness/qualities:** Capability for mapping out the tasks of a team or an organization, and setting direction ,formulating an inspiring vision, building a team who can help achieve the vision, motivating and inspiring team members to engage with that vision, and using management skills to guide people to the right destination, in a smooth and efficient way.

PROGRAMME SPECIFIC OUTCOMES	
PSO1	**Placement:** To prepare the students who will demonstrator spiteful engagement with others 'ideas, behaviors beliefs and apply diverse frames of reference to decisions and actions.
PSO2	**Entrepreneur:** To create effective entrepreneurs by enhancing their critical thinking, problem solving, decision making and leadership skill that will facilitate startups and high potential organizations.
PSO3	**Contribution to Business World:** To produce employable, ethical and innovative professionals to sustain in the dynamic business world.

ADHIPARASAKTHI COLLEGE OF ARTS AND SCIENCE (AUTONOMOUS)

G.B. NAGAR, KALAVAI–632 506, RANIPET DISTRICT.

PG AND RESEARCH DEPARTMENT OF COMMERCE

COURSE OUTCOMES FOR THE ACADEMIC YEAR 2023-2024

SEMESTER – I		
COs	**Course Name: FINANCIAL ACCOUNTING I**	**Code: U1CM41MT** **Credits: 5**
CO1	Remember the concept of rectification of errors and Bank reconciliation Statements	
CO2	Apply the knowledge in preparing detailed accounts of sole trading concerns	
CO3	Analyses the various methods of providing depreciation	
CO4	Evaluate the methods of calculation of profit	
CO5	Determine the royalty accounting treatment and claims from insurance Companies in case of loss of stock.	
SEMESTER – I		
COs	**Course Name: PRINCIPLES OF MANAGEMENT**	**Code: U1CM42MT** **Credits: 5**
CO1	Demonstrate the importance of principles of management.	
CO2	Paraphrase the importance of planning and decision making in an organization.	
CO3	Comprehend the concept of various authorizes and responsibilities fan organization.	
CO4	Enumerate the various methods of Performance appraisal	
CO5	Demonstrate the notion of directing, co-coordination and control in the management.	
SEMESTER – I		
COs	**Course Name: BUSINESS COMMUNICATION**	**Code: U1CM41ET** **Credits: 3**
CO1	Acquire the basic concept of business communication.	
CO2	Exposed to effective business letter	
CO3	Paraphrase the concept of various correspondences.	
CO4	Prepare Secretarial Correspondence like agenda, minutes and various business Reports.	
CO5	Acquire the skill of preparing an effective resume	
SEMESTER – I		
COs	**Course Name: MS OFFICE FOR COMMERCE (Practical)** **.**	**Code: U1CS41MP** **Credits: 2**
CO1	Understand the knowledge of MSWord& Commonly used features	
CO2	Understand the Concepts of Insert Tab & Mail Merge	
CO3	Understand the concepts of MS Power point	
CO4	Practice to MS Excel & Using Formulas	
CO5	Working on multiple Worksheets & Working with huge Data sets	
SEMESTER – I		

COs	Course Name **PROFESSIONAL ETHICS**	**Code: U1CM41FC** **Credits: 2**
CO1	Demonstrate the importance of Personal Ethics and Business Ethics	
CO2	Paraphrase the importance of Honesty, Integrity and Transparency In Business.	
CO3	Comprehend the concept of Sources of Ethical Behavior	
CO4	Enumerate the various methods of Applying Moral Philosophy to Ethical Decision-making	
CO5	Demonstrate the Ethics of Vivekananda, Gandihiji, Aurobindo and Tagore.	
SEMESTER – II		
COs	**Course Name: FINANCIAL ACCOUNTING II**	**Code: U2CM41MT** **Credits: 5**
CO1	To evaluate the Hire purchase accounts and Installment systems	
CO2	To prepare Branch accounts and Departmental Accounts	
CO3	To understand the accounting treatment for admission and retirement in partnership	
CO4	To know Settlement of accounts at the time of dissolution of a firm.	
CO5	To elaborate the role of IFRS	
SEMESTER – II		
COs	**Course Name: BUSINESS LAW**	**Code: U2CM42MT** **Credits: 5**
CO1	Explain the Objectives and significance of Mercantile law	
CO2	Understand the clauses and exceptions of Indian Contract Act.	
CO3	Outline the contract of indemnity and guarantee	
CO4	Familiar with the provision relating to Bailment and Pledge	
CO5	Explain the various provisions of Sale of Goods Act 1930	
SEMESTER – II		
COs	**Course Name: BUSINESS ENVIRONMENT**	**Code: U2CM41ET** **Credits: 3**
CO1	Remember the nexus between environment and business.	
CO2	Apply the knowledge of Political Environment in which the businesses operate	
CO3	Analyze the various aspects of Social and Cultural Environment	
CO4	Evaluate the parameters in Economic Environment.	
CO5	Create a conductive Technological Environment for business to operate globally.	
SEMESTER – II		
COs	**Course Name: INSURANCE AND RISK MANAGEMENT**	**Code: U2CM42ET** **Credits:3**
CO1	Identify the workings of insurance and hedging	
CO2	Evaluate the types of insurance policies and settlement	
CO3	Settle claims under various types of general insurance	
CO4	Know the protection provided or insurance policy holders under IRDA	
CO5	Evaluate the assessment and retention of risk	
SEMESTER – II		
COs	**Course Name: INTERNATIONAL TRADE**	**Code: U2CM43ET** **Credits: 3**
CO1	Distinguish between the concept of internal and international trade.	

CO2	Define the various theories of international trade.
CO3	Examine the balance of trade and exchange rates
CO4	Appraise the role of IMF and IBRD.
CO5	Define the workings of WTO and with special reference to India.

SEMESTER – II

COs	**Course Name: INDUSTRIAL LAW**	**Code:U2CM41SE Credits: 2**
CO1	RememberandrecallthevariousconceptsofFactoriesact1948.	
CO2	Demonstrate the Provisions and concepts of Industrial Disputes Act, 1947.	
CO3	Analyze the various measures and policies in The Workmen's Compensation Act.	
CO4	Examine the different aspects of ESI and EPF Act.	
CO5	Critically evaluate the Case studies relating to Bonus Act.	

SEMESTER – II

COs	**Course Name: ADVERTISING**	**Code:U2CM42SE Credits: 2**
CO1	Define Advertising, analyze its objectives, evaluate its scope and benefits, and identify media elements used in advertising.	
CO2	Differentiate types of advertising agencies, assess criteria for selecting agencies ,and demonstrate effective client-agency relationship management.	
CO3	Analyze ethical and social issues in advertising, evaluate the impact of advertising on Indian values and culture.	
CO4	Explain the communication process and analyze advertising's role in brand building And Managing brand crises.	
CO5	Apply effective copywriting techniques, identify copy elements and types, utilize layout principles and execution styles and conduct pre-testing and post- testing of advertisements.	

SEMESTER-III

COs	**Course Name: CORPORATE ACCOUNTING I**	**Code:U3CM31MT Credits: 5**
CO1	To understand the provisions for underwriting commission	
CO2	To examine the provisions of issue and redemption of preferences shares and debentures	
CO3	To illustrate part, I and part II forms	
CO4	To value shares and goodwill	
CO5	To Analyze IND AS 7, 12,16	

SEMESTER – III

COs	**Course Name: BUSINESS LAW**	**Code:U3CM32MT Credits: 5**
CO1	Explain the basic elements of forming an enforceable contract and agreement.	
CO2	Classify various negotiable instruments and reason of its dishonor	
CO3	Enumerate the types of companies its management and its rules of corporate governance.	
CO4	Demonstrate an understanding of the Legal Environment of Business.	
CO5	Understand the concept on sale of goods Act 1930	

SEMESTER – III

COs	**Course Name: BUSINESS STATISTICS**	**Code: U3CM33AT Credits: 3**
CO1	Learn the basics of ratio, proportion, indices and logarithm	

CO2	Familiarize with calculations of simple and compound interest and arithmetic, Geometric and harmonic progressions
CO3	Determine the various measures of central tendency
CO4	Calculate the correlation and regression co-efficient.
CO5	Assess problems on time series analysis

SEMESTER III

COs	**Course Name: DEVELOPMENT OF SMALL BUSINESS**	**Code:U3CM34ST**
		Credits: 2
CO1	Understand the concept of MSME	
CO2	Create knowledge on self-employment	
CO3	This course provides the students with an in-depth understanding of key concepts in entrepreneurship and business development.	
CO4	It will cover the different types of entrepreneur here – social, serial and lifestyle.	
CO5	Finance and small business and development strategies designed to develop business and businesses. Prerequisites	

SEMESTER – IV

COs	**Course Name: CORPORATE ACCOUNTING II**	**Code: U4CM31MT** **Credits: 5**
CO1	Understand the meaning and concept of Holding company	
CO2	Students will learn the Purpose of amalgamation and the methods of amalgamation	
CO3	Able to understand accounting procedure of Liquidation	
CO4	Understand the meaning and concept of Insurance	
CO5	Students will learn the Purpose of Inflation	

SEMESTER – IV

COs	**Course Name: COMPANY LAW**	**Code: U4CM32MT** **Credits: 5**
CO1	Understand the classification of companies under the act	
CO2	Examine the contents of the Memorandum of Association & Articles of Association	
CO3	Know the qualification and disqualification of Auditors	
CO4	Understand the workings of National Company Law Appellate Tribunal (NCLAT)	
CO5	Analyses the modes of winding up	

SEMESTER – IV

COs	**Course Name: BUSINESS ECONOMICS**	**Code: U4CM31AT** **Credits: 3**
CO1	Obtain knowledge of the concept of opportunity cost	
CO2	Identify the Different types of Elasticity of demand	
CO3	Analyze operations of markets under varying competitive conditions	
CO4	Analyze Pricing under monopolistic competition.	
CO5	Identify the Canon of Taxation	

SEMESTER – IV

COs	**Course Name: MODERN BANKING**	**Code: U4CM31ST** **Credits: 2**

CO1	Acquire knowledge on Indian Banking system and Banking Regulation Acts pertaining to it.	
CO2	Recognize features and roles of businessmen, entrepreneur, managers, consultant, which will help learners to possess knowledge and other soft skills and to react aptly when confronted with critical decision making	
CO3	Ethical and collegial in professional practice.	
CO4	Gain practical exposure in the fields of Banking, Finance and Corporate Sector	
CO5	Obtain advanced lessons in Business Communication, Business Economics Paper, Environmental Studies, Entrepreneurial Development, Accountancy & Portfolio and Investment Management.	
SEMESTER – V		
COs	**Course Name: COST ACCOUNTING I**	**Code: U5CM21MT Credits: 3**
CO1	Students will be able to understand the meaning cost, costing and Cost Accounting, Advantages and Disadvantages of Cost accounting	
CO2	Understand attendance and payroll system, Methods of Labour Turnover, remuneration and bonus methods also be able to calculate labour cost.	
CO3	Understand different types of overheads and its classification into various heads	
CO4	Understand cost unit, cost centre and calculation of various costs. They shall also able to prepare a cost sheet to find out cost and net profit/net loss	
CO5	Students will be able to acquaint with the procedure of storekeeping, documentation of	
	material receipt and issue, how to use a technique for setting stock levels, calculation of Economic Order Quantity	
SEMESTER – V		
COs	**Course Name: PRACTICAL AUDITING**	**Code:U5CM22MT Credits:3**
CO1	Define auditing and its process.	
CO2	Compare and contrast essence of internal check and internal control.	
CO3	Identify the role of auditors in companies.	
CO4	Define the concept of Corporate Governance	
CO5	Appraise the implications of Corporate Social Responsibility	
SEMESTER – V		
COs	**Course Name: BUSINESS MANAGEMENT**	**Code: U5CM23MT Credits:5**
CO1	Demonstrate the importance of principles of management.	
CO2	Paraphrase the importance of planning and decision making in an organization.	
CO3	Comprehend the concept of various authorizes and responsibilities of an organization.	
CO4	Enumerate the various methods of Directing..	
CO5	Demonstrate the notion of Qualities of a Good Leader.	
SEMESTER – V		
COs	**Course Name: MANAGEMENT ACCOUNTING**	**Code: U5CM24MT Credits: 5**
CO1	Remember and recall basics in management accounting	
CO2	Apply the knowledge of preparation of Financial Statements.	
CO3	Analyses the concepts relating to fund flow and cash flow.	

CO4	Evaluate techniques of budgetary control	
CO5	Formulate Criteria for decision making using principles of marginal costing.	
SEMESTER – V		
COs	**Course Name: INCOME TAX LAW & PRACTICE**	**Code: U5CM25ET** **Credits: 5**
CO1	Demonstrate the understanding of the basic concepts and definitions under the income tax Act.	
CO2	Compute income of an individual under the head salaries.	
CO3	Compute allowances and Deductions of Salary	
CO4	Ability to compute income from House property.	
CO5	Evaluate income from a business carried on or from the practice of a profession.	
SEMESTER – V		
COs	**Course Name: PERSONEL MANAGEMENT**	**Code: U5CM26ET** **Credits: 5**
CO1	Demonstrate the importance of Qualities of a Good Personnel Manager	
CO2	Paraphrase the importance of Planning Job Requirements	
CO3	Comprehend the concept of Employee Orientation and Training	
CO4	Enumerate the concepts of Labour Productivity	
CO5	Demonstrate the notion of Qualities of a Good Leader.	
SEMESTER – V		
COs	**Course Name: MERCHANT BANKING**	**Code:U5CM27ST** **Credits:2**
CO1	Get an understanding of banking operations	
CO2	Know the different financial and other assistance available for industrial units	
CO3	Understand the role of small scale industrial units in economic development	
CO4	Know about various fee based service provided by the banks	
CO5	Apply learning from this program will help to get opportunities to work with investment banking companies	
SEMESTER – VI		
COs	**Course Name: COST ACCOUNTING II**	**Code: U6CM21MT** **Credits: 5**
CO1	Remember and recall standards in cost accounting	
CO2	Apply the knowledge in contract costing	
CO3	Understand various bases of classification cost and prepare operating cost statement.	
CO4	Analyze and assimilate concepts in Marginal costing	
CO5	Setup standards and analyze variances.	
SEMESTER – VI		
COs	**Course Name: FINANCIAL MANAGEMENT**	**Code: U6CM22MT** **Credits: 5**
CO1	Recall the concepts in financial management.	
CO2	Apply the various capital structure theories.	
CO3	Apply capital budgeting techniques to evaluate investment proposals.	
CO4	Determine dividend pay-outs.	
CO5	Estimate the working capital of an organization.	
SEMESTER – VI		

COs	Course Name: ENTREPRENEURIAL DEVELOPMENT	Code: U6CM23MT Credits: 5
CO1	Identify the various traits of an entrepreneur	
CO2	Turn ideas into business opportunities	
CO3	Identify the sources of funds for funding a project	
CO4	To Understand the role of bank of an entrepreneur	
CO5	Develop an understanding about the government schemes available for women entrepreneurs	
	SEMESTER – VI	
COs	**Course Name: INCOME TAX LAW AND PRACTICE II**	**Code: U6CM24ET** **Credits:4**
CO1	Remember and recall provisions on capital gains	
CO2	Apply the knowledge about income from other sources	
CO3	Analyze the set off and carry forward of losses provisions	
CO4	Learn about assessment of Individuals.	
CO5	Apply procedures learnt about assessment procedures.	
	SEMESTER – VI	
COs	**Course Name: MARKETINGMANAGEMENT**	**Code: U6CM25ET** **Credits: 4**
CO1	Understand the concept of Market and Marketing Mix.	
CO2	Gain Knowledge of Product Life Cycle	
CO3	Evaluate the Business Opportunities	
CO4	Identify the factor of Market Segmentation	
CO5	Find the Marketing Environment	
	SEMESTER – VI	
COs	**Course Name: HUMAN RESOURCE MANAGEMENT**	**Code: U6CM26ET** **Credits:4**
CO1	Develop the understanding of the concept of human resource management and to Understand its relevance in organizations.	
CO2	Develop necessary skill set for application of various HR issues.	
CO3	Analyse the strategic issues and strategies required to select and develop manpower resources.	
CO4	Integrate the knowledge of HR concepts to take correct business decisions.	
CO5	Develop necessary skill set for application of various HR issues.	
	SEMESTER – VI	
COs	**Course Name: BUSINESS ETHICS**	**Code: U6CM27ET** **Credits: 4**
CO1	Study the Ethical and Moral issues	
CO2	Will help the potentials consequences of Business decision	
CO3	Discuss of Ethics include Corporate Governments and Social responsibilities	
CO4	Business Ethics enhances the law by outlining acceptable behaviors beyond Government. Discuss of Ethics include Corporate Government and Social responsibilities	
CO5	Generate demonstrate respect, responsibility, fairness and caring	

	SEMESTER – VI	
COs	**Course Name: PUBLIC ENTERPRISES IN INDIA**	**Code: U6CM28ST** **Credits:2**
CO1	Helps students to know the public undertakings and services	
CO2	Understand the scope for employment opportunities	
CO3	Discuss the various types of organization sectors	
CO4	Helps students to know about the infrastructure development	
CO5	Analysethestrategicissuesandstrategiesrequiredtoselectanddevelopmanpower resources.	

M.Com-COURSE OUTCOMES
FOR THE ACADEMIC YEAR 2023-2024

SEMESTER-I		
COs	**Course Name: BUSINESS FINANCE**	**Code: P1CM41MT** **Credits: 5**
CO1	Explain the important finance concepts	
CO2	Estimate risk and determine its impact on return	
CO3	Examine leasing and other sources of finance for startups.	
CO4	Summaries cash, receivable and inventory management techniques	
CO5	Evaluate techniques of long term investment decision Incorporating risk factor	
SEMESTER – I		
COs	**Course Name: DIGITAL MARKETING**	**Code: P1CM42MT** **Credits: 5**
CO1	Explain the dynamics of digital marketing	
CO2	Examine online marketing mix	
CO3	Compare digital media channels	
CO4	Explain online consumer behavior	
CO5	Analyze social media data	
SEMESTER – I		
COs	**Course Name: BANKING AND INSURANCE**	**Code: P1CM43MT** **Credits: 5**
CO1	Relate the transformation in banking from traditional to new age	
CO2	Apply modern techniques of digital banking	
CO3	Evaluate the role of insurance sector	
CO4	Examine the regulatory mechanism	
CO5	Assess risk mitigation strategies	
SEMESTER – I		
COs	**Course Name: SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT**	**Code: P1CM44ET** **Credits: 4**

CO1	Examine investment options and structure a portfolio	
CO2	Assess the value of Equity Shares, Preference Shares and bonds.	
CO3	Examine stock performance through fundamental and technical analysis.	
CO4	Examine the various Portfolio Theories.	
CO5	Evaluate the portfolio performance.	
SEMESTER – II		
COs	**Course Name: OPERATIONS RESEARCH**	**Code: P1CM45ET Credits:4**
CO1	Apply Linear Programming	
CO2	Identify models for problem solving	
CO3	Apply sequencing and game theory	
CO4	Apply network analysis to enhance effectiveness	
CO5	Examine the models for decision making	
SEMESTER – I		
COs	**Course Name: LABOUR LAWS**	**Code: P1CM46ET Credits: 4**
CO1	Recall the basic labour legislations pertaining to Trade Unions	
CO2	Explain various provisions of the Factories Act and Equal Remuneration Act	
CO3	Assess provisions relating to the workmen's compensation and state insurance..	
CO4	Examine provisions relating to payment of wages and minimum wages.	
CO5	Explain the provisions of provident fund, gratuity and bonus schemes.	
SEMESTER – II		
COs	**Course Name: STRATEGIC HUMAN RESOURCE MANAGEMENT**	**Code: P1CM47ET Credits: 4**
CO1	Recall the fundamentals of **s**trategic Human Resource Management.	
CO2	Examine the conceptual framework of strategic Human Resource Management Models	
CO3	Apply the knowledge of various strategies in Human Resource Management In the corporate arena	
CO4	Illustrate drafting of HR policies	
CO5	Analyze the latest trend in the strategic Human Resource Management.	
SEMESTER – II		
COs	**Course Name: STRATEGIC COST MANAGEMENT**	**Code: P2CM41MT Credits: 5**
CO1	Explain strategic cost management and Quality Control	
CO2	Choose the appropriate technique for cost control	

CO3	Choose different methods of decision making techniques	
CO4	Choose transfer pricing methods to solve problems	
CO5	Make use of activity based costing in practice	
SEMESTER – II		
COs	**Course Name: CORPORATE ACCOUNTING**	**Code: P2CM42MT Credits: 5**
CO1	Determine profit and financial position by preparing financialstatementsofcompaniesasperscheduleIIIofCompaniesAct,2013	
CO2	Apply the provisions of IRDA Regulations in the preparation of final accounts of Life Insurance and General Insurance Companies.	
CO3	Determine the overall profitability and financial position by preparing consolidated financial statements of holding companies in accordance with AS21.	
CO4	Analyze contemporary accounting methods	
CO5	Examine Financial Reporting based on appropriate Accounting Standards and provisions of Companies Act 2013 with respect Of Corporate social responsibility.	
	SEMESTER – II	
COs	**Course Name: SETTING UP OF BUSINESS ENTITIES**	**Code: P2CM43MT Credits: 4**
CO1	Compare the various avenues of acquiring finance to setup abusiness entity	
CO2	Recall the legal requirements for Section 8 Company	
CO3	Examine the provisions for LLP and joint venture	
CO4	Analyse the registration and licensing procedure	
CO5	Examine the compliance of regulatory framework regarding environment.	
SEMESTER – II		
COs	**Course Name: BUSINESS ETHICS AND CORPORATE SUSTAINABILITY**	**Code: P2CM41ET Credits:3**
CO1	Apply the concepts of business ethics in practice	
CO2	Demonstrate ethical decision making by applying various Theories.	
CO3	Demonstrate ethical decision making by applying various Theories.	
CO4	Explain the concepts of corporate sustainability	
CO5	Construct reports disclosing sustainability information.	
SEMESTER – II		
COs	**Course Name: AUDIT AND DUE DILIGENCE**	**Code: P2CM42ET Credits: 3**
CO1	Compare different types of audit	

CO2	Assess the provisions relating to secretarial audit	
CO3	Recall the basics of due diligence	
CO4	Explain the various types of due diligence	
CO5	Examine due diligence for take over and prepare due diligence Report	
SEMESTER – IV		
COs	**Course Name: RURAL AND AGRICULTURAL MARKETING**	**Code: P2CM43ET Credits: 3**
CO1	Recall the concepts of rural marketing	
CO2	Analyse the buying behaviour of rural consumers	
CO3	Develop the strategies relating to rural product, branding, packaging.	
CO4	Construct distribution and promotional mix in the rural market relating to food processing industry	
CO5	Explain the principles and functioning of cooperative marketing	
SEMESTER – IV		
COs	**Course Name: LOGISTICS AND SUPPLY CHAIN MANAGEMENT**	**Code: P2CM44ET Credits: 3**
CO1	Recall the concepts and features of SCM	
CO2	Summaries global and Indian perspectives of SCM	
CO3	Examine changing logistics environment pertaining to materials management, warehousing and distribution	
CO4	Explain strategic warehousing for SCM	
CO5	Outline the role of information technology in SC	
	SEMESTER – IV	
COs	**Course Name: ADVERTISING AND MEDIA MANAGEMENT**	**Code:P2CM41SE Credits: 2**
CO1	Create their own Advertisement Copy	
CO2	Analyze individual media businesses and understand the economic Drivers of the media economy	
CO3	Gain a perspective on the facets of media	
CO4	Develop an integrated marketing plan using a wide variety of media .	
CO5	Develop the media management strategies	
SEMESTER – II		
COs	**Course Name: HUMAN RIGHTS**	**Code: P2HR41GS Credits: 2**
CO1	Critically assess specific areas of international human rights law with reference to relevant legal instruments and contemporary cases.	
CO2	Student(s) able to work in conjunction with human rights specialists and other scholars in expanding knowledge about human rights	
CO3	An understanding of the principles and institutions of international human rights law	
CO4	Display a good understanding of the nature and scope of special legislations dealing with protection of human rights	
CO5	Analyze complex human rights problems and apply relevant provisions of human rights	

	SEMESTER – III	
COs	**Course Name: INDIRECT TAXATION**	**Code: P3CM31MT** **Credits: 4**
CO1	It enables to understand various terms related to Goods and Service tax (GST)	
CO2	It helps to understand the difference between forward charge and reverse charge mechanism and also to understand the difference between composite and mixed supply.	
CO3	It able to determine the time, place and value of supply.	
CO4	The contents and format for various documents like tax invoice, bill of supply, debit note, credit note etc., are clarified.	
CO5	Students will be able to compute the amount of CGST, SGST and IGST payable after considering the eligible input tax credit.	

SEMESTER – III		
COs	**Course Name: ORGANISATIONAL BEHAVIOUR**	**Code: P3CM32MT** **Credits: 4**
CO1	The basic concept of organizational behavior and foundations of individual behavior.	
CO2	Idea about Personality, Stages of personality, perception, learning, attitudes, values and emotions.	
CO3	Able to understand the foundation of group dynamics.	
CO4	Able to understand work stress, stress management and coping strategies of stress.	
CO5	Able to understand different types of organizational structures and importance of organizational effectiveness	

	SEMESTER – IV	
COs	**Course Name: ADVANCED COST ACCOUNTING**	**Code:P3CM33MT** **Credits: 4**
CO1	Students will be able to understand the meaning cost, costing and Cost Accounting, Advantages and Disadvantages of Cost accounting	
CO2	Understand attendance and payroll system, Methods of Labour Turnover, remuneration and bonus methods also be able to calculate labour cost.	
CO3	understand different types of overheads and its classification into various heads	
CO4	Understand cost unit, cost centre and calculation of various costs. They shall also able to prepare a cost sheet to find out cost and net profit/net loss	
CO5	Students will be able to acquaint with the procedure of storekeeping, documentation of material receipt and issue, how to use a technique for setting stock levels, calculation of Economic Order Quantity	

SEMESTER – III		
COs	**Course Name : RESEARCH METHODOLOGY**	**Code: P3CM34MT** **Credits: 4**
CO1	Recall the research concepts and recognize the research problem	
CO2	Construct research hypothesis and determine the sample size	
CO3	Select appropriate method for data collection	

CO4	Interpret the results of statistical tests	
CO5	Construct research report avoiding plagiarism	
	SEMESTER – III	
COs	**Course Name: FINANCIAL SERVICES**	**Code:P2CM35MT** **Credits: 4**
CO1	After studied Unit-1, achieve the target of students having better understanding of Financial Services in India.	
CO2	After studied Unit-2, the student will be able to know the Collect the data from the students pertaining to venture capital	
CO3	Let the students know about Capital Market, Money MarketStrategies and present position of stock market in India,	
CO4	student will be able to have the awareness of SEBIGuidelines and Structure and performance evaluation	
CO5	Student will be able to know about Investor Services &Credit rating agencies.	
	SEMESTER – II	
COs	**Course Name: INTERNATIONAL FINANCIAL MANAGEMENT**	**Code: P3CM36ET** **Credits: 3**
CO1	Explain the importance and nature of international flow of funds	
CO2	Analyze the fluctuations in exchange rate and impact on exchange markets	
CO3	Analyze the techniques of international investment decisions for building a better portfolio	
CO4	Explain the flow of funds in the international banks	
CO5	Examine various international financial market instruments	
	SEMESTER – III	
COs	**Course Name: PRINCIPLES OF MANAGEMENT**	**Code: P3CM03OE** **Credits: 2**
CO1	The student will be able to understand the principles & functions of management.	
CO2	The student will be able to understand the planning and its importance.	
CO3	The student will be able to understand the organization and its importance.	
CO4	The student will be able to understand the authority, responsibility & delegation.	
CO5	The student will be able to understand the need for co-ordination and importance of control.	
	SEMESTER – IV	
COs	**Course Name: DIRECT TAXES**	**Code: P4CM31MT** **Credits: 5**
CO1	Demonstrate the understanding of the basic concepts and definitions under the income tax Act.	
CO2	Compute income of an individual under the head salaries.	
CO3	Compute allowances and Deductions of Salary	
CO4	Ability to compute income from House property.	
CO5	Evaluate income from a business carried on or from the practice of a profession.	
	SEMESTER – IV	

COs	Course Name: INVESTMENT MANAGEMENT	Code:P4CM32MT Credits: 5
CO1	Critically discuss client objectives and the investment policy statement	
CO2	portfolio theory in practice, covering asset allocation and international investment, portfolio risk management and risk-adjusted performance measurement	
CO3	Understand and critically evaluate Value strategies, Momentum strategies and Hedge fund strategies	
CO4	Understand and critically interpret output from investment and risk management tools such as Style Research, Thomson One Banker and Data stream.	
CO5	Students will understand the characteristics of different financial assets such as money market instruments, bonds, and stocks, and how to buy and sell these assets in financial markets	
SEMESTER – IV		
COs	**Course Name: SALES AND ADVERTISING MANAGEMENT**	**Code: P4CM35ET Credits: 5**
CO1	Know the basic principles of sales and advertising management	
CO2	Demonstrate an understanding of the role of the sales force as a part of the marketing mix;	
CO3	Apply in a competent manner sales and advertising management tool such as sales forecasting, sales compensation methods, sales budgeting, sales reports, routings, quotas, sales analysis, and evaluation of performance by means of a team project that creates a sales force plan.	
CO4	Understand the role of the function of sales and advertising management in the corporate structure.	
CO5	Develop the skills among students to enable them to design the promotion-mix strategies and to make the students aware about the current trends in marketing to enable them to take proactive measures while taking marketing decisions.	

ADHIPARASAKTHI COLLEGE OF ARTS AND SCIENCE
(AUTONOMOUS)
G.B. NAGAR, KALAVAI–632 506.
DEPARTMENT OF BUSINESS ADMINISTRATION
PROGRAMME OUTCOMES FOR THE ACADEMIC YEAR 2023-2024

PROGRAMME OUTCOMES-BBA	
PO1	**Disciplinary Knowledge:** Acquire detailed knowledge and expertise in all the disciplines of the subject.
PO2	**Communication Skills:** Ability to express thoughts and ideas effectively in writing, listening and confidently Communicate with others using appropriate media.
PO3	**Critical Thinking :** Students will develop aptitude Integrate skills of analysis, critiquing, application and creativity.
PO4	**Analytical Reasoning:** Familiarize to evaluate the reliability and relevance of evidence, collect, analyze and interpret data.
PO5	**Problem Solving:** Capacity to extrapolate the learned competencies to solvedifferent kinds of non-familiar problems.
PO6	**Employability and Entrepreneurial Skill**: Equip the skills in current trends and future expectations for placements and be efficient entrepreneurs by accelerating qualities to facilitate startups in thecompetitive environment.
PO7	**Individual and TeamLeadership Skill:** Capability to lead themselves and the team to achieveorganizational goals and contribute significantly to society.
PO8	**Moral and Ethical awareness/reasoning**: Ability to embrace moral/ethical values in conductingone's life.

PROGRAMME SPECIFIC OUTCOMES	
PSO1	Determine the functional areas of Management such as Production, Purchasing, Marketing, Sales, Advertising, Finance, Human resource, legal and Technology.
PSO2	Analyze the theoretical knowledge, economical concepts with the practical aspects of organizational setting and management techniques.
PSO3	Understand the dynamic and complex working environment of Business and the problems faced by the business sector in the Current Scenario.

ADHIPARASAKTHI COLLEGE OF ARTS AND SCIENCE
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DEPARTMENT OF BUSINESS ADMINISTRATION
COURSE OUTCOMES FOR THE ACADEMIC YEAR 2023-2024

SEMESTER – I		
COs	**Course Name: PRINCIPLES OF MANAGEMENT**	**Code: U1BA31MT** **Credits: 5**
CO1	Describe nature, scope, role, levels, functions and approaches of management	
CO2	Apply planning and decision making in management	
CO3	Identify organization structure and various organizing techniques	
CO4	Understand Direction, Co-ordination & Control mechanisms	
CO5	Relate and infer ethical practices of organisation	
SEMESTER – I		
COs	**Course Name: ACCOUNTING FOR MANAGERS-I**	**Code: U1BA42MT** **Credits: 5**
CO1	Prepare Journal, ledger, trial balance and cash book	
CO2	Classify the subsidiary books and understand bank reconciliation statement	
CO3	Prepare final accounts with adjustments	
CO4	To understand Hire Purchase system	
CO5	Prepare single and double entry system of accounting.	
SEMESTER – I		
COs	**Course Name: MANAGERIAL ECONOMICS**	**Code: U1BA41ET** **Credits: 3**
CO1	Analyze & apply the various managerial economic concepts in individual & business decisions.	
CO2	Explain demand concepts, underlying theories and identify demand forecasting techniques.	
CO3	Employ production, cost and supply analysis for business decision making	
CO4	Identify pricing strategies	
CO5	Classify market structures under competitive scenarios.	
SEMESTER – I		
COs	**Course Name: BASICS OF EVENT MANAGEMENT**	**Code: U1BA41SE** **Credits: 2**
CO1	Understand basics of event management	
CO2	Design events	
CO3	Analyses feasibility of organizing an event	
CO4	Gain Familiarity with marketing & promotion of event	
CO5	Develop event budget	

SEMESTER – I		
COs	**Course Name: MANAGERIAL COMMUNICATION**	**Code: U1BA41FC** **Credits: 2**
CO1	Understand the principles, roles & importance of communication.	
CO2	Understand listening, reading, writing & speaking skills for business correspondence.	
CO3	Acquire interview facing and presentation skills.	
CO4	Build report writing ability.	
CO5	Understand modern forms of communication.	
SEMESTER – II		
Cos	**Course Name: MARKETING MANAGEMENT**	**Code: U2BA41MT** **Credits:5**
CO1	Describe the core concepts of marketing.	
CO2	Sketch the product life cycle and new product development.	
CO3	Explain various market segmentations, product mix and	
CO4	Analyze appropriate pricing methods.	
CO5	Understand different medias of Communication and Sales Promotion.	
SEMESTER – II		
COs	**Course Name: ACCOUNTING FOR MANAGERS – II**	**Code: U2BA42MT** **Credits: 5**
CO1	Understand the basic cost and management concepts and its classification	
CO2	Know the analysis and interpretation of financial statements	
CO3	Understand the cash flow and funds flow statements	
CO4	Estimate different budgets and use budgetary control	
CO5	Analyse marginal costing and cost-volume-profit	
SEMESTER – II		
COs	**Course Name: INTERNATIONAL BUSINESS**	**Code: U2BA41ET** **Credits: 3**
CO1	Understand the basic concepts of International Business	
CO2	Know different theories of International Trade.	
CO3	Gain the insights on foreign investments and foreign exchange.	
CO4	Familiarize on globalization concepts and world trade.	
CO5	Understand the regional economic integration in International Business	
SEMESTER – II		
COs	**Course Name : MANAGERIAL SKILL DEVELOPMENT (NME)**	**Code: U2BA41SE** **Credits: 2**
CO1	Understand the basic concepts self-awareness, and self-identity.	

CO2	Identify the personal qualities needed to sustain in the world of work.	
CO3	Manage emotional situations intelligently.	
CO4	Employ critical-thinking and analytical skills to investigate complex business.	
CO5	Communicate a message in different forms.	
SEMESTER –II		
COs	**Course Name: BUSINESS ETIQUETTE AND CORPORATE GROOMING**	**Code: U2BA42SE Credits: 2**
CO1	Understand the basic etiquettes at work	
CO2	know about Etiquette at Formal Gatherings	
CO3	Master in telephone and clients handling etiquette	
CO4	Analyze workplace ethical issues with respect to etiquette and grooming for success	
CO5	Apply the professionalism in the workplace considering diversity and courtesy	
SEMESTER – III		
COs	**Course Name: FINANCIAL ACCOUNTING**	**Code: U3BA31MT Credits: 5**
CO1	Understand the basic concept and conventions of accounting.	
CO2	Solve depreciation accounting under straight line method and diminishing balance method.	
CO3	Able to prepare final accounts with adjustments.	
CO4	Understand the difference between single entry system and double entry system.	
CO5	Analyse the credit rating agencies.	
SEMESTER – III		
COs	**Course Name: MANAGERIAL ECONOMICS**	**Code: U1BA41ET Credits: 5**
CO1	Analyze & apply the various managerial economic concepts in individual & business decisions.	
CO2	Explain demand concepts, underlying theories and identify demand forecasting techniques.	
CO3	Employ production, cost and supply analysis for business decision making	
CO4	Identify pricing strategies	
CO5	Classify market structures under competitive scenarios.	
SEMESTER – III		
COs	**Course Name: OFFICE MANAGEMENT**	**Code: U3BA31AT Credits:4**
CO1	Understand the concepts of Office Management, Organisation structure, manual and departmentation.	
CO2	Enable to describe fundamentals of office layout, centralization and decentralization of office services.	
CO3	Describe various office furnitures, equipments, and their uses.	
CO4	Gain knowledge on different postal services and office correspondence.	
CO5	Discuss the roles, qualities and responsibilities of efficient supervisor	

SEMESTER – III		
COs	**Course Name: STRATEGIC MANAGEMENT**	**Code: U3BA31ST** **Credits:2**
CO1	Describe the nature of business and its objectives, mission, vision, goals in strategy formation.	
CO2	Understand the concepts of strategic management and portfolio analysis and its techniques.	
CO3	Acquire knowledge about strategic alternatives and techniques for effective business performance.	
CO4	Able to understand the concepts of merger, acquisition, amalgamation, joint venture and its influence on organization structure.	
CO5	Insight about ERP its features, applications, functions and implementation of various ERP's.	
SEMESTER – IV		
COs	**Course Name: ORGANISATIONAL BEHAVIOUR**	**Code: U3BA41MT** **Credits: 5**
CO1	Understand the basic concepts of organization behavior and different stages of personality development.	
CO2	Explain about group, its types, behavior, dynamics and group decision making.	
CO3	Discuss the qualities, styles, theories and effectiveness of leadership.	
CO4	List the Insight about organization culture, climate, conflict and organization effectiveness.	
CO5	Demonstrate leadership skills at work and help to manage emotions inside the organization	
SEMESTER – IV		
Cos	**Course Name: MANAGEMENT ACCOUNTING**	**Code: U4BA34MT** **Credits: 5**
CO1	Analyze the various tools of management accounting.	
CO2	Able to solve ratio analysis problems related to management.	
CO3	Compute the fund flow and cash flow statement.	
CO4	Able to prepare purchase, flexible and cash budgets.	
CO5	Understand the cost volume profit analysis.	
SEMESTER – IV		
Cos	**Course Name: OPERATION RESEARCH**	**Code: U4BA32AT** **Credits: 4**
CO1	Students can able to understand Operation Research, its significance, scope, models and solve LPP.	
CO2	Students will solve transportation problem to minimize the cost	
CO3	Understand game theory concepts for optimal decision making.	
CO4	Students can solve sequencing and replacement problems.	

CO5	Students can find the shortest and longest time through PERT and CPM problems.	
SEMESTER – IV		
Cos	**Course Name: TOTAL QUALITY MANAGEMENT**	**Code: U4BA32ST** **Credits: 2**
CO1	Analyzing how Total Quality Perspective on organizational change relate to organizational theory.	
CO2	Discuss the contribution of TQM principles of Quality Gurus.	
CO3	Explain the Significance of Statistical Process control and its construction of control charts.	
CO4	Describe the Process of Quality function deployment and House of Quality.	
CO5	List the ISO quality management system followed by Indian corporate.	
SEMESTER – V		
Cos	**Course Name: BUSINESS LAW**	**Code:U5BA21MT** **Credits:5**
CO1	Understanding the significance of Contract, valid offer, agreements.	
CO2	Discuss the valid acceptance, consideration and void.	
CO3	Explain the Significance of capacity of contract & undue influence	
CO4	Describe the person disqualified by law, free consent	
CO5	Identifying requirements of contract of sale of goods and title of goods.	
SEMESTER – V		
Cos	**Course Name: MARKETING MANAGEMENT**	**Code:U5BA22MT** **Credits:5**
CO1	Describe a clear understanding of various marketing concepts.	
CO2	Explain the concept of segmentation and Targeting.	
CO3	Outline the Product life cycle strategies and implications of marketing.	
CO4	Discuss how price affects the value of the organization product or services.	
CO5	Describe how to develop effective message for Marketing communications.	
SEMESTER – V		
Cos	**Course Name: HUMAN RESOURCE MANAGEMENT**	**Code: U5BA23MT** **Credits: 5**
CO1	Understand the principles, functions, scope of human resource management.	
CO2	List the insight about objectives of HRP, recruitment and its types, stages in selection process.	
CO3	Able to understand the needs, importance and methods of training and development.	
CO4	Know the objectives, needs and methods of employee's performance appraisal.	
CO5	Describe the concepts of transfer, promotion and career development.	
SEMESTER – V		

Cos	Course Name: INTERNATIONAL BUSINESS	Code: U5BA24ET Credits: 5
CO1	Understand the scope and importance of international business.	
CO2	Analyse the classical and modern theory of international trade.	
CO3	Explain the free trade policy, trade restrictions, Tariff and Quotas.	
CO4	Understand the functioning of foreign exchange market and exchange rate.	
CO5	Discuss the role of MNC, IMF and World Bank.	
SEMESTER –V		
Cos	**Course Name : BANKING AND INSURANCE**	**Code: U5BA25ET Credits: 5**
CO1	Analyze & apply the basic concepts of banking and their services & Rights.	
CO2	Explain the various types of banking customers accounts and features.	
CO3	To frame various credit styles and secured advances, assignments.	
CO4	Identify the basic concepts of insurance.	
CO5	Classify various types of insurance.	
SEMESTER – VI		
Cos	**Course Name: INDUSTRIAL RELATIONS**	**Code: U6BA21MT Credits: 4**
CO1	Describe the concept of industrial relations and industrial dispute with the ways to resolve dispute.	
CO2	Explain various collective bargaining techniques and role of government in collective bargaining.	
CO3	Understand different factors causing industrial unrest	
CO4	Discuss about The Indian factories Act 1948, EPF Act 1952, Payment of Gratuity Act 1972, Payment of Bonus Act 1965.	
CO5	Understand the procedure for appointing inspectors and powers of inspectors	
SEMESTER – VI		
Cos	**Course Name: COMPUTER APPLICATION IN BUSINESS**	**Code: U6BA22MT Credits: 4**
CO1	After completing this course student should be able to more effectively use theirMS-Word, Excel, and Power point as tools for business, entertainment or study	
CO2	It should have more complete and detail understanding of the role computers play in our daily lives	
CO3	Students can create variety of documents and presentations for e-learning	
CO4	To understand the interest and opportunity of e-commerce	
CO5	Describe the major types of E-commerce.	
SEMESTER – VI		
Cos	**Course Name: RESEARCH METHODOLOGY**	**Code: U6BA23ET Credits: 5**
CO1	Understanding about research methods, techniques and process.	

CO2	Analyse the types of sampling techniques.	
CO3	Able to collect primary and secondary data.	
CO4	Understanding about analysis of data, editing, coding and tabulation etc.	
CO5	Formulate systematic business research reports.	
SEMESTER – VI		
Cos	**Course Name: MARKETING RESEARCH**	**Code: U6BA24ET** **Credits: 5**
CO1	Explain the steps in Marketing Research process.	
CO2	Analyze the various kinds of sampling technique used in marketing Research.	
CO3	Discuss the New Product development Process and the impact of Product life cycle.	
CO4	Apply different kinds of sales forecasting methods to estimate sales.	
CO5	Compare and contrast the different kinds of media used in advertisement.	
SEMESTER – VI		
Cos	**Course Name: PROJECT WORK WITH VIVA VOCE**	**Code:U6BA21PV** **Credits: 5**
CO1	Applying the concepts of various functional areas in management Practices.	
CO2	Demonstrate the leadership, communication and analytical skills in real life situations in business areas.	
CO3	Enable students to critically evaluate the live problems in the companies and to give optimal suggestions for their future course of action for the MSME.	
CO4	In a specialization domain of his / her choice, student will be able to choose an appropriate topic for study and student will be able to compile the relevant literature	
CO5	Gain awareness about various real life ethical problems faced by companies.	
SEMESTER – VI		
Cos	**Course Name: ENTREPRENEURIAL DEVELOPMENT**	**Code:U6BA25ST** **Credits: 3**
CO1	Understand the role and importance of entrepreneurship.	
CO2	Identify the problems faced by women entrepreneurs.	
CO3	Able to generate new business ideas.	
CO4	Prepare business plan and project report.	
CO5	Discuss the role of government in promoting new start-ups.	

ADHIPARASAKTHI COLLEGE OF ARTS AND SCIENCE
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G.B. NAGAR, KALAVAI–632 506.
DEPARTMENT OF MATHAMETICS
PROGRAMME OUTCOMES FOR THE ACADEMIC YEAR 2023-2024

PROGRAMME OUTCOMES- B.SC-MATHAMETICS	
PO1	**Disciplinary knowledge:** Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines.
PO2	**Communication Skills:** Ability to express thoughts and ideas effectively in writing and orally; Communicate with others using appropriate media; confidently share one's views and express herself/himself.
PO3	**Critical thinking:** Capability to analyse and evaluate evidence, arguments, claims, beliefs on the basis of empirical evidence; identify relevant assumptions or implications; formulate coherent arguments.
PO4	**Problem solving:** Capacity to extrapolate from what one has learned and apply their competencies to solve different kinds of non-familiar problems.
PO5	**Analytical reasoning:** Ability to identify logical flaws and holes in the arguments of others; analyze and synthesize valid conclusions.
PO6	**Research-related skills:** Acquires knowledge to recognise cause-and-effect relationships, define problems, formulate hypotheses, test hypotheses, analyse, interpret and draw conclusions from data.
PO7	**Lifelong learning:** To acquire knowledge and skills, including learning how to learn", that are necessary for participating in learning activities throughout life.
PO8	**Self-directed learning:** Ability to work independently, identify appropriate resources required for a project, and manage a project through to completion.

PROGRAMME SPECIFIC OUTCOMES	
PSO1	Acquire good knowledge and understanding, to solve theoretical & applied problems in different area of mathematics & statistics.
PSO2	To get new ideas basic learning and applying in order to employability.
PSO3	To understand the concept of Mathematics and it help to clear the NET/SET/GATE Exams.

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DEPARTMENT OF MATHAMETICS
COURSE OUTCOMES FOR THE ACADEMIC YEAR 2023-2024

SEMESTER – I		
COs	**Course Name: ALGEBRA & TRIGONOMETRY**	**Code: U1MA41MT** **Credits: 5**
CO1	Gain knowledge about the introduction of partial fractions & About the expansion of trigonometric functions.	
CO2	Evaluate expressions involving factorials and also calculate binomial coefficients, Expansion of Binomial, exponential and logarithmic series.	
CO3	Develop knowledge and skills in solving the problems in exponential and logarithmic series.	
CO4	To impart the knowledge of summation of series .Expansion of $cosn\theta$, $sinn\theta$, sinθ, $cos\theta$, sin nθ, cosnθ, tannθ and tan (θ1+θ2+……+θn) and Formation of Equation with trigonometry roots.	
CO5	Learn to find roots of polynomial, Analyze the relation between circular and hyperbolic functions and Logarithms of complex numbers.	
SEMESTER – I		
COs	**Course Name: DIFFERENTIAL CALCULUS**	**Code: U1MA42MT** **Credits: 5**
CO1	Find the nth derivative, form equations involving derivatives.	
CO2	Find the partial derivative and total derivative coefficient.	
CO3	Determine maxima and minima of functions of two variables and to use the Lagrange's method of undetermined multipliers.	
CO4	Find the envelope of a given family of curves.	
CO5	Find the evolutes and involutes & to find the radius of curvature using polar co-ordinates.	
SEMESTER – I		
COs	**Course Name: NUMERICAL METHODS- I**	**Code: U1MA42AT** **Credits: 4**
CO1	To solve simultaneous linear equationsby Gauss elimination method, Gauss-Jordan Method, and Gauss-seidel method.	
CO2	To calculate interpolation values by applying Gregory-Newton's forward and backward formulae.	
CO3	To calculate the central interpolationvalues by applying central differences formulae.	
CO4	To estimate one or more missingterms of the given set of data.	
CO5	To estimate the interpolation value for unequal intervals based on Lagrange's formula of inverse interpolation	
SEMESTER – I		

COs	Course Name: MATHEMATICS FOR COMPETITIVE EXAMINATIONS.	Code: U1MA41SE Credits: 2
CO1	Solve Mathematical Problems using Mathematical formulae.	
CO2	Understand the knowledge of application of Mathematics.	
CO3	Understand the concepts of simplification.	
CO4	Calculate the square root and cube root.	
CO5	Solve the problems on age	
	SEMESTER – I	
COs	**Course Name: FOUNDATION COURSE**	**Code: U1MA41FC** **Credits: 2**
CO1	Prove the binomial theorem and apply it to find the expansions.	
CO2	Find the various sequences and series and solve the problems related to them	
CO3	Find the number of permutations and combinations in different cases.	
CO4	Explain various trigonometric ratios and find them for different angles, including sum of the angles, multiple and submultiple angles, etc. Also, they can solve the problems using the transformations.	
CO5	Find the limit and derivative of a function at a point, the definite and indefinite integral of a function.	
	SEMESTER – II	
COs	**Course Name: ANALYTICAL GEOMETRY THREE DIMENSION**	**Code: U2MA41MT** **Credits: 5**
CO1	To demonstrate knowledge of the plane and its applications	
CO2	To gain knowledge of straight lines and their applications.	
CO3	To carry out sphere related problems.	
CO4	To know the concepts of the cone ,right circular cone and enveloping cone.	
CO5	To carry out the calculations of the problems related to the cylinder.	
	SEMESTER – II	
COs	**Course Name: INTEGRAL CALCULUS**	**Code: U2MA42MT** **Credits: 5**
CO1	Know the concept of definite integral.	
CO2	Remembering the formulas of integration and solve related problems.	
CO3	Understand the properties of multiple integral.	
CO4	Use triple integral to find area of the solid.	
CO5	Deriving Reduction formulae and the relation between Beta and Gamma functions.	
	SEMESTER – II	
COs	**Course Name: NUMERICAL METHODS II**	**Code: U2MA42AT** **Credits: 4**
CO1	Evaluate derivative by applying newton's forward and backward difference formula.	

CO2	Evaluate integration by applying the trapezoidal rule, Simpson's rules and Weddles rule.	
CO3	Find a complete solution to linear difference equations.	
CO4	Find algebraic and transcendental equations.	
CO5	Estimate approximate numerical solutions of ordinary differential equations.	
SEMESTER – II		
COs	**Course Name: QUANTITATIVE APTITUDE**	**Code: U2MA41SE Credits:2**
CO1	To convert the percentage into a decimal.	
CO2	To find out measure learning outcomes in distance.	
CO3	To understand various specifications such as probability density functions.	
CO4	To calculate the simple interest.	
CO5	To know the concept of compound interest..	
SEMESTER – II		
COs	**Course Name: BASIC STATISTICS AND MATHEMATICS**	**Code: U2MA42SE Credits: 2**
CO1	Gain knowledge to calculate measures of location.	
CO2	Learn definitions of symbolic notations.	
CO3	Know definition of integration.	
CO4	Acquire the concept of trigonometric function.	
CO5	Get idea of logarithms.	
SEMESTER – III		
COs	**Course Name: DIFFERENTIAL EQUATIONS**	**Code: U3MA21MT Credits: 5**
CO1	Able to determine solutions of homogeneous equations, non-homogeneous equations.	
CO2	Understand the methods to find the solutions of equations of first order but not of higher degree.	
CO3	Determine the Transformation of periodic function using laplacetransformations.	
CO4	Gain knowledge to form a PDE by eliminating arbitrary constants andarbitrary functions, find complete, singular and general integrals, to solve Lagrange's equations.	

CO5	Analyze the concepts of Laplace transforms and inverse Laplace transformsto solve differential equations with constant coefficients.	
SEMESTER – III		
COs	**Course Name: MATHEMATICAL STATISTICS – I**	**Code: U3MA22AT Credits: 5**
CO1	Understand conditional probability concepts	
CO2	Finding moment generating function for continuous and discrete	
CO3	Understand the properties and characteristics functions and calculate the rank correlations.	
CO4	Analyzing the various measures of discrete distributions.	
CO5	Acquire knowledge about the measures of continuous distributions.	
SEMESTER – III		
COs	**Course Name: MATHEMATICS FOR COMPETITIVE EXAMINATIONS**	**Code: U3MA23ST Credits: 3**
CO1	Understand the concepts of mathematics with emphasis on analytical ability and computational Skill.	
CO2	Understand the method to find percentage.	
CO3	Know the relationship between time, distance and work.	
CO4	Evaluate commercial arithmetics.	
CO5	Know the history of mathematics.	
SEMESTER IV		
COs	**Course Name: VECTOR ANALYSIS AND FOURIER ANALYSIS**	**Code: U4MA21MT Credits: 5**
CO1	Understand the derivative of dot product and cross product.	
CO2	Know the concept of divergence.	
CO3	Know about vector integration	
CO4	Derive Fourier series for given function	
CO5	Solve complex form of Fourier integral	
SEMESTER – IV		
Cos	**Course Name: MATHEMATICAL STATISTICS II**	**Code: U4MA22AT Credits: 4**
CO1	Compute the sampling distributions of means and variances.	
CO2	Gain knowledge how to apply large sample theory of estimators and test.	
CO3	Find method of moments and maximum likelihood estimators.	
CO4	Determine the power of a test and apply the Neyman-Pearson lemma.	
CO5	Analyze the variance using F-Test one way and two way.	
SEMESTER – IV		
COs	**Course Name: LINEAR PROGRAMMING**	**Code: U4MA23ST Credits: 2**

CO1	Solve linear programming problem using graphical method	
CO2	Explains transportation model algorithms	
CO3	Find Optimum solution by assignment problem in warehousing and travelling	
CO4	Calculate two persons zero sum game and saddle points	
CO5	Understand and uses of simulation and applied to queueing problems	
SEMESTER – IV		
COs	**Course Name: ALLIED-II PRACTICAL MATHEMATICAL STATISTICS**	**Code: U4MA21AP Credits: 2**
CO1	Find Measures of location and Dispersion	
CO2	Analyze the statistical data and find the rank correlation.	
CO3	Fit a data to various curves.	
CO4	Fit the curves using distributions.	
CO5	Solve the problems using ANOVA	
SEMESTER – V		
COs	**Course Name: ABSTRACT ALGEBRA**	**Code: U5MA21MT Credits: 5**
CO1	Construct and describe groups.	
CO2	Learn basic properties of groups and get familiar with important groups.	
CO3	Compute the expression of permutation groups by using permutation multiplication.	
CO4	Learn the basics of rings.	
CO5	Knowing concepts of ideal and Euclidean ring.	
SEMESTER – V		
COs	**Course Name: REAL ANALYSIS I**	**Code: U5MA22MT Credits: 5**
CO1	Understand many properties of the real line $\mathbb{R}$ and learn to define sequence in terms of functions from $\mathbb{R}$ to a subset of $\mathbb{R}$.	
CO2	Recognize bounded, convergent, divergent, Cauchy and monotonic sequences and to calculate their limit superior, limit inferior, and the limit of a bounded sequence.	
CO3	Concepts of series of real numbers.	
CO4	Apply the ratio, root, and alternating series and limit comparison tests for convergence and absolute convergence of an infinite series of real numbers.	
CO5	Understand Continuous Functions on Metric Spaces.	
SEMESTER – V		
COs	**Course Name: COMPLEX ANALYSIS I**	**Code:U5MA23MT Credits:5**
CO1	Visualize complex numbers as points of R and stereographic projection of complex plane on the Riemann sphere.	
CO2	Understand the significance of differentiability and analyticity of complex functions Riemann equations	

CO3	Understand the conformal mapping	
CO4	Transformation of the complex number system	
CO5	Knowing the Cauchy Goursat theorem and Cauchy integral formula in evaluation.	
SEMESTER – V		
COs	**Course Name: STATICS**	**Code: U5MA24MT Credits:5**
CO1	Develop equilibrium relationships for non-accelerating particles acted on by forces and moments.	
CO2	Compute moments and couples in vector form.	
CO3	Learn about the concept of laws of friction.	
CO4	Finding centre of mass of solid object.	
CO5	Deriving equilibrium of a uniform homogeneous string.	
SEMESTER – V		
COs	**Course Name: OPERATION RESEARCH**	**Code: U5MA25MT Credits: 4**
CO1	Acquire the knowledge of network diagram and floats	
CO2	Understand network scheduling by PERT and CPM	
CO3	Study the concepts of economic order quantity problems	
CO4	Learn sequencing problems to n jobs 2,3 machines	
CO5	Knowing basic concept of queuing system	
SEMESTER – V		
COs	**Course Name: GRAPH THEORY**	**Code: U5MA26ET Credits: 3**
CO1	Understand the basic concepts of graph	
CO2	Know the intersection and union of the graph	
CO3	Acquire the knowledge connected graph and trails, paths and walk	
CO4	Learn about the Eulerian and Hamiltonian Graph	
CO5	Study tree and their properties	
SEMESTER – V		
COs	**Course Name: QUANTITATIVE TECHNIQUES**	**Code: U5MA28ST Credits: 3**
CO1	Get knowledge about basis of control charts.	
CO2	Understand index number and classification of index number .	
CO3	Know the time series analysis and measurement of trend.	
CO4	Check the hypothesis of test of significance.	
CO5	Using to Z transform to solve the difference equation.	
SEMESTER – VI		
COs	**Course Name: LINEAR ALGEBRA**	**Code:U6MA21MT Credits:5**
CO1	Familiar with vector space, basis and dimension of vector space	

CO2	Investigate properties of vector spaces and subspaces	
CO3	Learn about polynomial rings over the rational field	
CO4	Understand Linear transformation and their representation as matrices	
CO5	Known the concepts of matrices , trace and transpose	
SEMESTER – VI		
COs	**Course Name: REAL ANALYSIS II**	**Code: U6MA22MT** **Credits: 5**
CO1	Understand the concept of connectedness and completeness	
CO2	Knowing about the compactness of metric spaces	
CO3	Learn some of the properties of Riemann integrable functions	
CO4	How to apply applications of the fundamental theorems in integration	
CO5	Study about sequence and series of real numbers	
SEMESTER – VI		
COs	**Course Name: COMPLEX ANALYSIS II**	**Code: U6MA23MT** **Credits: 4**
CO1	Understand Lioville's theorem and the fundamental theorem of the algebra	
CO2	Learn the concept of sequences and series of the complex functions	
CO3	Solve Residues-Cauchy's Residue theorem	
CO4	Understand and learn to use argument principle	
CO5	Apply the methods of complex analysis to evaluate definite integrals and infinite series.	
SEMESTER – VI		
COs	**Course Name: DYNAMICS**	**Code: U6MA24MT** **Credits: 4**
CO1	Distinguish between velocity and acceleration, Rectilinear motion and Rectilinear motion with constant acceleration .	
CO2	Able to solve simple problem by using concepts of Nature of a trajectory and Results pertaining to the motion of a projectile	
CO3	Understand the collision of two smooth sphere and that of a smooth sphere on the smooth plane	
CO4	Students known distinguish between Central force and Central Orbit	
CO5	Students learn Theorem on parallel and perpendicular axes	
	SEMESTER – VI	
COs	**Course Name: FUZZY MATHEMATICS**	**Code: U6MA28ET** **Credits:3**
CO1	Be able to distinguish between the ordinary set and fuzzy set concepts	
CO2	Learn about Algebraic product and sum of two fuzzy subsets	
CO3	Students able to understand fuzzy logic of Algebra of fuzzy relations and logic connectives	

CO4	Learn differences between Group and fuzzy subgroup homomorphism image and Pre image of sub groupoid	
CO5	Students known about Fuzzy invariant subgroups and fuzzy sub ring.	
SEMESTER – VI		
Cos	**Course Name: FUNDAMENTALS OF APPLIED MATHEMATICS**	**Code: U6MA29ST Credits: 3**
CO1	Acquire the basic skills and conceptual understanding regarding recurrence relations and generating functions	
CO2	Students understand to construct of mathematical logic	
CO3	Solve and analyze the Normal Forms and Principal Normal Forms	
CO4	Ability to interpret the properties of Lattices and new Lattices	
CO5	Students known about Boolean algebra	

ADHIPARASAKTHI COLLEGE OF ARTS AND SCIENCE
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DEPARTMENT OF TAMIL
FOUNDATION COURSE
PROGRAMME OUTCOMES FOR THE ACADEMICYEAR2023-2024

PROGRAMME OUTCOMES	
PO1	Disciplinary knowledge: Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate Programme of study
PO2	Communication Skills: Ability to express thoughts and ideas effectively in writing and orally; Communicate with others using appropriate media; confidently share one's views and express herself/himself; demonstrate the ability to listen carefully, read and write analytically, and present complex information in a clear and concise manner to different groups.
PO3	Problem solving: Capacity to extrapolate from what one has learned and apply their competencies to solve different kinds of non- familiar problems, rather than replicate curriculum content knowledge; and apply one's learning to real life situations.
PO4	Research-related skills: A sense of inquiry and capability for asking relevant/topropriate questions, problem arising, synthesising and articulating; Ability to recognise cause-and effect relationships, define problems, formulate hypotheses, test hypotheses, analyse, interpret and draw conclusions from data, establish hypotheses, predict port the interpret and draw conclusions from data, establish hypotheses, predict analyse, cause-and-effect relationships; ability to plan, execute and report the results of an experiment or investigation
PO5	Self-directed learning: Ability to work independently, identify appropriate resources required for a project, and manage a project through to completion.
PO6	Moral and ethical awareness/reasoning: Ability to embrace moral/ethical values in conducting one's life, formulate a position/argument about an ethical issue from multiple perspectives, and use ethical practices in all work. Capable of demonstrating the ability to identify ethical issues related to one's work, avoid unethical behavior such as fabrication, falsification or misrepresentation of data or committing plagiaristh, not adhering to intellectual property rights; appreciating environmental and sustainability issues; and adopting objective, unbiased and truthful actions in all aspects of work.
PO7	Leadership readiness/qualities: Capability for mapping out the tasks of a team or an organization, and setting direction, formulating an inspiring vision, building a team who can help achieve the vision, motivating and inspiring team members to engage with that vision, and using management skills to guide people to the right destination, in a smooth and efficient way.
PO8	Lifelong learning: Ability to acquire knowledge and skills, including, learning how to learn", that are necessary for participating in learning activities throughout life, through self-paced and self- directed learning aimed at personal development, meeting economic, social and cultural objectives, and adapting to changing trades and demands of work place through knowledge/skill development/reskilling.

Programme Specific Outcomes

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ADHIPARASAKTHI COLLEGE OF ARTS AND SCIENCE
(AUTONOMOUS)
G.B.NAGAR,KALAVAI–632506, RANIPET DISTRICT.

DEPARTMENT OF TAMIL

COURSE OUTCOMES FOR THE ACADEMIC YEAR 2023-2024

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Cos		**SUBJECT CODE : U2LT41FL** **CREDITS : 3**
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Cos		**SUBJECT CODE : U3LT31FL** **CREDITS : 3**
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Cos		**SUBJECT CODE : U4LT31FL** **CREDITS : 3**
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G.B. NAGAR, KALAVAI–632 506, RANIPET DISTRICT.

DEPARTMENT OF ENGLISH

PROGRAMME OUTCOMES FOR THE ACADEMIC YEAR 2023-2024

PROGRAMME OUTCOMES	
PO1	Disciplinary Knowledge: Capable of demonstrating comprehensive knowledge and understanding of one or more disciplines that form a part of an undergraduate programme of study.
PO2	Problem Solving: Capacity to extrapolate from what one has learned and applies their competencies to solve different kinds of non-familiar problems, rather than replicate curriculum content knowledge; and apply one's earning to real life situations.
PO3	Scientific Reasoning: Ability to analyze, interpret and draw conclusions from qualitative data; and critically evaluate ideas, evidence, and experiences from an open minded and reasoned perspective.
PO4	Self-directed & Lifelong Learning: Ability to work independently, identify and manage a project. Ability to acquire knowledge and skills, including "learning how to learn", through self-placed and self-directed learning aimed at personal development, meeting economic, social and cultural objectives.
	Reflective Thing: Critical sensibility to lived experiences, with self-
PO5	awareness and reflexivity of both self and society.
PO6	Reading & Projects: Document their reading and interpretive practices in assignments, translation works, and independent projects.
PO7	Confidence & Effectiveness: Confidently and effectively articulate their literary and textual experiences.
PO8	Social Skills & Empathetic Approach: Reorganize a professional and reflective approach to leadership, responsibility, personal integrity, empathy, care and respect for others, accountability and self-regulation.

PROGRAMME SPECIFIC OUTCOMES	
PSO1	Identify words, grammar items and structures in English to use them in specific contexts.
PSO2	Recognize, explore and use a range of vocabulary to formulate sentences, paragraphs, letters and other forms of narratives.
PSO3	Prepare written composition in real life contexts and engage in a range of interactions in the real world.

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G.B. NAGAR, KALAVAI–632 506, RANIPET DISTRICT.
DEPARTMENT OF ENGLISH
PROGRAMME OUTCOMES FOR THE ACADEMIC YEAR 2023-2024

SEMESTER – I		
COs	**Course Name: ENGLISH - I**	**Code: U1LE41SL** **Credits: 3**
CO1	Acquire self-awareness and positive thinking required in various life situations	
CO2	Acquire the attribute of empathy.	
CO3	Acquire creative and critical thinking abilities.	
CO4	Learn basic grammar	
CO5	Development and integrate the use of four language skills i.e., listening, speaking, reading and writing.	
EMESTER – II		
COs	**Course Name: ENGLISH - II**	**Code: U2LE41SL** **Credits: 3**
CO1	Realize the importance of resilience	
CO2	Become good decision-makers	
CO3	Imbibe problem-solving skills	
CO4	Use tenses appropriately	
CO5	Use English effectively at the work place.	
SEMESTER – III		
COs	**Course Name: ENGLISH - III**	**Code: U3LE31SL** **Credits: 3**
CO1	Understand the narrative technique present in the essay	
CO2	Critically analyze the features of poetry	
CO3	Understand expression related to the situations	
CO4	Analyze and critically evaluate the play as a whole and try to enact onstage	
CO5	Learn the basics of grammar	
SEMESTER – IV		
Cos	**Course Name: ENGLISH – IV**	**Code: U4LE31SL** **Credits: 3**
CO1	Understand and appreciate the style of Leacock	
CO2	Identify the mysticism present in Tagore poem	
CO3	Assess the flow of language	
CO4	Appreciate the sense of humor present in the play	
CO5	To comprehend a passage and answer the specific questions	