SEETHALAKSHMI RAMASWAMI COLLEGE
Autonomous
Affiliated to Bharathidasan University
Tiruchirappalli
Accredited with A+ by NAAC (4th Cycle)

PROGRAMME OUTCOME
PROGRAMME SPECIFIC OUTCOME
COURSE OUTCOME

2021

UNDERGRADUATE PROGRAMMES

PROGRAMME OUTCOMES (POs)

On completion of programmes offered, the graduates can:

PO1 : Apply the assimilated domain knowledge to resolve real life challenges

PO2 : Get employed globally or pursue higher education or be successful entrepreneurs

PO3 :Communicate and use the modern ICT tools effectively to be productive in individual andteam work

PO4 : Contribute towards environment, sustainable development and societal enrichment

PO5 : Appreciate diversity in day to day and work environments facilitated by the ethics and valuesimbibed

PO6 : Remain motivated for lifelong learning

B.Sc. BIOCHEMISTRY

PROGRAMME SPECIFIC OUTCOMES

PSO 1:

Demonstrate to understand the structure, types, properties and functions of macromolecules in biological systems and gain the knowledge about the enzymes as the rate limiting molecule of all the biochemical reactions.

PSO 2:

Compute the complete understanding of the molecular levels of the chemical process, biophysics associated with living cells and understand the fundamental principles of genetics, molecular mechanism of cell also understand basic principles of traditional and modern medicine system.

PSO 3:

Acquire knowledge in cell structure, molecular aspects of cell types and functions, biochemical principles of bioenergetics, metabolism of macromolecules in plant and animals, physiology and understand the disorders of major metabolic pathways in organ systems, human pathogenesis, causes, diagnosis and treatment.

PSO 4:

Ability to analyze the various biological components through analytical tools in living cells, molecular machinery of immune system and understanding chemical and biological principles, techniques and applications.

PSO 5:

Gain knowledge in bioscience, scientific reasoning skills, laboratory manipulative skills and holds opportunities in the field of Pharmaceuticals & chemical industries, laboratory technician, medical transcription and dairy industry.

CoreCourse1 : ChemistryofBiomolecules

CO1: Predictthestructureofmacromoleculesandmicromolecules

CO2: Applytheknowledgeintheclassificationandpropertiesofcarbohydrates

CO3: Differentiatethe fattyacidsandlipidswith theirimportance

CO4: AnalyzetheStructure, biochemical activitiesandusesof aminoacidsandproteins

CO5: Enumeratethechemicalcompositionofnucleic acids

CO6: CompiletheroleofVitaminsandmineralsinBiologicalsystem

Corecourse2 :CellBiology

CO 1: Evaluate the structure and chemical composition of cell organelles

CO 2: Describe the transport process in prokaryotic and eukaryotic cell

CO 3: Predict the structural components of mitochondria, lysosomes and chloroplast

CO 4: Demonstrate the functions of ribosomes, golgi complex and endoplasmic reticulum

CO 5: Compile the organization of Genes and chromosome

CoreCourse3 :Techniques inBiochemistry
CO 1: State the working principles of various analytical tools
CO 2: Design the working methodology of Spectrophotometry and predict their applications in various fields.
CO 3: Understand the Instrumentation of different types of Chromatography
CO 4: Analyze the role Electrophoresis and their applications in biological investigations
CO 5: Generalize the types, Characteristic feature, preparation of molecular probes and summarize their applications.
CO 6: Illustrate the laws of sedimentation, types of centrifugation and role of radioactive isotopes.

Corecourse 5 : MolecularBiology
CO 1: Discover the DNA as genetic Material and Summarize the mechanism of DNA replication
CO 2: Integrate the transcription mechanism of prokaryotes and eukaryotes and Describe the transcription inhibitors
CO 3: Enumerate the structure of ribosomes and Analyze the translation process and molecular aspect of Genetic code
CO 4: Explore the knowledge of gene regulatory mechanism
CO 5: Describe the mechanism of mutational changes in organism and predict the DNA repair mechanism

Corecourse6 : Metabolism
CO 1: Illustrate the bioenergetics mechanism in living organism and describe the role of Biological Oxidation
CO 2: Discuss the basic concepts of Metabolism and evaluate the production and utilization of energy in carbohydrate metabolic pathway
CO 3: Enumerate the biosynthesis and degradation of lipids and compute the role of lipoproteins
CO 4: Compile the metabolism of various amino acids and infer the metabolic profile of organs
CO 5: Explain the biosynthesis of nucleic acids and comprehend the detoxification mechanism

Corecourse7 :Genetics
CO 1: Compile the Mendelian experiment and indicate the significance of Mendel's laws
CO 2: Detect and characterize the genic Interaction and Identify Chromosome Mapping
CO 3: Summarize the determination of sex
CO 4: Analyze the concept of gene and Rate the study on population genetics
CO 5: Explain the genetic diseases and describe the mono and polygenic Disorders

Corecourse8 : Endocrinology
CO 1: Enumerate the mechanism of hormonal action and determine the role of second messengers
CO 2: Classify and Analyze the role of pituitary gland in hormonal regulation of the body
CO 3: Compile the mechanism and regulation of thyroid and parathyroid hormones and Explain the role of pancreatic hormones
CO 4: Compose the regulation, physiological functions of life protecting hormones and Describe the pathophysiology
CO 5: Discuss and summarize the functions of reproductive hormones

Corecourse9 : ClinicalBiochemistry

CO 1: Evaluate the Inborn errors of carbohydrate metabolism and explain the types and complications of Diabetes mellitus
CO 2: Explore the role of lipid profile in Clinical disorders and Describe the causes and complications lipid metabolism
CO 3: Outline the diagnosis of protein diseases and discuss the disorder of amino acid metabolism
CO 4: Illustrate disorder of nucleic acid metabolism and enumerate the role of buffer system
CO 5: Compile the diagnostic methods for liver and kidney functions in abnormal conditions and Summarize the gastric function tests

Corepractical1 :MicroscopicandBiomoleculeanalysis
CO 1: Evaluate the content of sugars, amino acid, protein from food stuffs
CO 2: Analyze the fatty acid content from oils
CO 3: Identify the adulterants in processed food
CO 4: Compile the staining techniques

Corepractical2 :Biochemical techniques and Enzymeanalysis
CO 1: Design the methods of isolation and separation of proteins and lipids
CO 2: Evaluate the methods of Chromatographic techniques.
CO 3: Compile the experimental methods to determine the specific activities of enzymes
CO 4: Predict the optimum pH and temperature of the Enzymes
CO 5: Appraise the various methods for different enzyme activities in plants

Corepractical3 :Phytochemicalanalysis
CO 1: Separate the primary metabolites.
CO 2: Evaluate the secondary metabolites.
CO 3: Explain the chromatographic techniques
CO 4: Measure the separation of plant pigments
CO 5: Illustrate the processing methods of metabolite from herbs

CorepracticalIV-BloodandUrineanalysis
CO 1: Analyze the biochemical constituents in urine and serum
CO 2: Assess the marker enzymes activity
CO 3: Evaluate the heamatological studies
CO 4: Apply the proper methods for specimen collection, handling and transport
CO 5: Compare the normal and abnormal values of biochemical parameters

FirstAlliedCourse1 :GeneralChemistry
CO 1: Illustrate the basic principles and laws of chemistry and classify the elements
CO 2: Identify and predict the formation of chemical bonding
CO 3: : Demonstrate the interactions of the biomolecules
CO 4: Categorize the mechanism of Isomerism
CO 5: Explain the types of organic reactions

FirstAlliedCourse2 :Biophysicalchemistry
CO 1: Describe the basic characteristic of electrolytes
CO 2: Differentiate the types and uses of electrodes
CO 3: Explain the phenomena of diffusion and Osmosis in Biological system
CO 4: Discuss the biological importance of viscosity and surface tension
CO 5: Summarize the classification, properties of Colloids and evaluate the mechanism of adsorption

Second Alliedcourse1: BasicBiochemistry

CO 1: Enumerate the classification, structure and properties of carbohydrate, Lipids and amino acids

CO 2: Discuss the formulation of monosaccharides

CO 3: Interpret the functions of cholesterol

CO 4: Explain the biological role of protein.

CO 5: Summarize the types, structure and functions of DNA and RNA

CO 6: Compile the Sources, daily requirements, physiological and predict the biological function of vitamin.

Major BasedElective 1 : **PlantandmicrobialBiochemistry**

CO 1: Distinguish the light reaction and dark reaction and describe the components of plant cells

CO 2: Summarize the Nitrogen and sulphur metabolism and discuss their biological importance

CO 3: Explain the role of growth hormones in Plants

CO 4: Evaluate secondary metabolites and List out its therapeutic potential

CO 5: Outline the classification of microbes and explore the structure, Characteristic features and identification of microbes

Major Based Elective 2: Immunology

CO 1: Outline the history of immunology and explain the structure and functions Lymphoid organs

CO 2: Discuss the structure and properties of antigen and antibodies and Compile the biological functions of antibody

CO 3: Illustrate the working principles and infer the methodology of immunochemical techniques

CO 4: Summarize the mechanism of Hypersensitivity reactions and apply the knowledge of transplantation

CO 5: Describe the mechanism of autoimmunity diseases and classify immunizing agents

Major Based Elective 3 :HumanPhysiology

CO 1: Enumerate the types of Body fluids and Correlate the composition, Structure and functions of Blood cells

CO 2: Describe the role of structure and function of digestive organs

CO 3: Summarize the cardiac vascular and discuss the respiratory system

CO 4: Explain the structure and functions of excretory organ and compose the properties, structure and mechanism of muscle contraction

CO 5: Demonstrate the process of signal transmission in central nervous system and Compile the structure and functions of neuron and synapse

Cross Disciplinary Course -Stem Cell Biology

CO 1: : Understand the classifications of stem cell and summarize their characteristic features.

CO 2: : Apply the knowledge of cell growth and categorize the applications of human embryonic stem cells.

CO 3: : Evaluate the methods to produce cell clones in the laboratory.

CO 4: : Distinguish the therapeutic uses of stem cells.

CO 5: : Illustrate the ethical and legal issues for the production of stem cells.

NonMajorBasedElective 1 : Biomolecules

CO 1: Classify the Carbohydrate, protein and amino acids

CO 2: Describe the functions of carbohydrate
CO 3: Demonstrate the biological role of lipids
CO 4: Analyze the structure and functions of protein
CO 5: Differentiate the DNA and RNA
CO 6: Compare the role water and fat soluble vitamins

Non Major BasedElective2 :Diagnosisofdiseases
CO 1: Enumerate the composition and functions of blood and summarize the types of blood
CO 2 : Analyze the role of Hemoglobin in biological system
CO 3: Interpret the metabolic disorders of carbohydrate
CO 4: Evaluate the causes, diagnosis, management and treatment of kidney diseases and Predict the structure of kidney
CO 5: Point out the mechanisms of liver function tests and describe the causes, diagnosis and management of liver diseases

SkillBasedElective 1 : Herbal Medicine
CO 1: Select the medicinal plants and explain the extraction methods
CO 2: Illustrate the importance of primary and secondary metabolites
CO 3: Separate and evaluate the phytoconstituents in plants
CO 4: Demonstrate the processing methods of herbs
CO 5: Analyze the uses of some medicinal Plants

Skill Based Elective2 : DrugBiochemistry
CO 1: Describe the sources and classification of Drugs
CO 2 : Discuss the metabolism of drugs and Correlate its delivery system
CO 3: Evaluate the mechanism of action of Antibiotics
CO 4: Analyze the mechanism of drugs acting on Gastrointestinal system
CO 5: Apply the knowledge of the Anaesthetic agents.

Skill BasedElective3 :NutritionalBiochemistry
CO 1: Explain the food guide, groups and Construct the Planning of balanced diet
CO 2: Calculate the basal metabolic rate and measurements of calorific value
CO 3: Discuss the importance of Nutritive value of protein
CO 4: Describe the diet therapy for different clinical conditions and ascertain the causes and symptoms of diseases
CO 5: Understand and evaluate the requirement of specialized food for people with special needs - preschool, Pregnancy and lactation

Allied practical1 : BiophysicalChemistry
CO 1: Analyze the organic compounds
CO 2: Compare the normality of various acids and alkalis
CO 3: Estimate the hardness of water
CO 4: Formulate the P^H of various buffer solutions
CO 5: Demonstrate the working method of P^H meter

Second Alliedpractical1 : AnalysisofBiomolecules
CO 1: Estimate the carbohydrate, protein and lipids content in food sample
CO 2: Evaluate the fatty acid content
CO 3: Identify the Food adulterants

B.Sc. BIOTECHNOLOGY

PROGRAMME SPECIFIC OUTCOMES

PSO 1: Define and explain the, concepts, principles of sub disciplines of Biotechnology.
PSO 2: Derive a solution for complex biotechnological problems related to life sciences.
PSO 3: Design and develop to solve biotechnological techniques in genetics and environment problems.
PSO 4: Recognize, analyse and apply the industrially important organisms in food, dairy, pharmaceutical industries and environment waste management.
PSO 5:: Identify the safety, legal and ethical issues during the production of GMO for human welfare and recognize the importance of Bioethics & IPR.

Core course 1 : Cell Biology
CO 1: Describe the primary mechanisms by which cells import and export macromolecules with illustrations.
CO 2: Understand the structure and compare the purposes of basic components of prokaryotic and eukaryotic cells, especially macromolecules, membranes, and organelles.
CO 3: Demonstrate and distinguish the various components of the cytoskeleton, and cell surface specializations.
CO 4: Outline the processes that control eukaryotic cell cycle and interpret cell death with normal cells.
CO 5: Distinguish and Relate how cell movement and cell-cell communication occur and discuss mechanisms of signal transduction.

Core Course 2 : Molecular Biology
CO 1: : Describe structure, function and compare the metabolic reactions in cell at various levels.
CO 2: : Use base pairing rules to replicate a segment of DNA, transcribe it and match the anticodon of tRNA to mRNA.
CO 3: : Integrate the different levels of biological organization, and translate a segment of mRNA using a genetic table and relate the protein production.
CO 4: : summarize with neat illustration of the structural organization of genes and connect the control of gene expression.
CO 5: : Explain how various types of mutations can alter the structure of a polypeptide chain.

Core Course 3 : Genetics
CO 1: : Define and Discuss the contributions of Gregor Mendel and his experiments with the garden pea.
CO 2: : Demonstrate Mendel's Law of Dominance and Law of Segregation by using a Punnett Square
CO 3: : Predict the probability a child of particular parents would inherit the trait in question.
CO 4: Explain how crossing over is involved in the recombination of alleles at gene loci located on the same chromosome
CO 5: Hypothesize the Hardy Weinberg equilibrium and how to apply it to determine allele frequencies and heterozygote carrier frequencies.

Core Course 4 : Genetic Engineering
CO 1: Discuss the basic principles, tools and techniques of the genetic manipulation of organisms.
CO 2: Explain the construction of DNA & cDNA library and their applications.
CO 3: Understand the students to versatile tools and techniques employed in genetic engineering.
CO 4: Gain knowledge in gene isolation, cloning by PCR approach.

CO 5: Begin a career in biotech as well as pharmaceutical industry that engages in genetic engineering as well as in R&D laboratories.

Core Course 5 : Enzyme and Enzyme Technology

CO 1: Distinguish the fundamentals of enzyme properties, nomenclatures, characteristics and mechanisms.

CO 2: Outline the various sources of enzymes, their extraction, purification and immobilization of enzymes.

CO 3: Demonstrate the mechanism of enzyme reactions and their various classes and shapes.

CO 4: Apply biochemical calculation for enzyme kinetics.

CO 5: Discuss various application of enzymes that can benefit human life and future trends of applying enzyme technology for the commercialization purpose of biotechnological products.

Core Course 6 : Plant Biotechnology

CO 1: Understand and organize the organization and expression of plant genome.

CO 2: Describe and use of bioreactor for large-scale production of secondary metabolites through cell culture techniques.

CO 3: Explain the various components of major plant tissue culture media.

CO 4: Discuss the principle of plant genetic engineering and its application

CO 5: Know about the mechanism of action by nitrogenase in nitrogen fixation.

Core Course 7 : Animal Biotechnology

CO 1: Understand the principles of animal culture and media preparation.

CO 2: Illustrate the techniques, procedure and growth patterns of animal cell culture.

CO 3: Use and evaluate the assisted reproductive technology practiced in livestock and its applications

CO 4: Apply the knowledge on Gene therapy for the treatment of various diseases**.**

CO 5: Construct techniques involved in transgenic animal technology and its applications.

Core Course 8 : Pharmaceutical Biotechnology

CO 1: Discuss various routes of drug administration, concept of dosage forms, unit operations involved in preparation of these dosage forms.

CO 2: Describe blood products, plasma collection and processing of it.

CO 3: Identify problems associated with production of recombinant proteins and protein purification and formulate strategies to overcome problem.

CO 4: Describe the concept of immunity and used production of vaccine.

CO 5: Learning techniques for production of pharmaceuticals, growth hormones, vaccines, gene therapy in expression system.

Core Course 9 : Environmental Biotechnology

CO 1: Solve the environmental problems in the environment and in the ecosystems.

CO 2: Apply the techniques of bioremediation, bioaugmentation and bioleaching process for the safer environment.

CO 3: Evaluate the potential for biodegradation of organic pollutants, taking microbial and physical/chemical environments.

CO 4: Adopt the production processes that make optimal use of natural resources, by recycling biomass, recovering energy and minimizing waste generation.

CO 5: Identify, predict and evaluate the economic, environmental and social impact of development activities.

Allied Course 1 : Microbiology

CO 1: Describe cellular, biochemical, and physiological aspects of microorganisms and distinguish the similarities and differences between microbial groups.
CO 2: Explain cellular level processes and connect the biochemical processes involved in pathogenesis.
CO 3: Apply and infer the microbiological techniques to solve scientific problems and examine the different nutrition source.
CO 4: Describe the cultural use of microorganisms in food production, medicine, fuel production, and waste treatment.
CO 5: Create awareness for the disease-causing microorganisms and defend the body through detection

Allied Course 2 : Immunology
CO 1: Identify and analyze the major components of the immune system at organ, cellular and molecular levels.
CO 2: Design a model of Immunoglobulin's and Apply basic techniques for identifying antigen antibody interactions.
CO 3: Apply the acquired knowledge on the immune response to explain defense mechanism against infectious agents.
CO 4: Understand the various disease conditions such as impairment of autoimmunity, hypersensitive reactions, infectious diseases, and identify immunodeficiency diseases.
CO 5: Describe the basis for vaccination and the challenges of transplantation.

Allied Course 3 :Biotechnology-I
CO 1: Describe the disciplines of various fields in biotechnology.
CO 2: Demonstrate theory and practical skills in microscopy and their handling techniques, staining procedures and microbial techniques for isolation of pure cultures of bacteria, fungi and algae.
CO 3: Understand, conduct and gain a thorough knowledge to perform plant tissue culture experiments.
CO 4: Explain the principles of animal culture, media preparation.
CO 5: Describe the concept, classification production and application of pharmaceutical substances.

Allied Course 4 : Biotechnology-II
CO 1: Illustrate and compare the techniques involved in Genetic Engineering.
CO 2: Explain the organization of the DNA in human genome.
CO 3: Diagnose clinical disorders by estimating biomarkers.
CO 4: Know the basic concepts of gene therapy, technologies of gene transfer, therapeutic strategies, efficiency and safety issues.
CO 5: Explain the scientific principles and techniques behind the work of forensic scientists.

Cross Disciplinary Course-Stem cell Biology
CO 1: Understand the classifications of stem cell.
CO 2: Acquire the knowledge of cell growth and estimate the cell culture techniques.
CO 3: Choose and assess the different methods used to produce cell clones in the laboratory.
CO 4: Encompass a familiarity and distinguish about the therapeutic uses of stem cells.
CO 5: Comprehend the ethical and legal issues for the production of stem cells.

Major Based Elective 1 : Biostatistics
CO 1: Recognize the importance of data collection and explain its role in scope of inference.
CO 2: Discuss and illustrate the various methods of processing and Tabulate.
CO 3: Classify and explain the various methods of central tendency and dispersion.
CO 4: Explain the basic concepts involved in testing of hypothesis.

CO 5: Examine the results of the correlation coefficient and analyze the linear regression apply in APA format.

Major Based Elective 2 : Fermentation Technology
CO 1: Understand the rationale in medium formulation and design for microbial fermentation**.**
CO 2: Know about how to calculate and application of Bacteria, yeasts, moulds and mammalian cells in different fermentation processes.
CO 3: Describe the Kinetics of microbial growth and produce the industrial products in fermentation processes.
CO 4: Discuss the downstream processes of Mammalian cell culture and know about applications of Immobilized cells and enzymes.
CO 5: Explain the production of organic acids and antibiotics.

Major Based Elective 3 : Basic Bioinformatics
CO 1: Describe the history, scope and importance of Bioinformatics and role of internet in Bioinformatics.
CO 2: Explain about various computational methods and tools used for protein secondary structure prediction and genome analysis.
CO 3: Classify types of Biological Databases.
CO 4: Explain about the concept of sequence alignment, algorithms and tools for pairwise alignment.
CO 5: Describe about use various approaches in phylogenetic analysis.

Non Major Elective 1 : Biotechnology for Human Welfare
CO 1: Understand human friendly viruses, bacteria, algae and appreciate their economic importance.
CO 2: Know about the benefits of green manures and organic fertilizers and use them in their daily life.
CO 3: Value the economic factors associated with mushroom cultivation.
CO 4: Analyze the use of microbes in industries such as dairy and medicines.
CO 5: Employ the process for maintenance and preservation of microorganisms.

Non Major Elective 2 : Biotechnology and Environmental Restoration.
CO 1: Identify and explain the environmental factors responsible for the pollution.
CO 2: Explain various microbial treatment methods for sewage and industrial effluents.
CO 3: Understand the influence of the characteristics of the contaminant facilitating bioremediation.
CO 4: Internalize and apply the significance of biofuels and organic farming.
CO 5: Provide solutions for environmental problems and understand legal aspects related with environmental issues

Skill Based Elective 1: Bioinstrumentation
CO 1: Describe the theoretical background of spectroscopic techniques such as NMR, ESR, IR and UV/VIS spectroscopy.
CO 2: Understand the basic instrumentation of HPTLC, HPLC, GC for identification, and Characterization of compounds.
CO 3: Explain Instrumentation, separation and identification of compounds by electrophoresis technique.
CO 4: Understand how a centrifuge to separate materials from one another and analyze the biomolecules using centrifuge.
CO 5: Acquire a fundamental knowledge of radioisotopes applications in various fields.

Skill Based Elective 2 : Plant tissue culture

CO 1: list out the Plant tissue culture techniques, preparation of culture medium.

CO 2: Know the principles of cell culture techniques; identify the importance of sterility and good aseptic techniques.

CO 3: Demonstrate protoplast fusion using PEG

CO 4: Explain the micro propagation and in vitro conservation process.

CO 5: Gain and apply comprehensive knowledge on GM technology, Bio-Safety relations and Germplasm Storage.

Skill Based Elective 3 : Molecular Modelling and Drug Designing

CO 1: Demonstrate an awareness of the important contributions the different discipline areas and perform the drug discovery and development process

CO 2: Understand the theoretical foundation of computational chemistry.

CO 3: Construction and evaluation of protein models, ligand docking, docking of protein structure.

CO 4: Describe physicochemical Properties and the techniques involved in QSAR

CO 5: Explain various structure-based drug design methods.

B.B.A. BUSINESS ADMINISTRATION

PROGRAMME SPECIFIC OUTCOME

PSO 1: Demonstrate and Understand of the corporate world

PSO 2: Display necessary professional knowledge and skills in Finance, Management, Marketing, Human Resources and Taxation

PSO 3: Apply conceptual and analytical aspects required for effective decision making

PSO 4: Show Entrepreneurial, Legal and Managerial skills

PSO 5: Relate the employability skills to become successful managers/executives in reputed firm

COURSE OUTCOMES

Core Course 1 : Financial Accounting

CO 1: Identify and Analyze the fundamental principles of accountancy

CO 2: Prepare the subsidiary books

CO 3: Identify and disclose the errors involved in accounting process

CO 4: Analyze the Profit and Loss of the Organisation

CO 5: Understand the conceptual knowledge of Depreciation Accounting

Core Course 2 : Principles of Management

CO 1: Discuss with a broad introduction to the theories and practices of management

CO 2: Identify the fundamentals and types of various long terms and short term Planning

CO 3: Enhance organizing skills in conducting any organisation in an efficient manner

CO 4: Explain the concepts of management structure, management process, decision-making, communication and delegation of authority

CO 5: Analyse the global context for taking managerial actions of planning, organizing and controlling

Core Course 3 :Entrepreneurial Development

CO 1: Understand the concepts and problems of entrepreneurship from the management perspective

CO 2: Discuss the challenges of women entrepreneurs

CO 3: Evaluate EDPs & Identify the various institutional support to entrepreneurs

CO 4: Analyse the project formulation and implementation

CO 5: Describe project appraisal and Identify the various sources of finance

Core Course 4 : Managerial Economics
CO 1: Explain the basic concepts of Managerial economics and methods of calculating Demand Forecasting
CO 2: Understand andDiscover the utility analysis of demand
CO 3: Analyze the Production function
CO 4: Identify the pricing policies and practices under perfect competition
CO 5: Evaluate the methods of calculating National Income

Core Course 5 : Human Resource Management
CO 1: Understand and Analyze the functions of HRM, the role of HR manager and department of Human Resource
CO 2: Prepare the various Selection and Recruitment process of the various company
CO 3: Discuss the various types of interviews, how to conduct an interview for an appointment of a candidate
CO 4: Discuss the different methods of Training and Evaluating the Effectiveness of Training
CO 5: Compare the Modern and Traditional methods of Performance Appraisal of an employee

Core Course 6 : Commercial Law
CO 1: Understand the basic principles and legal aspects of business laws
CO 2: Explain the conflicts between parties with the discharge and remedies of breach in the contract.
CO 3: Understand the fundamental legal principles involved in Business Contracts
CO 4: Analyse the contract of agency and its types
CO 5: Summarize the rules pertaining Sale of Goods Act 1930

Core Course 7 :Organisational Behaviour
CO 1: Understand the basic concepts and models of Organisational Behaviour
CO 2: Illustrate the different theories of Personality
CO 3: Criticize the theories of Learning and Motivation
CO 4: Examine the Group Behaviour and Compare the various leadership styles
CO 5: Analyse the causes and consequences of stress management and Explain the concepts of conflict management

Core Course 8 :Business Taxation
CO 1: Identify the residential status of an assessee
CO 2: Identify and apply the provisions of income from salary and House Property
CO 3: Understand and apply the provisions of taxable profit from Profit and Gain of Business or Profession.
CO 4: Understand the various tax rate and registration procedure comes under GST
CO 5: Create an ability to prepare taxable Income for an 'Individual'

Core Course 9 : Marketing Management
CO 1: Discuss the concepts of traditional and modern marketing with its approaches.
CO 2: Demonstrate the stages in new product development
CO 3: Analyze market segmentation in different companies
CO 4: Explain the different types of pricing and pricing policy
CO 5: Analyse and Evaluate the various promotional tools like advertising and personal selling

Core Course 10 : Financial Management

CO 1: Explain the basic concepts of Finance and financial management
CO 2: Apply the financial management concepts and tools to take decisions in the managerial level
CO 3: Analyse the basic concepts of cost of capital
CO 4: Discuss the primary sources of capital and incorporate their cost when making investment decisions
CO 5: : Evaluate the VariousMethodsof InvestmentProposals

Core Practical 11 :Managerial Communication
CO 1: Apply the acquired knowledge of communication and language processes in the field of business
CO 2: Analyze knowledge, skills, and judgment through communication that facilitates their ability to work collaboratively with others.
CO 3: Prepare business letters effectively
CO 4: Apply the techniques of drafting various business letters like Circulars, Reports, Banking Correspondence, Insurance Correspondence, Sales letter Etc.,

Core Practical 12 : Computerized Accounting - Tally
CO 1: Analyze the process of accounting records through the accounting package – tally.
CO 2: Access and computerized accounting software package
CO 3: Prepare a correct basic accounting transaction data
CO 4: Prepare the accounts for purchases and inventory transactions (creating purchase orders, handling invoices, maintaining inventory control)
CO 5: Compute final accounts for business enterprises

Major Based Elective 1 :Industrial Legislation
CO 1: Understand and Identify the laws relating to health, safety and welfare measures
CO 2: Analyze the various issues of workmen compensation act
CO 3: Point out the procedures regarding settlement under Industrial Dispute Act
CO 4: Explain and Evaluate the salient features of welfare and wage legislation
CO 5: Summarize the eligibility of bonus and determination of bonus

Major Based Elective 2 : Industrial Relations
CO 1: Identify the role of Government, Employers and Union in Industrial Relations
CO 2: Analyse andEvaluate the various functions of Trade Union in India
CO 3: Understandand Apply the Disciplinary Procedure in an Organisation
CO 4: Explain the Collective Bargaining process
CO 5: Discover and Analyse the various forms of Workers Participation in Management

Major Based Elective 3 : Production Management
CO 1: Understand the concepts of production management and its system
CO 2: Apply and Analyse the importance of Layout
CO 3: Evaluate the concepts of routing and scheduling
CO 4: Illustrate and Explain the types of production system in manufacturing industry
CO 5: Discuss "Total Quality Management, Quality Circle"

Non Major Elective 1 : Elements of Advertising
CO 1: Illustrate & Identify about the advertisement media, copy and benefits of advertising
CO 2: Discuss the role of advertising agency in promoting advertisement as sales promotional tool
CO 3: Explain the basic concepts of advertising

Non Major Elective 2 :Group Dynamics
CO 1: Understand the basic concepts and types of Group
CO 2: Relate the theory of Motivation and Identify and explain the styles of Leadership in an Organisation
CO 3: Describe the importance of morale and communication

Skill Based Elective 1 :Investment Basics
CO 1:Understand and analyse about Savings and Investment
CO 2: Explain the deposits services offered by banks
CO 3: Assess Mutual funds and investing in new fund offers
CO 4: Understand the types of insurance and provident fund

Skill Based Elective 2 : E Retailing
CO 1: Explain and Evaluate the various aspects of retail management
CO 2: Identify the role of information technology in retailing
CO 3: Discuss about the e tailing and International Retailing

Skill Based Elective 3 :Customer Relationship Management in Business
CO 1: Understand and Analyse the concepts of CRM in Business
CO 2: Analyze about e CRM
CO 3: Compare and Criticize the CRM services in various sector

BCA(COMPUTER APPLCATIONS)

PROGRAM SPECIFIC OUTCOMES
PSO 1: Understand the computer science theory, apply algorithmic principles and mathematical foundations to solve real world problems
PSO 2: Ability to model, design, develop, analyze and maintain the software systems with latest technologies
PSO 3: Develop software applications through courses like, operating systems, database systems, languages and other development tools that meets the need of society and industry
PSO 4: Posses higher studies, employability and entrepreneurship skills with good communication and team work

COURSE OUTCOMES

Core Course 1 : ProblemsolvingwithC
CO 1: Describe the concepts of algorithms, flowcharts and explain 'C' character set, tokens, Keywords, identifiers, data types, variables
CO 2 : Understand and analyze various types of input, output operations, decision making and looping statements
CO 3: Demonstrate and explain the concept of arrays
CO 4: Interpret and illustrate the operations in arrays, strings, and user defined functions
CO 5: Outlineand summarize the concepts of the structure and file handling techniques

Core Course 2 : ObjectOriented ProgrammingusingJava
CO 1 : Describe and explain java program structure, java constants, variables and data types.
CO 2 : Apply and analyze the concept of decision making, branching and looping Statements
CO 3 : Illustrate and explain the concept of classes, objects, methods, constructors, method

Overloading, static members and inheritance
CO 4 : Explain and interpret the concepts of interface and packages
CO 5 : Outline the concept of thread and construct the programs

CorePractical P1 : Programmingin C andJava
CO 1 : Demonstrate coding for simple 'C'programs, matrices
CO 2 : Design programs using functions, pointers
CO 3 : Compile programs for file creation using various file modes.
CO 4 : Compute programs using control structures, classes and objects in Java
CO 5 :Demonstrate programs using constructors, overloading and overriding concepts, Arrays, nested methods and interfaces
CO 6 : Generate programs using packages and multithreading

Core Course 3 : ProgramminginPython
CO 1 : Describe and understand the basics of python and operate on control structures
CO 2 : Cite, Explain and Use the concepts of functions, strings and files
CO 3 : Experiment various data structures of python and develop programs using list, Dictionary and sequence.
CO 4 : Outline the basic concepts of classes, member functions and inheritance and construct the programs.
CO 5 : Demonstrate python programs using operator overloading and Manage errors and Exception handling

CoreCourse4 : DatabaseSystems
CO 1 : Describe and understand the concept of Database and its applications
CO 2 : Explain the Entity – Relationship model and various types
CO 3 : Outline the basics of the Relational data model
CO 4 : Explain and demonstrate the basic structure of SQL Queries
CO 5 : Express and Practice the basics of functional dependencies and normalization

CorePracticalP2 :ProgramminginPython andMySQL
CO 1 : Demonstrate simple python program using control statements and looping
CO 2 : Compute python programs using list, dictionary and sequence
CO 3 : Design programs using functions, classes and error handling functions

CoreCourse 5 : Fundamentals of Datastructures
CO 1 : Define and explain the fundamental concepts of Data Structures.
CO 2 : Understand the working principles of linked list, stack, queue and trees.
CO 3 : Practice and demonstrate the basic terminologies and traversals of trees
CO 4 : Illustrate the basic terminologies and explain traversals of graphs
CO 5 : Construct the various sorting algorithms, including insertion sort, selection sort, Merge sort, heap sort and quick sort.

CoreCourse 6 : ComputerNetworks
CO 1 : Define, understand and sketch the basic organizations of networks and Transmission media
CO 2 : Explain the general techniques of Error control
CO 3 : Illustrate the various types of networks and topology
CO 4 : Outline the concepts of networking
CO 5 : Analyze and explain the various techniques in cryptography

CoreCourse 7 : ASP.NETProgramming

CO 1 : Define the .NET strategy and explain the.NET framework
CO 2 : Explain and demonstrate the working of ASP.NET server controls
CO 3 : Discuss the client side and server side validation and practice the validationServer controls
CO 4 : Illustrate the features of ADO.NET and experiment the data binding
CO 5 : Explain the working of XML files and construct databases in XML

CorePractical P3 : ASP.NET Programming
CO 1 : Compute simple ASP.NET applications.
CO 2 : Understand ASP.NET web server controls.
CO 3 : Demonstrate ASP.NET validation controls.
CO 4 : Perform the concept of binding controls.
CO 5 : Explain disconnected data access technologies in ADO.NET.

CoreCourse 8 : OperatingSystems
CO 1 : Define and describe the basic concepts in operating systems
CO 2 : Explain scheduling concepts in processor management
CO 3 : Describe and interpret about synchronization and deadlocks
CO 4 : Illustrate the characteristics of memory management and the techniques
CO5: Analyze and summarize the various levels in file system

CoreCourse 9: ProgramminginPHP
CO 1 : Describe and explain the basics of PHP and its control structures.
CO 2 : Apply and analyze the concept of Arrays and Functions.
CO 3 : Sketch and outline the concepts of OOPS
CO 4 : Explain and summarize the files and file handling operations
CO 5 : Use and illustrate the databases and SQL, Handling errors

CorePractical P4: ProgramminginPHP
CO 1 : Demonstrate the skills of writing programs using conditional statements and array
CO 2 : Design a simple web page to generate multiplication table for a given number
CO 3 : Compute program to download a file from the server
CO 4 : Manipulate a program using cookies, session concepts and drawing objects
CO 5 : Design a web page with authentication in PHP with MySQL

CrossDisciplinaryCourse : NanoElectronics
CO 1 : Explain the core concept of Nano technology.
CO 2 : Utilize the basic nano tools
CO 3 : Analyze the working of nano tubes and differentiate the concepts of DVD, phase, changing memory, nano tube RAM and nano wires.
CO 4 : To Know the basic Concepts of Nano Computers, Architecture and Applications.
CO 5 : Analyze the Nano Computing.

Major Based Elective 1 : ComputerGraphics
CO 1 : Discuss and explain the concept and applications of graphics
CO 2 : Describe and illustrate the graphics system and output primitives
CO 3 : Explain the concept of line, curve, character attributes and algorithms
CO 4 : Discuss and demonstrate the concept of two- dimensional transformations and viewing Algorithms
CO 5 : Illustrate the concept of graphical user interfaces, classification of interactive input Devices, various interactive picture construction techniques and summarize the basics of computer animation

Major Based Elective 1 : Business ProcessOutsourcing
CO 1 : Outline the need for outsourcing
CO 2 : Analyze the work of call centers and BPO
CO 3 : Explain the frame work and business models of BPO
CO 4 : Outline the code of ethics and legal issues
CO 5 : Discuss about service level agreement and HR challenges in BPO industry

Major Based Elective 2 : CloudComputing
CO 1 : Understand and explain the different computing paradigms and cloud Computing fundamentals
CO 2 : Illustrate and explain the cloud computing architecture, management and Cloud deployment models
CO 3 : Employ the cloud service models and summarize the technological drivers forCloud computing
CO 4 : Discuss and use the virtualization in cloud computing
CO 5 : Illustrate the cloud service providers and cloud security

Major Based Elective 2 : BigDataAnalytics
CO 1 Outline the wholeness of Big data
CO 2 Analyze the Big Data Sources and applications
CO 3 Explain Big Data Architecture
CO 4 Outline the concept of Hadoop
CO 5 Discuss about Map reduce and Big data programming languages.

Major Based Elective 3 : SoftwareEngineering
CO 1 Define software engineering and explain the software engineering basics andProject management concepts
CO 2 Estimate the software engineering project and classify the decomposition techniques
CO 3 Explain the design concepts of software engineering and apply the software engineeringPractice over the entire software development processes
CO 4: Illustrate the conventional software engineering and experiment the MobileApp design
CO 5 Define the software quality and classify testing strategies

Major Based Elective 3 : DataMining
CO 1 Outline the need for data mining
CO 2 Analyze the work of information retrieval
CO 3 Explain the data mining techniques
CO 4 Classify the various data mining algorithms
CO 5 Explain the similarities in clustering

NonMajorElective 1 : FundamentalsofComputers
CO 1 Define the characteristics of computers and illustrate input /output units
CO 2 Explain the functions and components of a computer and interpret the memory units
CO 3 Summarize and practice basics of programming languages
CO 4 Classify and compare the generations of computers
CO 5 Categorize the different types of the network and locate the network security process

NonMajorElective 2 : Introductiontoe-Commerce
CO 1 Define the concept and classify the technologies of e-Commerce
CO 2 Explain the marketing strategies and classify the business models
CO 3 Differentiate the traditional marketing and e-marketing

CO 4 Illustrate the E-Security and Firewall Concept
CO 5 Explain the E-Payment Systems and determine the digital payment systems

SkillBasedElectiveCourse 1 : ShellProgramming
CO 1 Describe and explain about the UNIX operating system
CO 2 Experiment the basic file system commands
CO 3 Compute and apply filter commands in shell programming
CO 4 Explain and select the various grep and sed commands
CO 5 Use and examine the awk commands to create the shell programming

SkillBasedElective Course 1 : VisualBasicProgramming
CO 1 Discuss and explain basics of visual programming
CO 2 Demonstrate the working of visual basic form and controls
CO 3 Outline the concept of files, menus and MIDI
CO 4 Design and explain the databases
CO 5 Illustrate the basic concepts data access objects and ActiveX objects

SkillBasedElective Course 2 : VB.NETProgramming
CO 1 Describe and understand the overview of .NET framework.
CO 2 Explain and demonstrate the various control structures and arrays in .NET
CO 3 Discuss and illustrate the basic concepts of OOPs.
CO 4 Explain and demonstrate exceptions and multithreading.
CO 5 Illustrate the basics of ADO.NET and create a program using database Connectivity

SkillBasedElective Course 2 : Programming inOracle
CO 1: Explain about the personal databases in SQL
CO 2: Categorize the queries in Data Manipulation Language
CO 3: Analyze the uses of tables in Database
CO 4: Illustrate the built in function in Oracle
CO 5: Sketch the Transaction Control statements in PL/SQL

SkillBasedElective Course 3 : WebTechnology
CO 1 Discuss and explain the HTML concepts and interpret the head and body sections
CO 2 Demonstrate the working of HTML programs
CO 3 Outline the concept of tables and frames
CO 4 Design and explain the forms and style sheets
CO 5 Illustrate the basic concepts of java scripts

SkillBasedElective Course 3 : SoftwareTesting (SBE III)
CO 1 Describe the lifecycle models in software development
CO 2 Explain the white box testing and black box testing
CO 3 Illustrate the integration testing
CO 4 Interpret the system and acceptance testing
CO 5 Outline and explain the concept of performance testing

B.COM. (COMMERCE)

PROGRAMME SPECIFIC OUTCOME
PSO 1: Demonstrate the skills in various areas of Functional Management.
PSO 2: Portray their knowledge in Computerized Accounting.

PSO 3: Plan for higher education

COURSE OUTCOMES

Core Course 1: Business Accounting

CO 1: Acquire conceptual knowledge of basics of Business Accounting and preparation of Final Accounts
CO 2: : Apply Single Entry System to maintain accounts
CO 3: : Compute the various Methods of charging Depreciation
CO 4: : Prepare the Accounts for Non-Trading Concern
CO 5: : Prepare the Consignment and Joint Venture accounts

Core Course 2: Partnership Accounting

CO1: Understandtheaccountingproceduresfollowedin Partnershipfirm.
CO2: DiscusstheAccountingTreatmentrelatedtoAdmissionofaPartner.
CO3: ComplywiththeaccountingproceduresfollowedincaseofRetirementofaPartner.
CO4: ComputethedifferentmodesofDissolutionofFirmandInsolvencyofaPartner.
CO 5: Prepare accounts of Sale of Partnership to limitedCompany**.**

Core Course 3 : Business Management

CO1: Understandthevariousconcepts ofBusiness ManagementTechniques.
CO2: DescribethePlanningProcessandDecision Makingprocess.
CO 3: InterpretthevarioustypesofOrganisation structure,charts,delegationanddecentralization.
CO4: DescribethevariousaspectsofStaffing, Motivation.
CO5: DescribethevariousaspectsofCo-ordination andControl.

Core Course 4 : Financial Accounting

CO 1: Applytheprocedures forAmalgamation of Firms.
CO2: Prepare InsolvencyAccounts ofindividualanda partnershipfirm.
CO3: DiscussthesystemofHire–PurchaseandInstallment method.
CO4: PrepareBranchaccountingandDepartmentalaccounts
CO5: ComputetheInsuranceClaimsandcalculationofRoyalty.

Core Course 5 : Banking Theory Law and Practice

CO1: Gatherknowledge on bankingsystem.
CO2: IdentifytheRightsandObligationsof Banker.
CO3: DemonstrateprocessofopeningandOperationofanaccount.
CO4: Demonstratethesignificanceofcrossingof cheques.
CO5: Analyzetheprinciples ofsound lendingand differenttypes ofcredit.

Core Course 6 :Corporate Accounting I

CO1: Recalland understand theconceptsofissueofshares, forfeitureandreissue
CO 2: Understandtheconcept ofredemptionofpreference Shares
CO3: Analysetheaccountingpracticesrelatingtoissueand redemptionofdebentures
CO4: Analysethevariousaccountingproceduresrelatingto profitspriortoincorporationand acquisitionofbusiness
CO5: EvaluateandApplythevariousitemsappearing onthe finalaccountsofcompanies

Core Course 7 : Business Communication

CO1: UnderstandtheprocessofCommunicationand BarriersofCommunication.
CO2: Demonstrationofgoodunderstandingofeffective businesswritingandbusinesscorrespondence.
CO3: DraftdifferentBusinessLettersalongwith appropriatereplies.
CO4: DraftingBiodataandApplicationLetters.

CO5: Utilisingmodernformsofcommunicationlikefax, email,video-conferencing,Internet, websitesandtheir usesinbusiness.

Core Course 8 :Income Tax
CO 1: Outlinethebasicconcepts,determinationof residentialstatusandincidenceoftax
CO2: Discusstheincomechargeableundersalary
CO 3: ComputethetaxableincomeofHouseproperty
CO4: Computetheprofitsandgainsofbusinessor profession
CO5: Understand CapitalGainand computeIncomefromOther Sources

Core Course 9 : Corporate Accounting II
CO1: Understandandapplytheaccountingprocedure relatingtoLiquidationofcompanies
CO 2: Analyze the accounting practices regardingAmalgamation andabsorptionofJoint-Stockcompanies
CO3: EvaluatevariousaccountingpracticesofBanking companies
CO4: AnalyzetheaccountingaspectsofInsurancecompanies
CO5: Createthevariousaccounting conceptsofInternaland Externalreconstruction.

Core Course 10 : Financial Management
CO1: UnderstandTimevalueofMoneyanditsTechniques.
CO2: Understand and determineCost ofCapitaland Valuation ofSecurities.
CO3: DetermineEBIT–EPSanalysis inCapitalstructure.
CO4: AcquaintwiththeCapitalbudgetingTechniques for arrivingdecisions.
CO5: Determineandevaluatetheworkingcapital Requirements.

Core Course 11 : Management Accounting
CO1: UnderstandtheconceptofManagementAccounting.
CO2: Analyzeandinterpretvariousratiostofindoutthe liquidity, solvencyandprofitabilitypositionofthe company.
CO3: Constructthestatementoffundflowandcashflow.
CO 4: Preparethe varioustypesofbudgets.
CO5: Applymarginalcostingtechniquesfor managerial decisionmaking.

Core Course 12 : Cost Accounting
CO1: Understandcostaccountingmethodsand techniques
CO2: Preparecostsheetandtenders.
CO 3: Familiarize the purchase, storing and issue proceduresfor materials.
CO4: Acquaintmethodsofremunerationforlabour.
CO5: Distinguishallocationandapportionmentof overheadsandunderstand processcosting procedures

Allied Course 1 : Accounting Principles andPractices –I
CO1: Understandthebasicaccountingconcepts, accounting rules.
CO2: Journalisethebusinesstransactionsandpostto Ledgeraccounts.
CO3: PrepareTrialBalance,SubsidiaryBooksand Finalaccounts ofa soletrading concern

First AlliedCourse 2 :AccountingPrinciplesand Practices–II
CO1: ComputethevariousMethodsofchargingDepreciationandapplySingleEntrySystemto maintainaccounts.
CO2: PrepareFinalaccountsandaccountsofNonTrading Concerns,HirepurchaseandInstallmentsystem.
CO3: PrepareBranchaccountinganddepartmentalAccounting.

Second Allied Course – 1 Business Economics

CO 1: Discuss and describe the origin of economic concepts,theoryofproduction, problems,functions, economiesof largescaleproduction.
CO2: Understandthesupplyschedule,marginalandaverage Cost
CO3: Analysethedifferentformsofmarketsandprice determination

Second Allied Course 2 : Marketing

CO1: UnderstandanideaaboutMarketinganditsfunctions
CO2: AnalysetheProductPlanning,ProductLifeCycle andNew ProductDevelopment**CO 3:** Determine different kinds of Pricing for differentproducts,analyseandevaluatethevariousPromotional toolsandDistributionchannels

Second Allied Course 3: HumanResource Management

CO1: OutlinethefunctionsofHRMand understandthevariousstagesof Selectionand Recruitment
CO2: Analysethevarioustypesof Interviews,Placementand Induction
CO3: Evaluatethedifferentmethodsoftrainingandvarious methodsofPerformanceAppraisal

Major Based Elective 1 : Business Law

CO 1: Understandthe conceptsofvariousBusiness Laws likecontract,SaleofGoods.
CO2: ApplythevariousLegislationsrelatingto Agency.
CO3: Describethevariousaspectsofinsurance.
CO4: Describetheconceptualframeworkof Bailment andPledge.

Major Based Elective 1 : Company Law (Alternative Paper)

CO1: Describethecharacteristicsandkinds ofcompanies.
CO2: OutlineregistrationprocedureandAlterationofArticlesand MemorandumofAssociation.
CO3: Outlinetheappointments,duties, rightsandliabilities ofcompanysecretaryandDirectors.
CO4: Describeprovisions relatingtoallotment,issueand transferofshares, debenturesanddepositsetc.

Major Based Elective 2 : Auditing

CO 1: Definethe importantconceptsandrulesrelatingtoAuditing.
CO 2: Understand the techniques of Internal audit and analysetheValuationand Verificationofassets andliabilities.
CO3: AnalysetheAuditingofvarioustypesofReservesand Provisions.
CO4: ExaminetheInvestigationprocessand analysetheaccountsandauditingofcomputerizedaccounts.

Major Based Elective 2 : Business Ethics

CO1: Definetheimportantconceptsandbenefits ofbusinessethics.
CO2: Outlinethelegalprovisionsrelatingtocustomerdutiesandresponsibilitiesand analysethevariousethical issuesinHRM
CO 3: Evaluate theethicalissuesin financialaspectsofan Organisation
CO4: Analyseand Evaluatetheaspectsof CSR

Major Based Elective 3 : E-Commerce

CO1: UnderstandthefundamentalsofE-Commerce.

CO 2: Demonstrate various applications ofE-Commerce.
CO3: Outlinetheconceptofonlinemarketing.
CO 4: Discuss the various security measures ofE-Transactions.

Major Based Elective 3 : E-Banking
CO 1: Identify the Basic E-Banking Concepts
CO 2: Utilize ATM Banking, Internet Banking and Mobile Banking Facilities.
CO 3: Demonstrate the Technical features of Debit cards and Credit Cards.
CO 4: Design an outline of Electronic Fund Transfer System.

Skill Based Elective 1 : Stock Market Practices
CO 1: Discuss the structureofprimaryandsecondary markets.
CO2: Outlinethevariousfunctionsofstockexchangesandexplain variousfunctions ofOTCEI, NSE, BSEandanalyse variousindices.

Skill Based Elective 1 : Fundamentals of Investment (Alternative Paper)
CO1: Understandandevaluatethevariousinvestmentavenuesbased ondifferentAnalysis.
CO2: Analyse,evaluateandconstruct differentInvestmentportfolios

Skill Based Elective 2: Principles of Insurance
CO 1: Identification of various features of insurance and analysis ofthe Life Insurance Policy, its types and predict settlement ofclaims.
CO2: UnderstandtheGeneralInsurancepoliciesandMotorinsurance policies. Discuss various types of fire and marineinsurancesandunderstandthepowersandfunctionsofIRDA.

Skill Based Elective 2 – Financial Services (Alternative Paper)
CO1: Recallinnovative financialservices,fund based andnon-fundbasedservices.
CO 2: Demonstratethe roleofFinancialService IntermediariesasMerchant Banker,IssueManager,Venture Capitalist

Skill Based Elective 3 : Non Banking Financial Institutions
CO1: DiscusstheroleofNBFIs inthefinancialmarketandunderstand andanalyze thestructure and broad functioningofNBFIs.
CO 2: Understandthe conceptsofMoneymarket,Hire purchase,leasingandmutualfunds

Skill Based Elective 3: Customer Relationship Management (Alternative Paper)
CO 1: Discuss relationship theory from the point of view ofcustomersandtheorganizationandevaluatetheCRM implementationstrategy.
CO2: Discusstheformulationandassessmentoftactical CRMdecisionsfordifferent stakeholders.

Non Major Elective 1 : Fundamentals of Book Keeping
CO1: Understandand applythe basic concepts ofDouble Entry and Book Keeping like Journal, ledger,Subsidiarybook,CashbookforaBusiness concern.
CO2: ApplytheAccountingpractices relatingtopreparation ofFinalAccountsofSoleTrader.

Non Major Elective 3 : Practical Banking
CO 1: Understand the basic concepts of banking,Analysethefeaturesandoperationofvarioustypesof Accounts.
CO 2: Evaluate the various aspects of BankingInstrumentsandRecent TrendsinNet bankingandMobileBanking.

B.COM. APPLIED

PROGRAMME SPECIFIC OUTCOME:

PSO 1: Demonstrate strategic decision making skill in assessing and solving business problems.

PSO 2: Acquire wide range of knowledge of different fields of management, accounting, law, entrepreneurship and apply external skills in planning, coordinating and leadership in business.

PSO 3: Equipped with entrepreneurial and managerial skills and are able to emerge as a budding entrepreneur.

PSO 4: Able to prove their practical skills and act as Audit Assistant, a Project consultant and Tax consultant.

PSO 5:: Able to pursue professional courses such as Chartered Accountant, Cost Accountant and Company secretary.

Core Course 1 : Principles of Accounting

CO 1: Explain the accounting concepts for preparing accounts, prepare trail balance for the business and identify errors in accounting transactions.

CO 2: Compare the differences between single entry and double entry system, Prepare the statement of affairs and Calculate the Self Balancing and Sectional Balancing Ledger for Companies.

CO 3: Prepare the proforma invoice for the concern and describe the methods of joint venture

CO 4: Describe the various methods of depreciation and calculate the value of depreciated assets in the factories.

CO 5: Prepare the financial statement for company and explain the concepts of non trading concern.

Core Course 2 : Business Accounting

CO 1: Explain accounting theory and prepare the ledger accounts of partnership firms.

CO 2: Describe the concepts and prepare the statement of piece meal distribution

CO 3: Discuss and calculate the fire insurance claims.

CO 4: Explain the concepts and prepare the ledger accounts of branch and departmental accounts.

CO 5: Illustrate the statement of hire purchase system and explain the accounting treatment of installment system.

Core Course 3 : Corporate Accounting

CO1: Describe the managerial remuneration, explain the Statement of Profit Prior to Incorporation and prepare final Accounts of the company.

CO 2: Explain the order of payment, calculate the liquidator's final statement of Accounts and analyze the liquidator's Remuneration.

CO 3: Estimate the purchase consideration, prepare Merger and Amalgamation Accounts and distinguish internal and external reconstruction.

CO 4: Prepare the final accounts of the Banking company, analyze the revenue and expenditure account of Insurance Company and assess the life assurance fund account.

CO 5: Explain the minority interest, calculate the cost of control and analyze the consolidated balance sheet of holding Company.

Core Course 4 : Human Resource Management

CO 1: Describe the objectives of HRM, Explain the role of human factor in HRM and analyse the functions of HRM

CO 2: Describe the approaches of job design, apply the necessary steps involved in selection process and analyse the sources of recruitment.
CO 3: Discuss the Types of Test, illustrate the guidelines for the interview process and analyse the types of interview.
CO 4: Explain the significance of Training, apply the different on the job and off the job training methods, differentiate the training and development.
CO 5: Illustrate the pit falls in performance appraisal, classify the methods of performance appraisal and summarise the techniques of HRIS.

Core Course 5 : Cost Accounting
CO 1: Describe the Fundamental Concepts of Cost Accounting, Prepare cost sheet and explain the methods of costing.
CO 2: Describe the types of stores, illustrate the procedure for issue of Raw Material in the Manufacturing Company and explain the various methods of material Issue.
CO 3: Describe EOQ analysis, calculate labour Cost Control and Point out the methods of remuneration.
CO 4: Prepare primary overhead distribution statement, analyze the overheads statement and summarize the allocation and apportionment of Overhead.
CO 5: Describe the features of process costing, prepare the Reconciliation of Cost and Financial Statements and explain the procedure for process costing.

Core Course 6 : Commercial Law
CO 1: Interpret the sources of Commercial law, explain the Kinds of contract and summarise the Legal System of Indian Contract Act 1872.
CO 2: Describe the Performance of Contract and Illustrate quasi contract and analyse Remedies for Breach of Contract.
CO 3: Discuss the Indemnity and Guarantee and Explain the rights and duties of pawnor and pawnee.
CO 4: Describe the kinds of agency and Explain rights and duties of Principal and agent.
CO 5: Describe the sale of goods act and Explain the Conditions of Unpaid Seller.

Core Course 7 : Business Taxation
CO 1: Describe the residential status of a person, Compute Agriculture income, Explain the exemptions from Income tax.
CO 2: Explain the provisions relating to salary and calculate the income under the head salary.
CO 3: Describe the provisions relating to House Property, Calculate income from house property and explain the Exemption income of House property
CO 4: Calculate the income under the heads of business or Profession and explain the provisions relating to Income from other sources.
CO 5: Explain the provisions of GST and summarise the exemptions of GST.

Core Course 8 : Company Law and Secretarial Practice
CO 1: Define company, describe the characteristics of company and Explain the kinds of Companies.
CO 2: Describe promoter and explain the general procedures relating to registration of a Company
CO 3: Enumerate managerial remuneration, Illustrate the powers of Board of Directors, Explain the kinds of directors.
CO 4: Explain the duties of company secretary and summarise the rights and liabilities of Company secretary.

CO 5: Enumerate the secretary duties regarding application and allotment of share explain procedures relating to issue of shares certificate.

Core Course 9 : Financial Management

CO 1: Describe Financial Management and explain the functions of financial management.
CO 2: Describe capital structure; explain the theories of capital structure and Calculate cost of debt and equity.
CO 3: Explain methods of financing and summarize the features of long term loan.
CO 4: Apply Walters mode in dividend theory and Explain the factors determining dividend decisions.
CO 5: Describe working capital, Apply various methods of capital budgeting and Explain the factors determining working capital.

Core Course 10 : Management Accounting

CO 1: Define Management Accounting, Explain the functions of management accounting and summarise the installation of management accounting system.
CO 2: Explain Short term and long term financial ratios and Calculate financial statement analysis.
CO 3: Describe cash flow statement and Prepare fund flow and cash flow statement.
CO 4: Prepare marginal cost statement and Analyze Break Even Point.
CO 5: Describe the objectives of budgeting andPrepare various kinds of budgets.

Inplant Training

CO 1: Select the career alternatives prior to graduation.
CO 2: Identify their interest and abilities in their field of study.
CO 3: Apply theoretical knowledge in gaining practical exposure.
CO 4: Rate communications, interpersonal and other skills required for their career.
CO 5: Prepare a record of work experience.
CO 6: Acquire employment contacts loading directly to a full-time job following graduation from the college.

Project

CO 1: Create the ability to make link across different areas of knowledge and to generate develop and evaluate idea and information so as to apply these skills to the project task.
CO 2: Communicate effectively at present ideas clearly and coherently to specific audience in both the written and oral forms.
CO 3: Establish a network of people from different organizations.
CO 4: Plan their work independently through self-reflection and evaluation.
CO 5: Identify problems identification, formulation and solutions
CO 6: Draw appropriate suggestions and conclusions.

Core Practical - Computerised Accounting – Tally

CO 1 Prepare Accounts using computer through Tally.
CO 2 Prepare Journals and Ledger entries for all kinds of business concerns.
CO 3 Prepare inventories – stock vouchers are possible through Computerized Tally Accounting.
CO 4 Prepare Accounts using cost centre helps in preparing branch accounts.
CO 5 Prepare of final accounts.

First Allied Course 1 : Business Statistics

CO 1 Explain the statistical concepts, describe and calculate Measures of Dispersion.

CO 2 Prepare the regression, correlation analysis, least squares and explain the time series of variables.
CO 3 Explain the concepts of measures of central tendency, describe and calculate index numbers.

First Allied Course 2 : Marketing

CO 1 Describe the basics of marketing and explain the concepts of product life cycle.
CO 2 Discuss the kinds of pricing and explain the qualities of good salesman
CO 3 Explain the role of wholesaler, retailer and Middlemen and describe the types of channel.

First Allied Course 3 : Managerial Economics

CO 1 Describe the fundamentals of managerial economics and explain the Law of diminishing marginal utility.
CO 2 Explain the elasticity of demand and also describe the concepts of perfect competition, monopolistic, monopoly and oligopoly.
CO 3 Illustrate the concepts of consumer surplus and analyze the assumptions of consumer surplus.

Second Allied Course 1 : Advertising

CO 1 Describe the concepts of Advertising and explain the significance of advertisement copy.
CO 2 Discuss the kinds of advertising media and also explain the procedures in recruitment of salesman.
CO 3 Analyze the methods of sales promotion.

Second Allied Course 2 : Entrepreneurial Development

CO 1 Describe the Evolution of Entrepreneurship, classify the types entrepreneurs and explain the concepts of Factory Design and Layout.
CO 2 Prepare the feasibility report, classify the types of project and summarise the role of Government Policies and licensing of Industries.
CO 3 Describe the objectives of industrial estates, interpret the taxation benefits and point out the Tax Concession, Incentives to Small Scale Enterprise.

Second Allied Course 3 : Industrial Legislations

CO 1 Describe the concept of Factories Act, interpret the Importance of Employees Compensation Act and explain the various methods of calculations of wages.
CO 2 Describe the concepts of industrial dispute, and analyse the concept of retrenchment.
CO 3 Illustrate the payment of Wages Act of the Employees, Explain the Rights and Liabilities of Trade Union and summarize the benefits provided under the ESI Act.

Major Based Elective Course 1 : Banking Theory Law and Practice

CO 1 Describe Indian banking system and explain the functions of commercial banks.
CO 2 Discuss the banker and customer relationship in Business and analyse the procedure to open the bank account.
CO 3 Explain the types of negotiable instrument and summarise the various types of crossing.
CO 4 Describe the types of securities and explain the rights and duties of paying and collecting banker.

Major Based Elective Course 2 : Auditing Principles and Practices

CO 1 Describe the objectives of auditing and explain the functions of auditing.
CO 2 Discuss the features of internal check, explain the concepts of internal control and Summarize contents of audit note book.
CO 3 Discuss the Procedures in regard to vouching the debit side and credit side of the cash book, explain the verification, valuation of assets and liabilities.

CO 4 Describe the Objects of Investigation and explain the powers of inspector.

Major Based Elective Course 3 : Principles and Practices of Business Management
CO 1 Explain the Functions of Management and summarize the principles of planning.
CO 2 Describe the importance of organization and explain the types oforganization.
CO 3 Describe Concepts of directing and explain the styles of leadership.
CO 4 Discuss the control process in management and explain the types of co-ordination

Non Major Based Elective Course 1 : General Commercial Knowledge
CO 1 Describe the importance of commerce, explain the features of partnership firm, analyse the kinds of Companies.
CO 2 Point out the features of inward and outward mail illustrate the types of index and summarize advantages of Indexing.

Non Major Based Elective Course 2 : Investment Avenues
CO 1 Describe the objectives of Investment and explain the types of Deposits.
CO 2 Illustrate the types of mutual fund Schemes, analyze the functions of OTCEI and summarise the instruments to invest in post office schemes

Skill Based Elective Course 1 : Modern Communication Methods
CO 1 Describe the basic concept of management communication, illustrate the barriers of communication and explain the different kinds of soft skills.
CO 2 Describe the letter of appointment, analyze the drafting of testimonials letters and summarise the different types of electronic communication.

Skill Based Elective Course 2 : Financial Institutions
CO 1 Describe the various functions of financial systems, Illustrate the composition of money market and explain the functions of commercial banks.
CO 2 Illustrate the promotional Functions of RBI and differentiate commercial bank and development bank and summarise the function of NABARD.

Skill Based Elective Course 3 : Sales Promotion and Publicity
CO 1 Describe the basic concept of sales promotion, explain the sales promotion strategies and various sales promotion schemes.
CO 2 Explain the basic concept of Publicity and summarise the public relation and its associated roles.

B.Sc. COMPUTER SCIENCE

PROGRAMME SPECIFIC OUTCOMES
PSO 1: Demonstrate technical expertise with the wide sphere of knowledge in multidimensional angle.
PSO 2: Proficient to design, develop and test software systems for providing innovative solutions to real life problems.
PSO 3: Create, select and apply appropriate techniques, tools and resources to cope up with the current scenario.
PSO 4: Function effectively as an individual or a team member or a leader in multi-disciplinary professional environments**.**
PSO 5: Capable of adapting to new technologies and constantly upgrading their skills with an attitude to engage in independent and lifelong learning in the broadest context of digital era.

COURSE OUTCOMES

Core Course 1: 'C Programming

CO 1: Understand the basic concepts of Programming
CO 2: Develop skills to program using Branching and Looping
CO 3: Understand the concept of arrays and strings functions.
CO 4: Understand the principles of user defined functions, concept of structures, unions, pointers and file management
CO 5: Write basic and advanced level of programming

Core Practical 1 : 'C' and Java Programming

CO 1: Understand the basic data types and statements in C
CO 2: Demonstrate the skill in writing functions and pointers in C programming
CO 3: Enumerate string handling and array functions
CO 4: Write efficient C programs for file handling
CO 5: Apply structure concepts to develop employee and student file system

Cross Disciplinary Course : Radiation and Safety Management

CO 1 : Understand the concepts, benefits and applications of OOP
CO 2: Explain data types and operators in Java
CO 3: Write programs for simple programs in Java
CO 4: Discuss concept of decision making, branching and looping statement and write programs
CO 5: Apply the concept of classes, objects, methods and interface

Core Course 1 : Programming in Java

CO 1: Apply the concept of control structures
CO 2: Develop the skills in writing programs using string functions, arrays
CO 3: Enumerate class, objects,
constructors, overloading, overriding
concepts
CO 4: Write efficient Java programs for one dimensional, two dimensional, nested methods and multithreading
CO 5: Apply inheritance, interface concepts to write programs

Core Practical 1 : 'C' and Java Programming

CO 1: Apply the concept of control structures
CO 2: Develop the skills in writing programs using string functions, arrays
CO 3: Enumerate class, objects, constructors, overloading, overriding concepts
CO 4: Write efficient Java programs for one dimensional, two dimensional , nested methods and multithreading
CO 5: Apply inheritance, interface concepts to write programs

Core Course 3 : Database Management System

CO 1: Understand the basic concepts of DBMS
CO 2: Apply the skills of using RDBMS and SQL
CO 3: Develop skills to design database
CO 4: : Understand the concept of Normalization
CO 5: Understand the concepts of transaction
controls and mechanisms in Database

Core Practical 2 : MySQL and PYTHON Programming

CO 1: Understand the MySQL to create and alterthe table
CO 2: Apply the skill to insert and delete records
CO 3: Use select clause, union, intersect, sum and count operations
CO 4: Write MySQL programs for group, min, max, grouping, inner and outer join operations
CO 5: Apply membership, views, sub queries and string operations

Non Major Elective 1 : Basic of Internet Concepts
CO 1: Explain basic internet terminologies
CO 2: Identify Internet Protocols.
CO 3: Acquire knowledge about Browsers and search engine
CO 4: : Understand the concept of Normalization & understand the mail concepts and addressing through E-mail
CO 5: Learn E-mail protocols and structure

Skill Based Elective 1 : DHTML Programming
CO 1: Understand the basic concepts of HTML
CO 2: Use XHTML to create and to add images toWeb Pages
CO 3: Use the Dynamic HTML Object Model andScripting to create dynamic Web Pages.
CO 4: Understand the notion of events, eventhandlers and event bubbling.
CO 5: Able to modify filters dynamically using DHTML

Core Course 4 : PYTHON Programming
CO 1: Understand the basics, history, operators of programs and problem solving techniques in Python
CO 2: Apply the concepts of control structures, functions and modules
CO 3: Develop skills to write string functions and file handling techniques
CO 4: Apply various data structures to write programs
CO 5: Develop skills to write programs using classes an object in Python

Core Practical 2 : MySQL and PYTHON Programming
CO 1: Develop programs using some basics of Python
CO 2: Apply Looping statements and recursive functions in Python
CO 3: Develop programs using command line, strings and files
CO 4: Write programs to display directory, various operations on file such as counting of characters, words and lines, finding GCD, LCM and Palindrome
CO 5: Develop programs for Matrix operations, checking prime numbers, sum of natural numbers and dictionary operations.

Non Major Elective 2 : E-Learning
CO 1: Possess a basic idea on the understanding of e-learning methodologies and ways to deal with delivery of e-contents
CO 2: Designing learning objectives, analyzing the target audience and defining the delivery and evaluation strategy
CO 3: Gain insights into preparation and presentation tools , authoring tools with the right courseware content
CO 4: Develop the documentation skills and skills of facilitating the audience, communication skills and e-learning and open source platform skills required.
CO 5: Prepare themselves for Collaborative learning and to learn the Moodle and other open source solutions. Evaluation of the impact of e-learning is carried out.
Skill Based Elective 2 : Image Editing Tools
CO 1: Describe the fundamentals of images and basic tools.
CO 2: Ability to use the Painting tools effectively.

CO 3: Ability to use the Editing tools effectively
CO 3: Ability to use the Editing tools effectively
CO 4: Ability to use the Selection tools effectively
CO 5: Ability to use the Layers effectively

Core Course 5 : Principles of Operating Systems
CO 1: Understand the basic concepts and terminologies
CO 2: Understand the different approaches in memory management
CO 3: Understand about the process and how processes are synchronized and scheduled
CO 4: Conceptualize the classic problems of synchronization
CO 5: Know about the measures involved in security and protection

Core Course 6 : Data Structures and Algorithms
CO 1: Understand the fundamental concepts of data structures
CO 2: Learn skills to understand the concepts of Linked Lists.
CO 3: Understand and learn about the non-linear data structure concepts
CO 4: Work with graph traversals and to find out the shortest path**.**
CO 5: Executing searching and sorting algorithms.

Core Course-VII : Microprocessor and Applications
CO 1: Understand the Microprocessor Intel 8085 and its Configuration
CO 2: Learn the concept of Instruction set of Intel 8085
CO 3: Write basic Assembly Language Program
CO 4: Understand the Microprocessors, their programming and interfacing, interfacing circuits and devices, peripherals.
CO 5: Understand the knowledge of ADC and DAC concepts.

Core Practical 3 : Operating Systems
CO 1: Handle Vi editor to identify the structure and Syntax of the basic commands of Linux OS
CO 2: Demonstrate the Linux OS Commands for Creating and testing the files and directories
CO 3: Implementation of Operating System concepts of various CPU Scheduling techniques
CO 4: Implementation of Operating System concepts of various Memory Allocation techniques for memory Management in multiprocessing environment.
CO 5: Implementation and testing of Operating System concepts of Sequential and Random access file processing.

Major Based Elective 1 – Computer Graphics
CO 1: Ability to describe about the basic graphics applications, animations, input, display devices
CO 2: Describe the properties of outputprimitives and algorithms for drawing line and circle
CO 3: Ability to demonstrate 2D geometric transformations and clipping algorithms
CO 4: Define the 3D transformations and Logical classification of Input devices
CO 5: Describe three-dimensional display methods and design of animation sequences

Skill Based Elective 3 : .NET Programming
CO 1: Understand the benefits, history and managing states of ASP.NET
CO 2: Learn and apply the concept of standard, navigations controls
CO 3: Learn apply validation controls
CO 4: Apply the skills to develop using login controls and web part controls

CO 5: Understand the concepts working databasesusing ADO.NET, creation of Master pages andthemes

Core Course 8 : Basic Computer Networks
CO 1: Understand the basic concepts of networks and their topologies
CO 2: Learn the various protocols, switches and routers needed
CO 3: Explain the various network protocol standards and TCP/IP framework
CO 4: Understand IP addresses, routers and subnet and their works
CO 5: Executing searching and sorting algorithms.

Core Course 9 : Programming in PHP
CO 1: Understand the PHP scripts, history and features
CO 2: Learn and apply the concept of control structures
CO 3: Write Program using arrays
CO 4: Apply the skills to write programs using files and directories
CO 5: Understand the concepts working databases using SQL

Core Practical 4 :Programming in PHP
CO 1: Find factorial, if-else , switch statements
CO 2: Write programs using while and do-while, multi dimensional array and user defined functions
CO 3: Create Multiplication table, string, numeric functions and design web page for age calculation
CO 4: Write program to download file from server, Working with cookies, page views count in session
CO 5: To design calculator, web page creation for authentication using PHP and MySQL

Major Based Elective 2 : Cloud Computing
CO 1: Understand the basic concepts cloud and their applications
CO 2: Explain the network connectivity and architecture of cloud
CO 3: Explain the network connectivity and applications using cloud
CO 4: Learn different cloud environment for setting up cloud models
CO 5: Understand the various types of services for cloud applications

Major Based Elective 3 : Basics of Software Development
CO 1: Ability to describe about the basics of Software Engineering and its ethics
CO 2: Describe software process models for designing the software
CO 3: Describe Agile Software Development methods
CO 4: Define the concepts of user and system requirements
CO 5: Demonstrate skills for software development by design and testing of a software product

B.Sc. ELECTRONICS

PROGRAMME SPECIFIC OUTCOME
PSO 1: Create the technical skill of handling of electronic devices, digital electronics and electrical devices.
PSO 2:Analyze the operation and application of Operational amplifier
PSO 3: Discuss the basic principle of Communication from basic level to advanced level.

PSO 4 Evaluate the problem solving techniques for Control of a system which helps for the project development.
PSO 5: Impart technical skill in handling various instruments in electronic field
PSO 6: Develop the technical skill in Microprocessor and Microcontroller which is used for project development.
PSO 7:Compile assembly language programs for Microprocessor and Microcontroller.
PSO 8: Prepare the students in both hardware and software field to meet ever challenging need of the electronic industry.

COURSE OUTCOMES

Core Course 1 : Semiconductor Devices and Circuits

CO 1: Understand the concept of Bohr's Atomic model
CO 2: Demonstrate the concepts of Passive components
CO 3: Explain the operation of diodes and its functions
CO 4: Apply the operation of Transistor
CO 5: Explain the operation of opto-electronic devices

Core Course 2 : Digital Electronics

CO 1: : Compute Binary addition, subtraction, Multiplication and Division.
CO 2: Demonstrate Basic logic gates and universal Gates. Compute Boolean expression and Algebraicmethods.
CO 3: Discuss different families of digital integrated circuits.
CO 4: Design and Construct in combinational logic circuits and Sequential logic circuits
CO 5: Discuss the different types of Memory.

Core Course 3 : Electrical Circuits and Machines

CO 1: Analyze the concepts of Network equations
CO 2: Understand the Network theorems of DC circuits
CO 3: Apply the network theorems of AC circuits
CO 4: Explain the working of DC Machines and Motors.
CO 5: Demonstrate the working of Transformer.

Core Course 4 : Linear Integrated Circuits

CO 1: Explain the Integrated Chip fabrication techniques.
CO 2: Discuss the operation and application of Operational amplifier.
CO 3: Explain the operation of Filters.
CO 4: Differentiate the operation of I-V and V-I converter and Comparators
CO 5: Analyze the different types of Voltage regulators and discuss the operation Timer IC 555.

Core Course 5 : Management and Functional Behavior

CO 1: Explain Management skills in industries
CO 2: Discuss the basic concepts and frame works of Human Resource management (HRM).
CO 3: Utilize the skills, synthesis and communication in managerial decision making situations
CO 4: Compare the different types of training
CO 5: Understand the importance of motivational theories

Core Course 6 :Microprocessor and Microcontroller

CO 1: Discuss the design issues of 8085 Microprocessor
CO 2: Explain Data transfer Methods of 8085 Microprocessor
CO 3: Assess the interfacing devices

CO 4: Discuss the architecture of Microcontroller 8051
CO 5:: Compile Assembly Language Programs

Core Course 7 :Industrial Electronics
CO 1: Discuss the power semiconductor devices.
CO 2: Demonstrate the basic idea of phase controlled Rectifier and different types of choppers.
CO 3: Explain the differenttypes of Inverters. Differentiate the types of cyclo- convertors.
CO 4: Discuss the applications of electronic devices.
CO 5: To Know the concept of Ultrasonic waves and applications.

First Allied Course 1 : Semiconductor and Digital Electronics
CO 1: Demonstrate the construction and working of semiconductor devices and Comparing the different types of Rectifiers.
CO 2: Analyze the working of NPN and PNP Transistor and study of different types of Multivibrators.
CO 3: Compute Binary conversions and number codes.
CO 4: Assess the knowledge of universal gates
CO 5: Construct the combinational logic and sequential logic

First Allied Course 2 : Operational Amplifier and Communication system
CO 1: Understand the operation and application of Operational amplifier and differentiate inverting and non-inverting amplifiers
CO 2: Utilizing the knowledge of Analog to Digital and Digital to Analog Converters and explain the concepts and operation of IC 555 timer
CO 3: Demonstrate the voltage regulators and Power Supplies
CO 4: Assess the basics of Communication System and types of noise
CO 5: Differentiate the Modulation techniques and study the working of Transmitter and Receivers.

Second Allied Course 1 : Robotics
CO 1: Explain the basic concepts in Robotics and basic Structure of Robot
CO 2: Discuss the different types of Robots and assess the different types of end effectors and sensors.
CO 3: Formulate image processing and analysis
CO 4: Explain the Installation, safety, training and maintenance of Robot
CO 5: Discuss the current applications of Robots.

Second Allied Course 2 : Control system
CO 1: Assess different types of ControlSystem
CO 2: Design the different types of Block Diagram reduction techniques
CO 3: Compare different types of Motors and Controllers
CO 4: Compute the Time Response analysis and Frequency Response analysis and design Bode Plot techniques
CO 5: Evaluate the problem solving methods in stability analysis.

Major Based Elective 1 : C, C++ and Embedded C
CO 1: Acquire a knowledge about C program
CO 2: Improve a Knowledge about C++
CO 3: Understand the data types of Embedded C
CO 4: Analyze the Timer and counter programming in 8051
CO 5: Demonstrate the LCD and Key board interfacing

Major Based Elective 2 : Communication System

CO 1: Analyze different types of noises in Communication system and discuss the Principles of Modulation and operation of Transmitter and receiver in Communication System.
CO 2: Study of Propagation of Waves
CO 3: Study of Different types of Antennas
CO 4: Access the knowledge about the Modulation Techniques.
CO 5: Acquire the Knowledge of different types of Communication System basic Principles.

Major Based Elective 3 : Sensors, Transducers and Measurement

CO 1: Discuss the science of Measurement and transducers..
CO 2: Explain the Primary Sensing elements.
CO 3: Discuss the measurement of Non-electrical quantities using instruments
CO 4: Utilize the concept of cathode Ray Oscilloscope.
CO 5: Demonstrate the Bio-Medical instrumentation.

Non Major Elective 1 : Globular Electronics

CO 1: Understand the concept of GSM technology.
CO 2: Apply the AT commands.
CO 3: Explain the working principle of GPS.
CO 4: Acquire the knowledge on society-oriented applications
CO 5: Obtain the knowledge about mobile phone configuration and location identification

Non Major Elective 2 : Everyday Electronics

CO 1: Explain the Home Gadgets, entertainment devices, Communication Devices
CO 2: Discuss the working Home appliance.
CO 3: Explain the Communication devices
CO 4: Discuss the operation of Office/Home digital devices
CO 5: Understand the operation of different digital access devices

Skill Based Elective 1 : PCB Designing

CO 1: Discuss and design Printed Circuit Boards.
CO 2: Analyze the various layout methods.
CO 3: Understand the details of CAD.
CO 4: Accessing the different PCB printing technologies.
CO 5: Discuss the different Soldering techniques.

Skill Based Elective 2 : Entrepreneurial Electronics

CO 1: Apply the use of electronic equipment.
CO 2: Analyze the equipment for servicing.
CO 3: Discuss the working of heating appliances.
CO 4: Discuss the working of Motor appliances.
CO 5: Discuss the working of Cooling appliances.

Skill Based Elective 3 : Mobile Servicing

CO 1: Able to know the basic concepts of Mobile Phones
CO 2: Able to understand the functions of chips inside the mobile phones
CO 3: Able to know the problems of various parts of Cell phones
CO 4: Able to know the faults and trouble shoot for cell phones- External sections
CO 5: Able to know the faults and trouble shoot for cell phones- Internal sections

Cross Disciplinary Course- Nano Electronics

CO 1: Explain the core concept of Nano technology.
CO 2: Utilize the basic nano tools
CO 3: Analyze the working of nano tubes and Differentiate the concepts of DVD, Phase changing memory, nanotube RAM and nano wires.
CO 4: To Know the basic Concepts of Nano Computers, Architecture and Applications.
CO 5: Analyze the Nano Computing

B.SC. HOSPITAL ADMINISTRATION

PROGRAM SPECIFIC OUTCOMES

PSO1: Ability to describe various features in managing clinical and administrative departments of hospitals
PSO2: Ability to suggest clinical and management techniques in various health care and managerial problems.
PSO3: Ability to describe various management concepts in the field of Hospital Administration
PSO4: Use appropriate professional behavior and fundamental techniques for careers in Hospital Administration

COURSE OUTCOMES

Core Course 1 : Basic Biological Sciences
CO 1: Explain causes, signs and symptoms various diseases, management and prevention and its treatment of Respiratory and circulatory system
CO 2: List the causes, signs and symptoms various diseases, management and prevention and its treatment of GIT and bones and joints
CO 3: Show the causes, signs and symptoms various diseases, management and prevention and its treatment of Nervous and Metabolic disorders
CO 4: Discuss causes, signs and symptoms various diseases, management and prevention and its treatment of ENT problems
CO 5: Illustrate the diseases and disorders of Excretory and female reproductive system

Core Course 2 : Hospital Core Services
CO 1: Identify the various functions of hospital core services
CO 2: Describe the location and design of various department of hospital
CO 3: Illustrate the various functions of department in hospital
CO 4: Infer the organization, facilities and space requirements of various departments
CO 5: Explain environmental control and infection control

Core Course 3 : Hospital Supportive Services
CO 1: Describe various supportive services in hospitals
CO 2: Interpret admitting department and electrical system
CO 3: Show food service department and housekeeping services
CO 4: Demonstrate pharmacy and medical records department
CO 5: Infer about maintenance of department and transportation

Core Course 4 : Ward Management
CO 1: List various functions of nursing superintendent and charge nurses.
CO 2: Explain the hierarchical structure in ward and ward teaching
CO 3: Infer patient assignments and establishment of priorities
CO 4: Illustrate ward environment and safety measures
CO 5: Classify the types of reports and records

Core Course 5 : Financial Management
CO 1: Explain financial concepts on Accounting and its process
CO 2: Enumerate book keeping and rules for transactions
CO 3: Prepare Profit and loss account and functions of balance sheet
CO 4: Analyze working capital management
CO 5: Demonstrate budgetary control and its types

Core Course 6 : Research Methodology
CO 1: Explain research and its methods
CO 2: State the research problem and its design
CO 3: Analyze the uses of computer in research
CO 4: Illustrate the sampling techniques used for research
CO 5: Show the data collection and its methods

Core Course 7 : Personnel Management
CO 1: Apply concepts, principles and role of personnel management.
CO 2: Use techniques and sources of recruitment and selection process.
CO 3: Analyze job changes, wage and salary administration.
CO 4: Describe personnel problems, industrial relations and collective bargaining.
CO 5: Discuss E-HR management and worker`s participation in management.

Core Course 8 : Vital Statistics
CO 1: Enumerate various health indicators.
CO 2: Analyze fertility related statistics.
CO 3: Show measurements in epidemiology.
CO 4: Explain hospital statistics.
CO 5: Use central tendency.

Core Course 10 : Hospital Information System
CO 1: Describe computer, its components, programming languages and medical computing.
CO 2: Explain management information system concepts
CO 3: Illustrate the functional capability of computerized hospital information system.
CO 4: Use computerized patient data base management.
CO 5: Infer telemedicine and cyber medicine.

Core Course 10 : Materials Management
CO 1 Explain the integrated materials management.
CO 2: Describe about the materials planning and budgeting.
CO 3: Use inventory control and computers in materials management.
CO 4: Demonstrate materials purchase management.
CO 5: Analyze the stores management.

Core Field Work - Hospital In-Plant Training
CO 1: Explain the location and layout of various departments in hospital.
CO 2: Use the modern inventory procedures of various departments in hospital.
CO 3: Enumerate the procedures followed in different departments of hospital.
CO 4: Analyze the functions of different departments in hospital.
CO 5: Interpret the bedside equipments in hospital.

Internship
CO 1: Analyze location and layout of various departments in hospital.

CO 2: Use modern inventory procedures of various departments in hospital.
CO 3: Enumerate the procedures followed in different departments of hospital.
CO 4: Analyze the functions of different departments in hospital.
CO 5: Identify the bedside equipments in hospital

First Allied Course 1 : Basic Concepts of Management
CO 1: Enumerate various functions of management
CO 2: Interpret planning, policy and procedure in management
CO 3: Illustrate organizational structure and departmentation
CO 4: Demonstrate communication, decision making process in management
CO 5: Infer the steps in perception management by exception.

First Allied Course 2 : Organizational Behavior
CO 1: Demonstrate various techniques, process, features, types and measurement of different concepts of organizational behaviour
CO 2: Define organizational climate and morale.
CO 3: Apply organizational behaviour and effective control system
CO 4: Interpret the acquired motivational and leadership styles
CO 5: Analyze Learning process and attitude.

Second Allied Course 1 : Operations Research for hospital Management
CO 1 Understand the real valued problem and formulate the LinearProgrammingProblem
CO 2 Demonstrate the procedure of solving LPP using different Methods
CO 3 Evaluate LPP through Transportation and Assignment Problem
CO 4 Classify the QueuingModels and simulation model
CO 5 Analyze the Network Scheduling using PERT / CPM technique

Second Allied Course 2 : Computer Applications in Health Care Services
CO 1: Explain the computer application in hospital services
CO 2: Enumerate the tools of MS word
CO 3: Use MS Excel tools
CO 4 Interpret MS PowerPoint tools
CO 5 Analyze internet and its access method

Allied Field Work-: Hospital Orientation Programme
CO 1: Describe various departments functions
CO 2: Explain the functions of a multispecialty hospital
CO 3 Sketch the location and layout of various departments in hospitals
CO 4 Differentiate the records maintained in various departments in hospital
CO 5 Illustrate the facilities needed for various departments in hospital

Allied Practical 1 : MS Office for Hospital Management
CO 1: Label the computer operations required in hospital
CO 2: Use tools of MS word MS Excel and MS Power point
CO 3 Identify the tools of MS Excel
CO 4 Experiment the formulas used in MS Excel
CO 5 Construct the slide show using MS Power Point

Major Based Elective Course 1 : Pharmacology
CO 1: Describe the main divisions of pharmacology.
CO 2: Explain certain cardio vascular drugs, respiratory system drugs and drugs acting on blood.

CO 3: Illustrate the hormone and hormone antagonist.
CO 4: Infer the drugs acting on central nervous system, gastro intestinal tract
CO 5 Analyze chemotherapy

Major Based Elective Course 2 : Health Care Management
CO 1: Describe the concepts of health.
CO 2: Explain the concepts of diseases
CO 3 Demonstrate health planning
CO 4 Demonstrate maternal health services and family planning services.
CO 5 Analyze child health services

Major Based Elective Course 3 : Hospital Organisational Services
CO 1: Explain hospital as matrix organization, functions and role of hospital.
CO 2: Demonstrate the hospital planning and human resource management.
CO 3: Describe health system engineering and code of ethics for practitioners
CO 4: Discuss about marketing strategy
CO 5 Analyzequality accreditation in hospitals

Non Major based Elective Course 1 : Health Education
CO 1: Enumerate the concepts of health education
CO 2 Explain nutrition and health
CO 3 Interpret vitamins
CO 4 Construct minerals
CO 5 Analyze pollution

Non Major Elective Course 2 : Public Relations and Communication
CO 1: Examine the concepts of public relation
CO 2: Summarize the public relation process
CO 3 Illustrate communication in public relation
CO 4 Classify the tools of media in public relation
CO 5 Categorize types of advertising in public relation

Skill Based Elective Course 1 : First Aid
CO 1: Enumerate first aid
CO 2: Summarize the types of dressings and bandages
CO 3: Show the types of bleeding.
CO 4: Classify types of bones and muscle injuries.
CO 5: Categorize types of shocks and poisoning

Skill Based Elective Course 2 : Medical Records Management
CO 2: Summarize computerization of medical record
CO Reproduce medical record
CO 3: Illustrate standards of medical record
CO 4: Interpret quality assurance
CO 5: Analyze maintenance of medical record

Skill Based Elective Course 3 : Nutrition and Therapeutic Diet
CO 1 Enumerate food and nutrition
CO 2 Classify the classification of foods.
CO 3 Demonstrate vitamins
CO 4 Analyze diet as a therapeutic agent
CO 5 Explain adulteration of food

B.Sc. MATHEMATICS

PROGRAMME SPECIFIC OUTCOMES

PSO 1: Able to apply domain knowledge and expertise for enhancing innovative ideas into reality.
PSO 2: Able to interpret any data using statistical tools to handle social relevant problems through mathematical techniques.
PSO 3: Positive approach towards Higher Education in Mathematics and apply Mathematical skills to crack competitive examinations.
PSO 4: Able to develop job oriented skills in solving problems using Mathematical techniques for both in industry and in academic sector.
PSO 5: Able to apply appropriate mathematical methods for finding solutions and acquire knowledge and understanding in advanced areas in mathematics.

COURSE OUTCOMES

Core Course 1: Calculus
CO 1: Calculate radius of curvature in Cartesian and polar Forms and explain evolute and involute concepts.
CO 2: Apply the properties of definite integrals to obtain reduction formulae.
CO 3: Evaluate of double integrals both in Cartesian and polar forms.
CO 4: Examine the notions of Jacobian and change of variables to evaluate double integrals.
CO 5: : Determine Beta and Gamma functions and discuss their properties

Core Course 2: Theory of equations and Vector Analysis
CO 1: Explain the relation between roots and coefficients of algebraic equations and describe the method of solving reciprocal equations.
CO 2: : Explain the method of finding quotient and remainder when a polynomial is divided by a binomial.
CO 3: Analyze vector identities using the differential operator ∇
CO 4: : Explain line, surface, volume integrals using vector functions
CO 5: Apply integral theorems like Gauss's divergence theorem, Stoke's theorem and Green's theorem to solve problems

Core Course 3: Analytical Geometry of Three Dimensions
CO 1: Explain the method of finding projections and direction cosines of a line in three dimensional analytical geometry
CO 2: Analyze various forms of plane equations and straight line equations
CO 3: Illustrate the concepts of straight lines skew lines and shortest distance
CO 4: Determine the equation of a sphere and - Condition for orthogonality of Two Spheres.
CO 5: Construct the equation of a Cylinder with a given generator and a given Guiding Curve.

Core Course 4: Numerical Methods
CO 1: Analyze the methods to find the solution of Algebraic and Transcendental equations.
CO 2: Explain interpolation and use Newton's formulae, to solve problems.
CO 3 : Apply Lagrange's formula for unevenly spaced points
CO 4: Apply Trapezoidal, Simpson's 1/3 rule and Simpson's 3/8 rule to evaluate integrals.
CO 5: Evaluate the numerical solution of ordinary differential equations.

Core Course 5: Modern Algebra – I
CO 1: Analyze and apply the knowledge of basic abstract systems.
CO 2: Classify the concepts and properties of groups.
CO 3: Apply and discuss group concepts in Lagrange's theorem.
CO 4: Summarize the importance of homomorphism and isomorphism in groups
CO 5: Explain and use the concepts of rings.

Core Course 6: Programming in C

CO 1: Analyse and Discuss the concepts of Constants,Variables and Data types.
CO 2: Analyse and Explain Operators and Expressions.
CO 3 : Illustrate andExplain managing input and output operations with examples.
CO 4: Analyse and classify Decision making and branching.
CO 5: Describe Decision making and Looping.

Core Course 7: Modern Algebra- II

CO 1: Identify subspaces, linear transformation and span of a set.
CO 2: Analyze Linear independence and dimension of vector spaces
CO 3: Classify the types of matrices and algebra of matrices.
CO 4: Apply Cayley-Hamilton theorem to solve simultaneous linear equations
CO 5: Examine the concepts of Lattices and Boolean Algebra.

Core Course 8: Real Analysis – I

CO 1: Analyse field axioms,countable sets and uncountable sets
CO 2: List the neighbourhoods, open sets, closed sets and limit points.
CO 3: Analyze convergence of sequences, divergence of sequences and Cauchy sequences.
CO 4: Apply Cauchy's nth root test and D'Alembert's ratio test to check the convergence of the series.
CO 5: Summarize the concepts of and continuity and Uniform continuity

Core Course 9: Statics

CO 1: Analyse and illustrate the concept of parallel forces and moments
CO 2: : Definecouples, Analyse Equilibrium of three forces acting on a rigid body
CO 3: Analyse andExplain about the coplanar forces with examples.
CO 4: Demonstrate laws of friction ,angle of friction with examples
CO 5: Explain centre of gravity of different geometrical structures like triangle, quadrilateral etc., Analyse equilibrium of strings.

Core Course 10: Differential Equations and Fourier Transforms

CO 1: Apply practical rule for solving exact differential equation and rules for finding integrating factor.
CO 2: Explain the method of solving linear Differential equations with constant coefficients and simultaneous Differential equations with examples.
CO 3: Analyze the method of forming Partial differential equations for various situations and solving partial differential equations.
CO 4: Determine the condition for existence of Laplace Transforms and to obtain Laplace transforms of various functions.
CO 5: Classify the Fourier series and Fourier Transforms for different functions.

Core Course 11: Real Analysis – II

CO 1: Describe partial sum, convergent series and explain Cauchy's general principle of convergence of a series
CO 2: Explain and illustrate the concepts of Derivatives
CO 3: Explain Rolle's theorem , Lagrange's mean value theorem and demonstrate Cauchy's mean value theorem.
CO 4: Summarize the necessary and sufficient condition to estimate extreme values.
CO 5: Analyze and experiment the concept of Riemann integration.

Core Course 12: Complex Analysis

CO 1: Categorize the Analytical functions and discuss about the Harmonic functions
CO 2: Classify the elementary transformations and fixed points of bilinear transformations.
CO 3: Apply Cauchy integral formula and Cauchy's theorem on integrals.
CO 4: Analyze Taylor's series, Laurent's series, Zeros of analytical functions and singularities.
CO 5: Evaluate residues using Cauchy's residues therem.

Core Course 12: Dynamics
CO 1: Analyse relative ,angular velocity,Define and calculate moment of inertia in particular cases using parallel axes and perpendicular axes theorem.
CO 2: Analyse and Discuss about projectiles, path, range of a projectile and range on an inclined plane.
CO 3: Analyze and explain about collision of elastic bodies, impact of two bodies and loss of kinetic energy.
CO 4: Explain the motion under the action of central forces, find the pedal equation for some curves.
CO 5: Analyse andDiscuss about simple harmonic motion,demonstrate the motion of a rigid body about a fixed axis.

Second Allied Course 1: Mathematical Statistics-I
CO 1: : Explain and Describe moments, skewness and kurtosis
CO 2: : Explain andApply Baye's theorem in Decision making
CO 3: : Analyze, Classify and explain the characteristics of probability distribution
CO 4: : Analyse and explain binomial and poisson distribution
CO 5: : Explain, Analyse, Describe normal distribution

Second Allied Course 2 : Mathematical Statistics-II
CO 1: Explain and analyse the mathematical expectations and variance for linear combination of random variables
CO 2: Describe and determine coefficients of correlation, regression and rank correlation
CO 3: Explain and analyse the small, large samples and non-parametric test problems
CO 4: Describe and analyse Chi-square distribution
CO 5: Outline and explaint and F distribution

Second Allied Practical: Excel Lab for Mathematical Statistics
CO 1: Draw charts and diagrams
CO 2: Evaluate of measures of dispersion and rank correlation
CO 3: Classify simple linear and non linear regression models
CO 4: Demonstrate fitting of probability distributions
CO 5: Assess t-test, F-test and Chi-square test

ALLIED COURSE FOR B.Com
First Allied Course 1: Business Mathematics
CO 1: Examine the concept of derivatives for maxima and minima
CO 2: Analyse the rate of change in business and economics
CO 3: Illustrate the methods to test theconsistency of a system of simultaneous linear equations
CO 4: Identifyfinance and economics problems mathematically
CO 5: Construct a linear programming problem and solve using simplex method

First Allied Course 2: Business Statistics
CO 1: Determine all measures of central tendencies for raw and grouped data

CO 2: Analyse Measures of Dispersion
CO 3: : Calculate regression and correlation for forecasting
CO 4: Analyse Statistics in business problems and finding their inference
CO 5: Inspect appropriate Statistical techniques for business data

First Allied Practical: Practical Mathematics for Commerce
CO 1: Discuss the applications of Geometric Mean and Harmonic Mean
CO 2: Examine the consistency of a given data
CO 3: Apply correlation analysis for forecasting
CO 4: Explain input and output analysis using matrix
CO 5: Use statistical analysis in cost of living index

ALLIED COURSE FOR B.Sc., CHEMISTRY/PHYSICS
Second Allied Course 1: Allied Mathematics – I
CO 1: Discuss the nature of roots and solve equations
CO 2: Apply Leibnitz formula to determine n^{th} derivative of a Product
CO 3: Discover radius of curvature, Evolute and Involute
CO 4: Determine Fourier Series for different functions
CO 5: Determine Fourier Series for different functions applying the change of interval

Second Allied Course 2: Allied Mathematics – II
CO 1: Calculate the complementary function and particular integral of Differential Equations
CO 2: Determine the solutions of partial differential equations
CO 3: Solve differential equations using Laplace Transformation.
CO 4: Analyze the Physical applications of Differentiation of Vector Functions.
CO 5: Analyze the coordinate system and plane.

Second Allied Practical: Practical Mathematics
CO 1: Define radius of curvature, Evolute and Involute
CO 2: Formulate Fourier Series for different functions
CO 3: Evaluate the solution of Partial Differential Equations
CO 4: Compute solution of differential equations using Laplace Transformation
CO 5: Classify the Physical applications of Differentiation of Vector Functions

ALLIED COURSE FOR B.Sc., COMPUTER SCIENCE
Second Allied Course 1: Numerical and Statistical Methods
CO 1: Evaluate numerical solution for Algebraic and Transcendental Equations
CO 2: Describe numerical differentiation and integration
CO 3: Discuss the numerical solution of ordinary differential equations
CO 4: Analyze the correlation and regression
CO 5: Explain the fitting of Binomial,Poission and Normal distributions

Second Allied Course 2: Operations Research
CO 1: Explain LPP, the formulation and its graphical solution
CO 2: Evaluate LPP using simplex algorithm
CO 3: Construct transportation problem as LPP and solve by MODI method
CO 4: Describe the Hungarian Assignment method
CO 5: Compare PERT and CPM

Second Allied Practical: Practical Mathematics for Computer Science
CO 1: Explain numerical integration using Trapezoidal Rule and Euler's Method
CO 2: CalculateCorrelation coefficient for a bivariate frequency distribution

CO 3: Apply simplex method to the solutions of simultaneous linear equations and inverse of a matrix
CO 4: Describe stepping stone solution method
CO 5: Modify special cases of assignment problems

Major Based Elective Course 1: Graph Theory
CO 1: Analyze the concepts of connected graphs, disconnected graphs, Euler's graphs, Hamiltonian paths and circuits.
CO 2: Describe trees, fundamental circuits, cuts and cut vertices.
CO 3: Explain knowledge in planar graphs.
CO 4: Describeincidence matrix, cut set matrix, path matrix and adjacency matrix.
CO 5: Explain digraph, paths and connections.

Major Based Elective Course 1 (Optional): Discrete Mathematics
CO 1: Define the basic concepts of logics.
CO 2: Describe the concepts of predicate calculus.
CO 3: Explain lattices and the properties of Lattices.
CO 4: Explain Boolean Algebras, Boolean polynomials and Karnaugh maps.
CO 5: Solve the recurrence relations

Major Based Elective Course 2: Operations Research
CO 1: Explain the formulation of LPP.
CO 2: Construct the dual of LPP and solve LPP through duality and dual simplex method.
CO 3: Formulate transportation and assignment problem as LPP and solve by appropriate methods
CO 4: Analyze the methods of Queuing systems
CO 5: Demonstrate the rules of network and compare PERT/CPM.

Major Based Elective Course 2 (Optional): Astronomy
CO 1: ExplainCelestial sphere and Diurnal Motion
CO 2: Describe The zones of earth and Dip of Horizon
CO 3: Discuss Influence of temperature and pressure of atmosphere on refraction
CO 4: Apply Kepler's Laws of planetary motion to find Seasons – Julian Date .
CO 5: Discuss Determination of latitude of a place

Major Based Elective Course 3: Number Theory
CO 1: Identify and use the concepts of fundamental theorem of arithmetic
CO 2: Apply and Analyze permutations and combinations, Fermat's little theorem and Wilson's theorem
CO 3: Analyze and Apply the concept of congruence to solve the system of congruences
CO 4: Classify and apply the notion of arithmetic functions $\varphi(n), d(n), \sigma(n), \mu(n)$
CO 5: Analyze and use the concepts of Tchebychev's theorem

Major Based Elective Course 3 (Optional): Mathematical Modelling
CO 1: Discuss mathematical models for growth and decay processes using ordinary differential equations.
CO 2: Explain the concepts of difference equations and method of solving difference equations.
CO 3: Prepare mathematical models through difference equations.
CO 4 : Create mathematical models through PDE
CO 5 : Express mathematical models through graphs.

Skill Based Elective Course 1: Combinatorics
CO 1: Estimate permutations and combinations with examples
CO 2: Apply Binomial identities and generating functions
CO 3: Analyze the properties binary relations in a set and represent a relation by matrix
CO 4: Identify a relation by matrix
CO 5: Examine Warshall's algorithm for transitive closure

Skill Based Elective Course 2: Financial Mathematics
CO 1: Evaluate square roots and Cube roots
CO 2: Calculate profit and loss, Ratio and proportion.
CO 3: Explain partnership and estimate different types of Interest.
CO 4: Assess various types of Discounts
CO 5: Analyze Graphs and Charts

Skill Based Elective Course 3: Practical: MATLAB
CO 1: Explain Algebraic and Transcendental equations using MATLAB
CO 2: Compute the sum, product, transpose of matrices, the inverse and eigen values of matrices
CO 3: Evaluate the problems on Differential Equations and Integral Equations
CO 4: Determine graph using MATLAB and analyze the PASCAL's Triangle.
CO 5: Evaluate the problems on Numerical differentiation and Integration

Non Major Based Elective Course 1: General skills in Mathematics-I
CO 1: Analyze bar graphs and pie-diagrams
CO 2: Calculate arithmetic mean ,median and mode
CO 3: Apply the concepts of measures of dispersion
CO 4: Determine Standard deviation and Variance
CO 5: Explain the concepts of Correlation , Rank Correlation

Non Major Based Elective Course 2: General skills in Mathematics-II
CO 1: Determine H. C. F and L. C. M of numbers
CO 2: Analyze the concepts of Profit and Loss, Ratio and Proportion
CO 3: Analyze the concepts about the Time and Work , Pipes and Cistern
CO 4: Analyze the concepts of Time and Distance, Alligation or Mixture
CO 5: Estimate Simple Interest, Compound Interest

POST GRADUATE PROGRAMMES

PROGRAMME OUTCOMES (POs)

On completion of programmes offered, the graduates can:

PO 1 : Demonstrate mastery in the specialised fields
PO 2 : Showcase developing research attitude and skills

PO 3 : Organise and effectively prepare technical or research reports
PO 4 : Use techniques and modern ICT tools in their specialised fields
PO 5 : Integrate the acquired knowledge and skills to contribute to society and industry

M.Sc. ELECTRONICS

PROGRAMME SPECIFIC OUTCOMES

PSO 1: Apply the knowledge of Electronic science and technology to establish their carrier in the field of Circuit designing , Embedded system, Communication Networks leads to research work

PSO 2: Acquire knowledge in the latest fields like Nano technology, PLC and SCADA, Solar Photovoltaics and the usage of electronics in Automobiles. Practical Implementation and testing skills provided through different types of training in Industry to develop a system with technical skills.

PSO 3: Integrate the acquired knowledge of hardware and software with a comprehensive understanding of circuits such asCircuit designing, Components mounting, Assembling, testing Analyzing and output to advanced emerging technologies in Electronics industry to become a successful technocrat.

PSO 4: Apply the software skills and integrate hardware for the designed experiments, analysis and interpretation of data and synthesize the information to provide a successful project system in the fields of Embedded System, VLSI system, Signal Processing, Wireless networks, Control System and Medical Electronics.

PSO 5: Utilize the Professional knowledge of advanced principles of electronics and apply these to one's own work, as a member and leader in a team, to manage projects in research fields such as Embedded System, Robotics, VLSI System, Computer Networks ,Signal Processing etc. to make a successful carrier.

COURSEOUTCOMES

CoreCourse1- Microcontroller 8051and Embedded System

CO 1: Acquire the knowledge about 8051 microcontrollers
CO 2: Understanding the peripherals of 8051 microcontroller
CO 3: Develop the programming skills in 8051
CO 4: Obtain the concept of Embedded C program
CO 5: Analyze the Timer and Counter programming in 8051

CoreCourse2 : Digital Control System

CO 1: Explain the concepts of basic Digital Control System and evaluate the sampling process and Theorems
CO 2: Differentiate the Z-transforms and inverse Z-transform
CO 3: Analyze the State Variable techniques and state diagrams of digital system
CO 4: Compute the Stability of LTI systems.
CO 5: Discuss about the architecture of digital signal processor

CoreCourse3 : VLSI Design and VHDL Programming

CO 1: Explain VLSI design and Integrated Circuits manufacturing.
CO 2: Revise the fabrication process of Integrated Circuits.
CO 3: Analyze the System Design
CO 4: Discuss the basic concepts of VHDL.
CO 5: Explain the VHDL programming models

CoreCourse 4 : Digital Signal Processing

CO 1: Compare different types of Signals and systems.

CO 2: Assess the concept of Linear Time Invariant System and the properties of Fourier series.
CO 3: Formulate the Fourier transform.
CO 4: Design the Finite Impulse Response and Infinite Impulse Response filters.
CO 5: Discuss the Speech processing &explain the different types of processors.

CoreCourse5 : Wireless Communication Networks
CO 1: Understand the concepts of protocol architecture and OSI model.
CO 2: Acquire the knowledge about cellular network.
CO 3: Distinguish the different types of Multiple access techniques
CO 4: Impart the knowledge about satellite communication.
CO 5: Obtain the concept of Blue tooth

CoreCourse6 : Solar Photo Voltaics
CO 1: Understand the importance of Photovoltaics
CO 2: Develop the solar cell designing skills.
CO 3: Connecting the solar cells based on the solar radiation.
CO 4: Analyze the different types of converters
CO 5: Design the PV system

CoreCourse7 : PLC and SCADA
CO 1: Get to know the principles of PLC
CO 2: Understand the PLC instructions.
CO 3: Develop the programming knowledge on PLC.
CO 4: Apply the development of PLC.
CO 5: Acquire the knowledge about SCADA

CoreCourse8 : Microcontroller ATMEGA and Embedded System
CO 1: OutlinetheAtmega8 bit microcontroller.
CO 2: Create AVR Assembly language Programming
CO 3: Prepare AVR program in C
CO 4: Analyze Peripheral interfacing.
CO 5: Design the concept of Arduino and programming

CoreCourse9 : Research Methodology
CO 1: To Know the objective , Significance of Research.
CO 2: To define the Research problem, identify and to know the Research design.
CO 3: To know about the parameters of Research and Hypothesis
CO 4: Discussabout the Sampling.
CO 5: Able to know how to write a Research Report.

CoreCourse10 : MEMs and their Applications
CO 1: Explain the concept of MEMS and Microsystems and utilize the applications of Microsystems.
CO 2: Discuss the fabrication process of Micro system
CO 3:. Identify the Microsystems design.
CO 4: Able to know about the Micro manufacturing
CO 5: Explain the Micro system Packaging techniques

Major Based Elective 1 : Nanotechnology and its applications
CO 1: Explain the core concept of Nanotechnology
CO 2: Utilize the basic Nano tools.

CO 3: Analyze the Working of Nano tubes, DVD, phase changing Memory, nanotube RAM and nano wire.
CO 4: Applications of Nano Technologyinthe Agricultural field, Medical field and to know about the Nano Electronics.
CO 5: Studying the applications of Nano technology in Medical Science, Food and safety.

Major Based Elective 2 : Automotive Electronics
CO 1: Understand the fundamentals of Automotive.
CO 2: Compare the different kinds of Ignition systems
CO 3: Gain the knowledge about combustion
CO 4: Analyze the electrical system.
CO 5: Expose the advanced technologies in automobile

Major Based Elective 3 : Medical Electronics
CO 1: Outline the human physiological system..
CO 2: Discuss the concepts of bio potential electrodes and transducers.
CO 3: Explain the concept of bio potential recorders.
CO 4: Apply the knowledge on specialized medical equipment and bio telemetry.
CO 5: Utilize the application of bio-medical instrumentation.

Major Based Elective 4 : Computer System and Architecture
CO 1: Outline the basic Structure of computer.
CO 2: Explain the control design of computers.
CO 3: Discuss the functions of processing Unit.
CO 4: Analyze the input and output organization of computer and utilize the basic concepts of pipelining.
CO 5: Explain the computer Peripherals and large Computer System.

Non-Major Based Elective – PC Assembling and Installation
CO 1: Gain knowledge about parts of the Computer.
CO 2: Understand PC assembling.
CO 3: Understand installing Operating System.
CO 4: Discuss configuration of Computer.
CO 5: Explain windows case studies.

M.SC., MATHEMATICS

PROGRAMME SPECIFIC OUTCOMES
PSO 1: Analyse advanced concepts in Algebra, Analysis, Differential Equations, Graph Theory, Optimization Techniques, Topology, Fluid Dynamics, Differential Geometry to be applied in real life problems.
PSO 2: Apply the axioms and outcomes of Mathematical problems to solve the related Mathematical and social problems
PSO 3: Impart sound knowledge to enhance the research attitudes in recent advancements in Mathematics
PSO 4: Nurture problem solving skills, logical reasoning and creativity to face the competitive examinations and prepare to crack National, State level eligibility tests for pursuing research and acquire jobs.

Core Course 1 : Linear Algebra
CO 1: Explain about solution of linear systems and the construction of vector spaces.
CO 2: Analyze the algebra of linear transformations and their representation.
CO 3: Explain the algebra of polynomial and prime factorization of the polynomial
CO 4: Evaluate characteristic values and describe annihilating polynomials.

CO 5: Analyze the proof of the primary decomposition theorem

Core Course 2 : Real Analysis
CO 1: Explain the Riemann –Steiltjes integral.
CO 2: Discuss about sequences and series of functions.
CO 3: Analyze the proof Stone Weirestrass theorem.
CO 4: Describe the Exponential, logarithmic and Gamma function
CO 5: Demonstrate the contraction principle, Inverse function theorem and implicit function theorem.

Core Course 3 : Advanced Numerical Analysis
CO 1: Analyze the methods to find solutions of Transcendental and polynomial equations
CO 2: Determine the solution of the system of linear algebraic equations and eigen values.
CO 3: Solve problems using Lagrange's and Newton's interpolation method.
CO 4: Explain the concepts of numerical differentiation.
CO 5: Discover the solutions of numerical integration problems.

Core Course 4 : Optimization Techniques
CO 1: Explain Gomory's method and Fractional cut method
CO 2: Discuss simplex method and Revised simplex method
CO 3: Apply sequencing method to Process jobs through machines
CO 4: .Demonstrate Dynamic Programming /algorithm- Solution of Discrete D.P.P.
CO 5: Describe Non-Linear programming problem

Core Course 5 : Topology
CO 1: Demonstrate the basic concepts in topological spaces.
CO 2: Explain the theorems on continuous functions and compare topologies
CO 3: Discuss theorems on connected spaces and compact spaces and illustrate them
CO 4: Analyze countability axioms and separation axioms.
CO 5: Describe UrysohnMetrization theorem and summarize complete metric space.

Core Course 6 : Complex Analysis
CO 1: Define Analytic functions, polynomials and rational functions with examples.
CO 2: Apply the proof of Cauchy's theorem for a rectangle and Cauchy's theorem in a disc.
CO 3: Discuss about harmonic functions, Mean Value property, Poisson's formula and reflection principle
CO 4: : Discuss the proof of Riemann mapping theorem and Schwartz-Christoffel formula.
CO 5: : Explain about Partial fractions, Infinite products, Canonical products, the Gamma function and Entire functions

Core Course 7 : Abstract Algebra
CO 1: Discuss counting principle and Sylow's theorem.
CO 2: Explain and classify polynomial rings and commutative rings.
CO 3: Discuss about extension fields and explain roots of polynomials.
CO 4: Analyse andExplain Galois theory, solvability by radicals.
CO 5: Demonstrate and classify the concept of linear transformation.
Core Course 8 : Measure and Integration
CO 1: Explain the measures on the real line
CO 2: Discuss the general integral Riemann and Lebesgue integrals
CO 3: Discuss metric spaces
CO 4: Explain Jensen's inequality, the inequalities of Holder and Minkowski's.
CO 5: Demonstrate Hahn decomposition and Jordan decomposition.

Core Course 9 : Stochastic Processes

CO 1: Categorize the Stochastic processes, Stationary processes and Markov chains with examples.

CO 2: Determine the stability of a Markov system.

CO 3: Analyse the Poisson processes and Markov processes with discrete state space.

CO 4: Out line about the Renewal processes and obtain the proofs of renewal theorem.

CO 5: Determine the queueing systems and discuss about the different types of Stochastic model.

Core Course 10 : Ordinary differential equations

CO 1: Determine the general solution of Second Order Linear Equations

CO 2: Analyze the power series solutions and special functions and understand the concepts of Ordinary points,regular singular points

CO 3: Outline the concepts of some special function Legendre polynomials, Bessel functions, Gamma function.

CO 4: Evaluate the system of first order equations and explain the concepts of types of critical points and stability

CO 5: Examine Strum Separation theorem and Strum Comparison theorem

Core Course 11 : Functional Analysis

CO 1: Analyze the proof of Hahn Banach theorem and the open mapping theorem.

CO 2: Discuss about Hilbert spaces with examples.

CO 3: Explain about orthogonal complements and orthonormal sets.

CO 4: Discuss the proof of Spectral theorem.

CO 5: Demonstrate Banach algebra with examples.

Core Course 12 : Fluid Dynamics

CO 1: Discuss and explain Velocity of a fluid at a point, Stream lines, Path lines, Velocity Potential and Vorticity vector

CO 2: Explain and show the Euler's equation of motion, Bernoulli's equation and some potential theorems

CO 3: Analyze and use the concepts of three dimensional flows of the fluid

CO 4: Analyze and use the concepts of two dimensional flows of the fluid

CO 5: Demonstrate and analyze the Navier-Stokes equation of a viscous fluid

Core Course 13 : Partial Differential Equations

CO 1: Analyse the first order partial differential equation and explain Cauchy's problem

CO 2: Apply Charpits method, Jacobi's method for obtaining solutions of first order equations.

CO 3: Classify the about linear partial differential equations with constant coefficients and equations with variable coefficients.

CO 4: Examine the methods of obtaining solution of linear hyperbolic equations.

CO 5: Examine the solutions of Laplace equation and Explain the boundary value problems.

Core Practical: Object Oriented Programming In C++

CO 1: Compile a program to sort numbers using different methods.

CO 2: Prepare a program using classes and objects.

CO 3: Design a program to add and subtract complex numbers using operator averloading.

CO 4: Formulate a program to arrange strings in alphabetical order using pointers.

CO 5: Design a program to solve quadratic equation by bisection method.

Major Based Elective Course 1 : Graph Theory
CO 1: Discuss about graphs, trees, cut edges and cut vertices by giving examples. Analyze the concepts of Euler tours and Hamilton cycles.
CO 2: Discussabout matchings, coverings in bipartite graphs, edge colourings and vertex colourings. Describe Vizing's theorem and Brook's theorem.
CO 3: Explain Independent sets and Cliques. Describe Ramsey's Theorem – Turan's Theorem, Brooks' Theorem .
CO 4: Discussabout planar graphs. Describe Five-Colour Theorem and the Four-Colour Conjecture.
CO 5: Analyze the concept of Directed Graphs and Networks

Major Based Elective Course 1 : (Optional): Theory of Automata
CO 1: Explain Finite automata
CO 2: Describe Formal Languages and Chomsky Classification of Languages
CO 3: Distingush between the concept of regular sets and regular grammars
CO 4: Compute Regular Grammar generating T(M) for a given DFAM and Transition system M Accepting L(G) for a given regular Grammar G
CO 5: Analyze the context-Free languages

Major Based Elective Course 2 : Differential Geometry
CO 1: Enumerate the concepts arc length, tangent, curvature andtorsion.
CO 2: Describe about evolutes and involutes.
CO 3: Evaluate first fundamental form and second fundamental form
CO 4: Analyze proof of Meusnier's theorem and Euler's theorem.
CO 5: Explain Dupin's Indicatrix.

Major Based Elective Course 2 : (Optional): Fuzzy Mathematics
CO 1: Understand the concept Fuzzy sets
CO 2: Classify the types of operation on Fuzzy sets
CO 3: Unserstand the concept of Fuzzy Arithmetic
CO 4: Analyze operations of Fuzzy Graph
CO 5: Justify Decision making problems

Major Based Elective Course 3 : Mechanics
CO 1: Express the basic concepts in mechanics like generalized coordinates, Holonomic constraints, virtual work, potential energy, kinetic energy, angular momentum and generalized momentum.
CO 2: Compute the Lagrange's equations for holonomic and non holonomic systems.
CO 3: Explain the method of obtaining integrals of the motion for conservative systems,natural systems and Liouville's system.
CO 4: Manipulate Lagrange's equations involving Rayleigh's dissipation functions.
CO 5: Explain Hamilton's principle of obtaining stationary values of adefinite integral and Solve Hamilton's principal function

Major Based Elective Course 3 : (Optional): Algebraic Topology
CO 1: Explainabout Fundamental groups
CO 2: Compute- The Borsuk-Ulam Theorem
CO 3: Analysis Deformation Retracts and Homotopy type
CO 4:Describe Separation Theorems in the plane

CO 5: Classify about Surfaces

Non Major Based Elective Course: Numerical and Statistical Methods
CO 1: : Solve Algebraic and Transcendental Equations.
CO 2: Explain Newton's formula for interpolation.
CO 3:.Determine various measures of central tendency and measures of dispersion, skewness sand kurtosis for the given data.
CO 4: Calculate correlation and regression
CO 5:.Apply χ^2-test for population variance - χ^2-test to test the goodness of fit

M.A. MUSIC

PROGRAMME SPECIFIC OUTCOME
PSO1 Elaborate theoretically and practically with the ancient system of music, Vedic music with modern system of music and thevarious types of Music including folk music, Classical and folk Dance and vocal music and instrument and Compare with contemporary system of Music
PSO2 Enhance the analytical skill in Kalpithasangitha and Manodharmasangitha and perform advance level musical form and formulate the concert pattern
PSO3 Possess employment , ED skills and become Professional trainees
PSO4 Demonstrate skills to take up competitive exams through theory and practical knowledge of Classical music and theoretical knowledge of Folk music, Basics knowledge of Western and Hindustani music,
PSO5 Display skill to communicate globally through vocal and Instrumental music skills, Execute the Critical and Analytical research in Music.

COURSE OUTCOMES
Core Course 1 : Raga and Tala system of Music
CO 1: Understand and Analyze the raga system&Janya raga and its classification
CO 2: Differentiate & Categorize the Tala system
CO 3: Compare the TaladasaPranas
CO 4: Illustrate & Assess the role of Gamakas in Music
CO 5: Identify the origin and utility of Musicography and Musical mnemonics & Develop this in writing notation

Core Course 2 : Historical Concept of Music
CO 1: Evaluate the significance of the sources for the history of Indian Music
CO 2: Classify the development of scales
CO 3: Compare the Raga classifications of Ancient Music with the recent classification
CO 4: Summarize the contribution of Maratha rulers
CO 5: Compile & discriminate the contribution of Telugu & Sanskrit Vaggeyakaras

Core Course 3 : Musicology
CO 1: Evaluate the evolution of Melas and the Sheme of 144 melas
CO 2: Differentiate the significance of Mudras
CO 3: Summarize the Tuning methods of musical instruments
CO 4: Prioritize the concept of Ritualistic Music and its applications

CO 5: Explain &analyze the basics in Research methodology

Core Course 4 : Music of the Epic and Medieval Period

CO 1: Evaluate Vedic Music
CO 2: Analyze the land marks in the history of music
CO 3: Compile the musical works in Sanskrit lakshanagranthas
CO 4: Evaluate the evolution and structure of musical forms
CO 5: Compare and summarize the significant musical contribution of composers

Core Course 5 : Art and Applied Music

CO 1: Combine the techniques used in manodharmasangeetha with practical concept
CO 2: Criticize the concept of Rasa for Raga
CO 3: Combine 22 srutis theory with practical compositions
CO 4: Assess the structure of the Art form Bhajana and Kathakalakshepam
CO 5: Compare the lakshana of the ragas with kritis and varnas & prepare and write notation for kritis

Core Course 6 : Music of the Tamil

CO 1: Evaluate the Musical references in Ramayana, Mahabharatha and Puranas
CO 2: Compare the musical aspect and pans of Tevaram, Divyaprabhandam and Tiruppugazh
CO 3: Analyze the Music in Kudumiyanmalai Inscriptions
CO 4: Compile the musical references in Tamil works
CO 5: Analyze the structure of Opera

Core Course 7 : Music of North Indian and Western

CO 1: Explain the basic raga and tala of Hindustani
CO 2: Assess the Hindustani musical form
CO 3: Categorize the musical contribution of North Indian composers
CO 4: Compare & contrast Hindustani Instruments with Indian composers
CO 5: Understand the basics of Western Music

Core Course 8 : Folk Music and Folk Arts of Tamil Nadu

CO 1: Analyze the characteristic features and Classification of Folk Music
CO 2: Assess the folk arts like karagam, Kavadi, Poikkalkudiramattam, Kolattam
CO 3: Categorize the Theatrical Arts
CO 4: Compile & summarize the folk forms Temmangu, Anandakalippu, Chindu&Kanni
CO 5: Classify the construction of folk instruments

Core Practical 1 : Kalpitha Sangita 1

CO 1: Demonstrate the composition Varnam practically
CO 2: Compare and contrast advanced musical form Svarajati of Syamasastri with abyasaganaSvarajathi
CO 3: Illustrate the group kriti with the significance of the theme practically
CO 4: Compile and sing the major and minor raga kriti
CO 5: Categorize the miscellaneous musical form practically

Core Practical 2 : KalpitaSangitam II

CO 1: Plan concert paper with Ata talavarna in 2 degrees of speed
CO 2: Prepare to Sing group kritis like Pancharatna which enable to sing in Thayagaraja

Aradhana an Inter-national festival
CO 3: Analyze and Sing group kritis like Navavarnam/Navagraha with their details
CO 4: Design and write the concert list with suddamadhyama, PratimadhyamaKritis and miscellaneous
CO 5: Create improvisation in raga alapana and kalpanasvara

Core Practical 3 : KalpithaSangitam III
CO 1: Evaluate and sing varna in rare tala
CO 2: Plan to Sing group kritis like Pancharatna which enable to sing in Thayagaraja Aradhana an Inter-national festival
CO 3: Discriminate and sing the Group kriti
CO 4: Compile and sing the Janya raga kritis and miscellaneous compositions for a concert
CO 5: Plan & Develop phrases for Raga alapana and Kalpanasvara

Core Practical 4 : KalpithaSangitam IV
CO 1: Analyze and sing padavarna and compare with Adi talavarna
CO 2: Assess the Musical and theoretical aspect of syamasastriSvarajathi& Group kriti
CO 3: Categorize and sing the musical form padam
CO 4: Compile and sing Group kritis and major & minor raga kritis
CO 5: Compare Telugu and Sanskrit compostitions in bhakthi aspect practically

Core Practical 5 : ManodharmaSangitam
CO 1: Plan the raga alapana for Major ragas
CO 2: Compose new phrases for raga alapana for major &minor ragas
CO 3: Create Simple and complicated svarakalpana for Janaka &Janya ragas
CO 4: Measure & Sing Pallavi with 3 degrees of speed
CO 5: Prepare to sing raga alapana, Kalpanasvara and Pallavi

Core Practical 6 : Concert
CO 1: Plan and prepare list for Musical concerts
CO 2: Develop confidence for stage performance
CO 3: Prepare song to Sing with accompaniment
CO 4: Organize & compile a music performance
CO 5: Create a thematic music concert

Major Based Elective 1 : Enchanting Melody through Vocal /Violin
CO 1: Identify &Explain the basic exercises
CO 2: Associate to Play /Sing Gitam with svara and Sahithya
CO 3: Identify &Analyze the Jatisvara pattern
CO 4: Demonstrate about the playing / singing method for Svarajati
CO 5: Illustrate Sing /play Note svara

Major Based Elective 2: Enchanting Melody through Vocal/Violin
CO 1: Apply the varna in vocal/ fingering for to practice another varna
CO 2: Explain & play/sing the fingering/singing methods for kriti
CO 3: Illustrate simple padigams practically
CO 4: Identify the chandam in tiruppugazh

CO 5: Plan to Play simple songs

Major Based Elective 3 : Enchanting Melody through Vocal /Veena
CO 1: Explain the basic exercise for Vocal/ Veena
CO 2: Illustrate to sing/play the form varna
CO 3: Apply Voice/ finger technique to Sing /Play simple kritis
CO 4: Identify to write notation for simple songs
CO 5: Describe to Sing / Play miscellaneous compositions

Major Based Elective 4 : Enchanting Melody through Vocal /Veena
CO 1: Analyze the Singing /Playing techniques of Kritis with their details
CO 2: Identify the svara for sahithya in Bharathiyar song
CO 3: Write the jati pattern for Tillana to Sing / Play
CO 4: Develop to Sing / Play English Note
CO 5: Evaluate the methods of Singing /playing kritis and miscellaneous songs

Non Major ElectiveTamilisaiPadalgal
CO 1: Explain & sing the tamil compositions of Tamil composers
CO 2: Analyze& sing the Tevarapadigams with its pans and significance
CO 3: Categorize the significance of Tiruppavai, Tiruvempavai and Tiruppugazh
CO 4: Identify and explain the folk form practically
CO 5: Analyze the patriotism among the composers

Project
CO 1: Evaluate the research methodology
CO 2: Categorize the chapters in the project
CO 3: Construct innovative methods in music research
CO 4: Invent new ideas in the research field of music
CO 5: Recommend innovative research