B.Sc., Botany (UGBOT)

Program Specific Outcomes

After Successful completion of B.Sc. degree in Botany students would be able to:

PSO 1:Understand the importance of plants,their diversity and conservation.
PSO 2: Acquire knowledge on pure and applied botany.
PSO 3: Understand the contribution of botany in improvement of crop productivity to met the demand in the supply of food, medicines and other plant products.
PSO 4 : Understand the importance of health and environmental protectionand to solve the pollution problems.
PSO 5 :Understand the importance of knowledge in botany for applied sciences like Agriculture, Horticulture,Sericulture, Forestry,Pharmacology and Medicine.
PSO 6: Understand to care Nature
PSO 7: Understand experiments in botany.

Course Specific Outcomes

CORE COURSE IBACTERIA, VIRUSES, ALGAE, FUNGI AND LICHENS(16SCCBO1)

After completion of the course a student will be able to
PCO1:Understand the salient features in the structure, reproduction, culture, classification and economic importance of bacteria and viruses.
PCO2: Understand the Classification, ecology, distribution, morphology, life-cycle and economic importance of Algae and Fungi.
PCO3: Comprehend the structure and reproduction of various genera mentioned in the syllabus
PCO3: Aware of the distribution, classification, structure, physiology,reproduction and function of lichens and significance of ectomycorrhiza andendomycorrhiza.
PCO5: To learn the mass culture technique of commercially important algae
PCO6: . To conserve them in their natural environment.

CORE PRACTICAL I
BACTERIA, VIRUS, ALGAE, AND FUNGI ANDLICHENS &PLANTPATHOLOGY AND PLANT PROTECTION (P) (16SCCSBO1P)

After completion of the course a student will be able to
PCO1: Appreciate the importance in Structure and reproduction of Bacteria, Viruses, fungi and lichens
PCO2: Critically understand the range of organization in thallusseen in Bryophytes
PCO3: Know the Tools and equipments used in microbiology: Spirit lamp, Inoculation loop,Hot air oven, Autoclave, Pressure cooker, Laminar air flow chamber, Incubator, etc.
PCO4: Make suitable micropreparations and identify the diseases mentioned in theorywith due emphasis on symptoms and causative organisms.

PCO5: Identify the various plant protection appliances mentioned in thesyllabus and their working mechanism.

CORE COURSEII : PLANT PATHOLOGY AND PLANT PROTECTION (16SCCBO2)

After completion of the course a student will be able to

PCO1: Understand plant pathogenesis, classification and host-parasiteinteraction.
PCO2: Study plant diseases in crops and their management, significantcontributions of plant pathologists and usage of various techniques in plantprotection.
PCO3: After completion of the course a student will be able to
PCO4: To impart knowledge on distribution, classification, structure, physiology,reproduction and function of lichens
PCO5: Understand the significance of ectomycorrhiza andendomycorrhiza.

CORE COURSEIII :
BRYOPHYTES, PTERIDOPHYTES, GYMNOSPERMS ANDPALEOBOTANY (16SCCBO3)

After completion of the course a student will be able to

PCO1: Understand the salient features of Bryophytes, Pteridophytesand Gymnosperms.
PCO2: Understand the structure and reproduction of various genera mentioned in thesyllabus. economic importance of pteridophytes and gymnosperms.
PCO3: Understand the salient features and importance of fossils and fossilizationprocess in tracing evolution

CORE PRACTICAL II
BRYOPHYTES, PTERIDOPHYTES, GYMNOSPERMS AND PALEOBOTANY&ANATOMY AND EMBRYOLOGY (16SCCSBO2P)

After completion of the course a student will be able to
PCO1: Understand the diversityof both vegetative and reproductive structuresof Genera included in the theory.
PCO2: Appreciatethe morphology and anatomy of bothvegetative and reproductive parts of the Livinggenera and fossil forms of the gymnosperms
PCO3: Understand the importance of fossils and fossilization process

CORE COURSEIV
ANATOMY AND EMBRYOLOGY (16SCCBO4)

After completion of the course a student will be able to
PCO1: Inculcate the basics of tissues and anatomical features of plants.
PCO2: Impart the knowledge about the various aspects of morphogenesis.
PCO3: Acquire basic knowledge of the structure and development of maleand female gametophytes in plants
PCO4: Acquire knowledge on the structure and development of dicot and monocot embryos
PCO5: Understand the key aspects of embryology of Angiosperms

CORE COURSEV
CELL AND MOLECULAR BIOLOGY (16SCCBO5)

After completion of the course a student will be able to
PCO1: Understand the organization of cells
PCO2: Understand the structure and organization of various cell organelles
PCO3: Understand cell cycle and methods of cell division
PCO4: Know the structure of DNA and RNA
PCO5: Understand the types of DNA molecules and their mechanism ofreplication
PCO6: Understand the process of transcription and translation
PCO7: Appreciate the regulation of gene expression in prokaryotes andeukaryotes and comprehend the molecular mechanism of gene regulation
PCO8: Differentiate the regulation of gene expression between theprokaryote and eukaryote.

CORE COURSEVI
GENETICS,BIOSTATISTICS AND EVOLUTION (16SCCBO6)
After completion of the course a student will be able to
PCO1: Understand the Mendelian genetics, recombination of chromosomes, structureand function of genes and their various units
PCO2: Know the importance of mutation, its types and the mechanism involved
PCO3: Acquire knowledge on biostatistics and its applications biologicalexperiments
PCO4: Better understand the mechanism of evolution and study of populationGenetics

CORE COURSE VII
MORPHOLOGY, TAXONOMY ANDECONOMIC BOTANY (16SCCBO7)
The course will enable the students
PCO1: To observe the variations among in angiosperms
PCO2: To understand the basic principles guiding the plant classification
PCO3: To acquire knowledge on morphology and nomenclature
PCO4: To describe and identify plants in technical terms
PCO5: To study morphological features of vegetative, inflorescence, fruits and seedcharacters.
PCO6: To impart knowledge on botanical nomenclature, classifications, merits and demerits of various systems of classifications.
PCO7: To understand the systematics of the selected families of the floweringplants with their economic importance.
PCO8: To have knowledge on the economically important plants with theirsystematic treatment.

CORE PRACTICAL III
CELL AND MOLECULAR BIOLOGY & GENETICS, BIOSTATISTICS AND EVOLUTION & MORPHOLOGY, TAXONOMY OF ANGIOSPERMS AND ECONOMIC BOTANY, CELL AND MOLECULAR BIOLOGY (16SCCBO3P)
The course will enable the students
PCO1: To get training in dissection, observation, identification and sketching of floral partsof plantsbelonging to the families mentioned in the syllabus along with floraldiagrams and floral formula.
PCO2: Describe the plants in technical terms.
PCO3: Prepare plants for herbarium

MAJOR-BASED ELECTIVEI

MEDICAL AND APPLIED BOTANY (16SMBEBO1)

The course will enable the students

PCO1: To understand the importance of the medicinal plant wealth in India andthe role of Medicinal plants in human health care.

PCO2: To know the medicinally useful plants, Herbal medicine preparation forcommon diseases and adulterants.

PCO3: To understand the importance of biofertilizers and biopesticides and their mode of action.

PCO4: To understand the techniques involved in the cultivation of edibleMushrooms

PCO5: To understand the various recipe prepared from mushrooms.

PCO6: To learn the preservation and storage of mushrooms.

CORE COURSEVIII
PLANT PHYSIOLOGY, BIOCHEMISTRY AND BIOPHYSICS (16SCCBO8)

This course will enable the students

PCO1: To understand the relationship of water, mechanism of ascent of sap and translocation of solutes

PCO2: To understand the mechanism of photosynethesis, types and its importance

PCO3: To understand the structure, types and importance of biomolecules

PCO4: To understand the role of enzymes in various metabolic activities of plants

PCO5: To know the application of the laws of physics in biological phenomena

CORE COURSE IX
PLANT ECOLOGY AND CONSERVATION (16SCCBO9)

This course will enable the students

PCO1: To realize the values of plants and animals of the ecosystem

PCO2: To learn various ecosystems and their components

PCO3: To learn various biogeochemical cycles and their significance

PCO4: To know about the hazards of pollution and the importance of keepinghis/her environment clean

PCO5: To know in detail on various types of vegetation

PCO6: To know about his/her environment and mould the students to becomemanagers of various ecological systems

CORE PRACTICAL IV
PLANT PHYSIOLOGY, BIOCHEMISTRY AND BIOPHYSICS &PLANT ECOLOGY AND CONSERVATION, PLANT PHYSIOLOGY, BIOCHEMISTRY & BIOPHYSICS (16SCCBO4P)

This course will enable students

PCO1: To perform various experiments in Physiology

PCO2: Understand the process of Photosynthesis, transpiration, seed germination

PCO3: To acquire knowledge on working principles of pH meter, Spectrophotometer, Centrifuge

MAJOR-BASED ELECTIVE II

PLANT BREEDING, HORTICULTURE ANDLANDSCAPING (16SMBEBO2)

This course introduces the students to
PCO1: Understand the aim and objectives of plant breeding
PCO2: Acquire knowledge on various techniques of plant breeding
PCO3: Acquire knowledge on methods of breeding economically importantcrops
PCO4: The various methods of plant breeding and plant propagation
PCO5: To study the importance of horticultural crops and their propagation methods
PCO6: To understand the types of gardens and their establishment
PCO7: The Art of growing plants for a pre-defined purpose andpleasure and facilitates students to become an entrepreneur

MAJOR–BASED ELECTIVEIII
PLANT BIOTECHNOLOGY AND BIOINFORMATICS (16SMBEBO3)
This course will enable students to
PCO1: Comprehend the advances made in the field of plant biotechnology; andbioinformatics
PCO2: Understand the principles of genetic engineering
PCO3:NStudy the mechanism of generating rDNA
PCO4: Learn the types and application of cloning vectors
PCO5: Study the different types of gene transfer methods
PCO6: Acquire knowledge on the principles and applications of plant tissueculture

M.Sc., Botany - PGBOT

Program Specific Outcomes

PSO1: Postgraduates will acquire knowledge of various groups of plants and study their utilizationand conservation

PSO2: Postgraduates will learn about the internal organization of plants and their role in functioning of plant system

PSO3: Postgraduates will understand the importance of ecological principles for sustainable utilization

PSO4: Postgraduates will learn various techniques of plant breeding to enable better crop production for human welfare.

PSO5: Postgraduates will acquire basic knowledge of statistics and learn its application in biological studies.

PSO6: Postgraduates will develop skills of bioprocess technology which enable the scientific production of bioactive compounds of economic value.

PSO7: Postgraduates will acquire knowledge of the production of GMOs which play a significant role in field of agriculture and medicine.

PSO8: Postgraduates will learn the principles and methodology of thesis writing and research publications.

Course Outcomes

CORE COURSE I : PLANT BIODIVERSITY I
(ALGAE, FUNGI, LICHENS AND BRYOPHYTES) (P16SBO11)

This course will enable students to:
PCO1: Understand the major groups of cryptogamic plants and theircharacteristics.
PCO2: Know the classification,life cycle and economic importance of Algae.
PCO3: Study the general features,classification and economic importanceof Fungi.
PCO4: Acquire basic knowledge on Lichens and their economic importance
PCO5: To understand Bryophytes their salient features, classification and economic importance

CORE COURSE II
PLANT BIODIVERSITY II

(PTERIDOPHYTES, GYMNOSPERMS AND PALEOBOTANY) (P16SB012)
This course will enable students to

PCO1: Understand the major groups of lower vascular plants and theircharacteristics.
PCO2: Trace their interrelationships and study their evolutionarytrends.
PCO3: Study their classification and life cycle patterns of representativegenera.
PCO4: Study the classification,phylogeny and economic importance ofGymnosperms.
PCO5: Acquire knowledge on Geological periods,fossilization and types offossils.

CORE COURSE III
MICROBIOLOGY, PLANT PATHOLOGY AND IMMUNOLOGY (P16SB013)
This course will enable students to
PCO1: Study the microorganisms and theiractivities.
PCO2: Understand the application of microbes in food and dairymicrobiology.
PCO3: Exploit their potentialities in agriculture, industry and therapeuticaspects.
PCO4: Understand the process of plant pathogenesis and diseaseestablishment
PCO5: Understand the basis of defence mechanism against pathogens
PCO6: Acquire knowledge on the effect of infection on host physiology
PCO7: Understand the various types of defence mechanism
PCO8: Acquire knowledge on some common plant diseases
PCO9: Learn the different types of disease control mechanism
PCO10: Understand the basics of immune system, types, immunoglobulins, blood groups and techniques

CORE COURSE IV
BIOFERTILIZERS AND MUSHROOM TECHNOLOGY

This course will enable the student:
PCO1: To understand the importance of biofertilizers and biopesticides and their mode of action.
PCO2: To understand the methods that can be used for the mass cultivation of biofertilizers
PCO2: To understand the techniques involved in the cultivation of edible Mushrooms
PCO3: To understand the various recipe prepared from mushrooms.
PCO4: To learn the preservation and storage of mushrooms.

CORE PRACTICAL I
PLANT BIODIVERSITY – I & II,
MICROBIOLOGY, PLANT PATHOLOGY AND IMMUNOLOGY &
BIOFERTILIZERS AND MUSHROOM TECHNOLOGY (P) (P16SBO15P)

This course will enable students to
PCO1: Perform dissections on genera mentioned in the syllabus and appreciate the structural diversity
PCO2: Prepare media, sterilize, perform serial dilution and isolate microbes
PCO3: Perform gram staining and differentiate microbe
PCO4: Be aware of the method of blood grouping

CORE COURSE V

ANATOMY, EMBRYOLOGY AND MORPHOGENESIS (P16SBO21)

This course will enable students:
PCO1: To inculcate the basics of tissues and anatomical features of plants.
PCO2: To understand various types of tissues present in plants
PCO3: To acquire knowledge about the tissues of stem, root and leaves
PCO4: To understand the primary and secondary structure of dicots andmonocots with reference to root, stem and leaves
PCO5: To acquire basic knowledge of the structure and development of maleand female gametophytes in plants
PCO6: To acquire knowledge on the structure and development of dicot andmonocot embryos
PCO7: To impart the knowledge about the various aspects of morphogenesis.
PCO8: To understand the key aspects of embryology of angiosperms

COURSE VI
ANGIOSPERM TAXONOMY, ECOLOGY AND CONSERVATION (P16SBO22)

This course will enable students to understand:
PCO1: Different systems of classification of Angiosperms, taxonomic literature,botanical nomenclature
PCO2: Preparation of description of plant species, herbarium techniques andinterpretation of allied disciplines and molecular taxonomy to resolve thedisputes in modern taxonomy
PCO3: Systematic treatment, diagnostic features, characters and economicimportance of selected families in Angiosperms
PCO4: Components, dynamics, trophic level and biogeochemical cycles indifferent ecosystems
PCO5: The causes and consequences of climate change.
PCO6: Biodiversity its importanceand their conservation by *in situ* and *ex situ*methods

CORE PRACTICAL II
ANATOMY, EMBRYOLOGY AND MORPHOGENESIS &
ANGIOSPERM TAXONOMY, ECOLOGY AND CONSERVATION (P) (P16BO23P)

This course will enable students to:
PCO1: Prepare Transverse sections of plant parts to observe and record the internal structure.
PCO2: Prepare key and use flora to identify genera
PCO3: Dissect and identify the floral parts of the genera mentioned in the syllabus
PCO4: Prepare herabarium species

ELECTIVE COURSE I
FORESTRY AND WOOD SCIENCE (P16SBOE1)

This course will enable students to:
PCO1: Acquire knowledge on forest resources and their utilization.
PCO2: Understand the physical,chemical and mechanical properties ofcommercial wood.
PCO3: To acquire knowledge on developmental anatomy of woody plants
PCO4: Understand the techniques of wood seasoning and woodpreservation

PCO5: Study the agents responsible for wood deterioration
PCO6: Understand the principles underlying paper and pulp preparation
PCO7: Study the natural defects of wood
PCO8: Acquire knowledge on wood substitution and products obtained from wood.
PCO9: Prepare for careers in the forest service's and wood productsindustry.

ELECTIVE COURSE II
INDUSTRIAL MICROBIOLOGY (P16SBOE2)
This course will enable students to:

PCO1: Understand the importance of microbes, basics of a sterilization,fermenter design and types
PCO2: To get introduced about the principle, importance and components of a fermenter.
PCO3: To study the basic concepts of unit operations and unit processes.
PCO4: To study the production strategies of commercial products.
PCO5: To understand the separation techniques, types and various effluenttreatment process.

CORE COURSE VII
CELL BIOLOGY, GENETICS AND PLANT BREEDING (P16SBO31)
This course will enable students to:
PCO1: Understand the Structure, organization, function, interrelationships of cell membrane and cell organelles and cell communication systems
PCO2: Understand the Cell growth and cell division
PCO3: Know the Mendelian and non-Mendelian genetics and linkage and crossing over
PCO4: Understand Genes and genetic variations
PCO5: Acquire knowledge on plant breeding methods and role of molecular markers in plant breeding

CORE COURSE VIII
PLANT PHYSIOLOGY, BIOCHEMISTRY AND BIOPHYSICS (P16SBO32)
This course will enable students to understand:
PCO1: Plant-water relationship, translocation of water and minerals,photosynthesis, respiration and transfer of energy
PCO2: Nitrogen metabolism, plant growth hormones, flowering, dormancy andsenescence, stress
PCO3: Chemistry of carbohydrates, proteins, enzymes, lipids, Nucleic acids, vitamins and secondary metabolites
PCO4: Bioenergetics, laws of Thermodynamics and photobiology

CORE PRACTICAL III
CELL BIOLOGY, GENETICS AND PLANT BREEDING &PLANT PHYSIOLOGY, BIOCHEMISTRY AND BIOPHYSICS (P) (P16BO33P)
This course will enable students to:
PCO1: Workout problems related to linkage, crossing over and gene mapping,human pedigree analysis.
PCO2: Know the Hybridization techniques in self and cross pollinated plants

PCO3: Understand the structural organization and function of different cellorganelles and cell cycle
PCO4: Study the mechanism of transcription in prokaryotes
PCO5: Perform physiology to study photosynthesis, respiration
PCO6: Perform Biochemistry experiments to determine biomolecules and enzymes

ELECTIVE COURSE III
GENETIC ENGINEERING AND BIOTECHNOLOGY (P16SBOE3)
This course will enable the students to:

PCO1: Understand the basic techniques of geneticmanipulation
PCO2: To understand the role of enzymes in genetic engineering
PCO3: Acquire knowledge in various cloning vectors
PCO4: Know the art of recombining genes andtraits.
PCO5: Understand the sequencing strategies of genomic DNA

ELECTIVE COURSE IV
HORTICULTURE AND LANDSCAPING (P16SBOE4)
This course will enable the students:
PCO1: To understand the main principles and importance of horticulture
PCO2: To know the various methods of plant propagation
PCO3: To understand the importance and divisions of horticulture
PCO4: To know the art of indoorgardening
PCO5: To acquire knowledge on landscaping
PCO6: To develop potential for self-employment

CORE COURSE IX
PLANT TISSUE CULTURE (P16SBO41)
This course will enable students to:
PCO1: Understand the basis of Plant tissue culture
PCO2: Acquire knowledge on media, equipments and other requirements for plant tissue culture
PCO3: Acquire knowledge about the various aspects of tissue culture andtheir applications
PCO4: Acquire knowledge on secondary metabolities, their importance and *in vitro* production
PCO5: Understand cryopreservation, methods involved and importance of plant tissue culture in agriculture, forestry and medicine

CORE COURSE X
RESEARCH METHODOLOGY (P16BO42)
This course will enable the students to:
PCO1: Know principles involved in microscopy, chromatography,spectroscopy, tracer techniques and electrophoresis method
PCO2: Understand the methods of applying statistical principles to biological studies
PCO3: Acquire knowledge on selecting a problem for research, project designand thesis writing
PCO4: Acquire knowledge on writing papers for publications
PCO5: Acquire knowledge on preparation for oral and poster presentation
CORE PRACTICAL IV

PLANT TISSUE CULTURE & RESEARCH METHODOLOGY (P) (P16BO43P)

This course will expose students to:

PCO1: Sampling by Random Number Table,
PCO2: Data Collection, Classification of Data: Discrete, continuous and cumulative.
PCO3: Statistical diagrams: Histogram, Frequency curve, Bar chart and Ogivecurve
PCO4: Measures of Central Values: Mean, Median and Mode
PCO5: Measures of Dispersion: Range, Mean Deviation and Standard Deviation.
PCO6: Exercises with Tests of Significance
PCO7: Preparation of Index cards, Bibliography, Proof correction
PCO8: Exercises in the calculation of Citation Index,
PCO9: Determination of Impact Factor of Author, Article and Journal.
PCO10: Media preparation, Sterilization and callus induction
PCO11: Protoplast isolation (Mechanical and enzymatic)
PCO12: Synthetic seed production

ELECTIVE COURSE V
FOOD PRESERVATION AND PROCESSING (P16BOE5)

This course will enable students to:

PCO1: Understand the salient features of food preservation and processing.
PCO2: Know the preservation and processing of day to day products by usingfood additives
PCO3: Know about the common food adulterants and their effects

DEPARTMENT OF CHEMISTRY

Programme outcomes: B.Sc Chemistry

Department of Chemistry	After successful completion of B.Sc degree in Chemistry a student should be able to
Programme outcomes	**PO-1.** Gained the theoretical as well as practical knowledge of handling chemicals. **PO-2**. Afford a broad foundation in chemistry that stresses scientific reasoning and analytical problem solving with a molecular perspective.. **PO-3**. Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of chemical reactions. **PO-4**. Create an awareness of the impact of chemistry on the environment, society, and development outside the scientific community. **PO-5**. Achieve the skills required to succeed in graduate school, professional school and the chemical industries..
Programme Specific outcomes	**PSO-1**. Gain the knowledge of Chemistry through theory and practical's. **PSO-2**. To explain nomenclature, stereochemistry, structures, reactivity, and mechanism of the chemical reactions. **PSO-3**. Understand the importance of the elements in the periodic table including their physical and chemical nature and role in the daily life.. **PSO-4**. Understand the concept of chemistry to inter relate and interact to the other subject like mathematics, physics, biological science etc. **PSO-5**. Understand good laboratory practices and safety. **PSO-6**. Learn the laboratory skills and safely to transfer and interpret knowledge entirely in the working environment. **PSO-7**.Make aware and handle the sophisticated instruments/equipments.
Programme Course outcome	
GENERAL CHEMISTRY-I 16SCCCH1	PCO1: Learn the Periodic properties of Elements. PCO2: Understand the theoretical aspects of qualitative and quantitative analyses PCO3: Understand the basics of alkane, reaction intermediates, and mechanisms PCO4: Learn the chemistry of cycloalkanes, alkenes, and alkynes PCO5: Understand about the preparation and properties of sols, colloids and emulsion.
GENERAL CHEMISTRY-II 16SCCCH2	PCO1: Learn the principles of bonding PCO2: Understand the chemistry of S- block elements PCO3: Learn the Aromatic character of benzene type molecules PCO4: Understand the properties of atoms,

	PCO5: Understand the significance of wave functions
GENERAL CHEMISTRY-III 16SCCCH3	PCO1: Understand the chemistry of p-block elements PCO2: Understand the preparations and properties of inter halogen compounds, PCO3: Learn the arrangement of atoms in space, isomers and their nomenclature PCO4: learn about the gas laws PCO5: Understand the types ,structure and properties of solids and liquid crystal
GENERAL CHEMISTRY-IV 16SCCCH4	PCO1: Understood the general characteristics of d and f-block elements PCO2: Learn the reactions of alcohol, phenols and ethers PCO3: Grasped the fundamentals concepts of first law of thermodynamics PCO4: Get the depth knowledge about thermodynamic laws PCO5: Learn theories of reactions
Inorganic Chemistry-I-16SCCCH5	PCO1: Basic theories of coordination compounds PCO2: Understand biological importance of coordination compounds PCO3: Understand the preparation and properties of nitrosyl compounds PCO4: Get the depth knowledge of ligand field theory PCO5: Learn the factors affecting the stability of complexes
Organic Chemistry-I 16SCCCH6	PCO1: Learn the reactions of carbonyl compounds PCO2: Understand the preparations of carboxylic acids PCO3: Different types of reactions carbonyl compounds and carboxylic acids PCO4: Chemistry of nitrogen compounds PCO5: Ideas about soap preparation
Physical Chemistry-I 16SCCCH7	PCO1: Understand the basics of photochemistry and group theory PCO2: Acquire the knowledge about second law of thermodynamics, carnot cycle PCO3: Learn about the third law of thermodynamics, nearnst heat theorem PCO4: Understand the laws and properties of solutions PCO5: Acquire the knowledge about the phase rule
Analytical Chemistry-16SMBECHE1;1	PCO1: The storage and handling of chemicals PCO2: Learn data analysis, various separation technique PCO3: Understand the thermo analytical methods. The chemistry of alkaloids and terpenes PCO4: Learn the spectrophotometry and calorimetry

	PCO5: The various electroanalytical techniques
Organic Chemistry-II 16SCCCH8	PCO1: The chemistry of carbohydrates PCO2: The chemistry of proteins and vitamins PCO3: The chemistry of alkaloids and terpenes PCO4: Understand the molecular rearrangements PCO5: The spectroscopic techniques for the elucidation of structure
Physical Chemistry-II 16SCCCH9	PCO1: Acquire knowledge about the electrochemistry PCO2: Acquire knowledge about the electrochemical cells superconducting materials PCO3: Understand the basics of catalysis PCO4: Know about the adsorption isotherm PCO5: Acquire the knowledge of IR,NMR,UV-Vis and RAMAN spectroscopy
Nuclear and industrial Chemistry-II 16SMBECH2	PCO1: Acquire knowledge about the nuclear chemistry PCO2: Acquire knowledge about the nuclear chemical reactions PCO3: Understand the basics of various industrial process PCO4: Know about the water pollution PCO5: Acquire the knowledge of cement manufacturing
Polymer Chemistry 16SMBECH3:1	PCO1: Acquire knowledge about the polymers PCO2: Acquire knowledge about the reactions and properties of polymers PCO3: Understand the basics of polymerization PCO4: Know about the uses of commercial materials smart materials PCO5: Understand the concept of polymerization techniques
Volumetric analysis - 16SCCCH1P	PCO1: Titrimetry techniques PCO2: Estimation of ion PCO3: Understand the hardness of water PCO4: Knowledge about bleaching powder PCO5: The saponification of oils
Semimicro analysis - 16SCCCH2P	PCO1: About Semimicro analysis PCO2: Anions, Cations PCO3: Interfering radicals PCO4: Removal of radicals PCO5: Handling of chemicals glassware safely
Physical chemistry practical - 16SCCCH3P	PCO1: Fundamentals of conductometric titrations PCO1: Fundamentals of Potentiometric titrations PCO3: Understand the methods of determinations of mol.wt

	PCO4: Learn about the kinetics of reaction PCO5: Clear ideas about phase rule
Gravimetric and Organic Analysis - 16SCCCH4P	PCO1: Techniques of gravimetric analysis PCO2: Analysis of organic compounds PCO3: Understand the basic concepts of Gravimetric analysis PCO4: Learn simple organic preparation. PCO5: Findings of physical constants

Programme outcomes: M.Sc Chemistry

Department of Chemistry	After successful completion of M.Sc degree in Chemistry a student should be able to
Programme outcomes	**PO-1**. Gained the theoretical as well as practical knowledge of handling chemicals. **PO-2**. Afford a broad foundation in chemistry that stresses scientific reasoning and analytical problem solving with a molecular perspective.. **PO-3**. Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of chemical reactions. **PO-4**. Create an awareness of the impact of chemistry on the environment, society, and development outside the scientific community. . **PO-5**. Achieve the skills required to succeed in graduate school, professional school and the chemical industry like cement industries, agro product, Paint industries, Rubber industries, Petrochemical industries, Food processing industries, Fertilizer industries etc.. **PO-6** Learn the laboratory skills and safely to transfer and interpret knowledge entirely in the working environment.
Programme Specific outcomes	**PSO-1**. Have sound knowledge about the fundamentals and applications of chemical and scientific theories **PSO-2**. To explain nomenclature, stereochemistry, structures, reactivity, and mechanism of the chemical reactions. **PSO-3**. Will become familiar with the different branches of chemistry like analytical, organic, inorganic , physical, environmental, polymer and biochemistry **PSO-4**. Understand the importance of the elements in the periodic table including their physical and chemical nature and role in the daily life.. **PSO-5**. Enormous job opportunities at all level of chemical , pharmaceutical , food products ,life oriented material industries **PSO-6.** Understand good laboratory practices and safety. **PSO-7**. Develop research oriented skills.

	PSO-8.make aware and handle the sophisticated instruments/equipments. **PSO.9**. Global level research opportunities to pursue Ph.D programme targeted approach of CSIR – NET examination
Course Outcomes	
Organic chemistry-I P16CH11	PCO1: Understand the basic concept of aromaticity PCO2: Learn the oxidation reducing reagents for organic synthesis PCO3:Stereo chemistry of organic compounds PCO4: Understand the organic photochemistry PCO5: Knowledge about Pericyclic reactions
In Organic chemistry-I P16CH12	PCO1: The basic concept of main group elements PCO2: Theories and mechanism of complexes PCO3: Theories of metal -ligand bond PCO4: Reaction mechanism of coordination complexes PCO5: The importance of inorganic photo chemistry
Physical chemistry-I P16CH13	PCO1: Understand the basics of group theory PCO2: Acquire the knowledge about quantum chemistry PCO3: Learn about the third law of thermodynamics, nearnst heat theorem PCO4: Understand the laws of kinetics and statistical thermodynamics PCO5: Acquire the knowledge about the Fast reaction, and radiation chemistry
Organic chemistry Practical -I P16CH14P	PCO1: Separation of organic mixture PCO2: Analysis of organic compounds PCO3: The organic preparation PCO4: The single stage preparation PCO5:Learn to preparation, filtration and recrystalisation
In Organic chemistry Practical-I P16CH15P	PCO1: Learn Semimicro analysis PCO2: Estimation by calorimetry PCO3: Ideas about group separation PCO4: Analysis of cations PCO5: Skill for handling and usage of chemicals and glassware's safely
In Organic chemistry-II P16CH21	PCO1: Understand the role of metal ions in biological systems PCO2: Know the basic concept of chemotherapy PCO3: Learn the principles of Organometallic PCO4: Understand the principles of medicinal bioinorganic chemistry PCO5: Reactions of Organometallic
Physical methods in chemistry-I P16CH22	PCO1: The knowledge of molecular spectroscopy PCO2: Know the Principles of NMR spectroscopy PCO3: Know the theories of UV,IR Spectroscopy PCO4 : Understand the principles of ESR,ORD,MASS spectroscopy PCO5: The knowledge about XRD
Organic chemistry Practical-II	PCO1: Acquire knowledge about Organic estimation.

P16CH23P	PCO2 : Acquire knowledge about estimation of glucose PCO3: The ideas about organic preparation PCO4: Know the two stage preparation PCO5: To get skilled for organic preparation
In Organic chemistry Practical-I I P16CH24P	PCO1: Acquire knowledge about Titrimetry analyses PCO2 : Acquire knowledge about gravimetric analyses PCO3: The ideas about separation of mixture of ions PCO4: Preparation of complexes PCO5: To get skilled for in organic preparation
Solis state chemistry-P16CH21	PCO1: Know the nano types of materials PCO2: Acquire the knowledge of crystal structure of inorganic solids PCO3: Acquire the knowledge of crystallization PCO4: Know the applications of magnetic materials PCO5: Acquire the applications of organic solids
Organic chemistry-II P16CH32	PCO1: Nucleophilic substitution reactions PCO2: Electrophilic substitution reactions PCO3: Chemistry of heterocyclic compounds PCO4: Addition elimination reactions PCO5: Chemistry of natural products
Physical chemistry-II P16CH32	PCO1: Understand quantum chemistry PCO2: Application of group theory PCO3: Understand the electro chemistry PCO4: Learn adsorption principles PCO5: Classical thermodynamics
Physical chemistry Practical P16CH33P	PCO1: Various non electrical techniques of physical chemistry PCO2: Practical skill about kinetics PCO3: Practical skill about mol.wt determination PCO4:Practical skill about phase rule PCO5: Practical skill about adsorption
Bio-Organic chemistry P16CH32	PCO1: Preparation and amino acids and proteins PCO2: Activity of enzymes and cofactors PCO3: Learn the basics of lipids and nucleic acids PCO4: Concept of bio-energetics. PCO5: Principles of lead and analogue synthesis.
Analytical chemistry-II P16CH32	PCO1: Instrumental methods PCO2: Learn data analysis, various separation technique PCO3: Understand the chromatography methods PCO4: Learn the thermo analytical methods PCO5: The various electro analytical techniques
Physical methods in chemistry-II P16CH41	PCO1: Electronic spectroscopy PCO2: IR and Raman spectroscopy PCO3: NMR spectroscopy

	PCO4: Learn EPR and magnetic spectroscopy PCO5: Mossbauer spectroscopy
Physical chemistry practical-II P16CH42P	PCO1: The knowledge about electrical experiments PCO2: Conductometric titrations of acid-alkali PCO3: Precipitation titrations PCO4: Displacement titrations PCO5: Various potentiometric titrations
Industrial chemistry - P16CHE43	PCO1: The basic ideas of an industry and industrial wastes PCO2: Understand the petroleum and petrochemicals PCO3: Understand the manufacture of cement PCO4: Principles of pulp and paper industry PCO5: Learn soaps ,detergents and perfume preparation
Chemistry of Nano science and Nano technology P16CHE5B	PCO1: Synthetic methods of nano materials PCO2: Characterisation of nano materials PCO3: Reactions of nano materials PCO4: Carbon clusters and nanon structure PCO5:Nano technology and nano devices

Programme outcomes/Programme Specific outcomes : Ph.D Chemistry

Department of Chemistry	After successful completion of The Research Programme in Chemistry a student should be able to
Programme outcomes	**PO-1**.Doctor of Philosophy, Ph.D The Doctor of Philosophy programme is designed to prepare each student to actively participate in the development and growth of the field of chemistry at all levels in the industry or in research and teaching in a university or a research organization. **PO-2**.Students can enter the PhD program either with a master's or with M.Phil degree. Research is carried out in a wide range of areas ranging from coordination chemistry, organic synthesis, Nano chemistry, analytical chemistry and environmental chemistry.. **PO-3**. Students are exposed to advanced experimental and theoretical techniques, attend national and international conferences as well as workshops and specialized schools during the program. **PO-4**. Students with a PhD degree either pursue a post-doctoral position aiming for an academic career or find employment in industrial R & D laboratories.. **PO-5**. Learn the laboratory skills and safely to transfer and interpret knowledge entirely in the working environment. **PO-6**. Enormous job opportunities at all level of chemical , pharmaceutical , food products ,life oriented material industries
Programme specific outcomes	**PSO-1**.Demonstrate in-depth knowledge of one or more sub areas of chemistry **PSO-2**.Formulate a research hypothesis based on relevant literature

	and use appropriate research methods to reach conclusions. **PSO-3**.Describe their research findings clearly in publications and presentations for both professional and lay audiences. **PSO-4.**Be competitive for appropriate positions in industry and academia (e.g., research scientist and post-doctoral fellows). **PSO-5**.Teach courses effectively in the field at the college level.

PROGRAMME OUTCOME FOR B.COM (COMMERCE)

PO-1 : After completing 3 years for bachelor in commerce (B.Com) program, students would gain a thorough grounding in the fundamentals of commerce and finance.

PO-2 : Commerce and finance focused curriculum offers a number of specializations and practical exposures which would equip the student to face the modern-day challenges in commerce and business.

PO-3 : The all-inclusive outlook of the course offer a number of values based and job oriented courses ensures that students are trained into up-to-date. In advanced accounting courses beyond the introductory level, affective development will also progress to the valuing and organization levels.

PO-4 : By studying the commerce in the first and second semester the students can develop the understanding skills to prepare accounts of corporate sectors and also the knowledge in current issues in the area of accounting. It helps students to acquire conceptual knowledge of financial accounting to impart skills for regarding various kinds of business transactions.

PROGRAMME OUTCOME FOR M. COM (COMMERCE)

PO-1: Bestow upon students a comprehensive understanding of advanced concepts and modern practices of Commerce and make them industry ready

PO-2: In line with the mission of college, students are equipped to accept challenging roles by making them aware of recent development in the complex world of business and society

PROGRAMME OUTCOME FOR M. Phil (COMMERCE)

PO-1: Infusing research flair among scholars by developing their research aptitude

PO-2: Provide an extensive and in-depth knowledge on subject of specialization

PO-3: To inculcate problem solving and decision making skills necessary to execute their day to day professional and social responsibilities

PROGRAMME COURSE OUTCOME FOR B.COM (COMMERCE)

RETAIL MANAGEMENT

PCO-1 : The students acquire good knowledge on retail operations.

PCO-2 : This will enable the students to become a good retail planners and decision makers.

PCO-3 : This will help the students to focus on change and adoption to the change.

BANKING THEORY LAW AND PRACTICE

PCO-1 : The students develop the practical knowledge and skill related to banking functions.

PCO-2 : To acquaint the students with the fundamentals of banking.

PCO-3 : To make the students aware of banking business and practices

PCO-4 : To give through knowledge of banking operations

ENTREPRENEURIAL DEVELOPMENT

PCO-1 : It provides students with cutting- edge knowledge and skills on how to successfully develop captivating products and services .

PCO-2 : To solve challenging problems in a highly uncertain environment often under considerable time constraints with very limited resources

BUSINESS COMMUNICATION

PCO-1 : To develop ability of the students to communicate clearly and correctly in English and regional languages on the matters relevance to day to day business operations with emphases on quality of presentations.

PCO-2 : To communicate effectively with the accounting business with society at large.

PCO-3 : be able to comprehend and write effective reports documentation.

BUSINESS ECONOMICS

PCO-1 : The subject make the students to understand of the unique problems faced by firms engaging in business activities: demand, supply, production etc.,

PCO-2 : To stimulate the students interest by showing the relevance and use of various economic theories

PCO-3 : To apply economic reasoning to problems of business

BUSINESS LAW

PCO-1 : This subject use the students the ability to understand the parameters to assess opportunities and constraints for new business ideas.

PCO-2 : Understand the systematic process to select and screen business ideas.

PCO-3 : To develop the knowledge on contract and various types of contract

PCO-4 : To help the students understand the concept of sale of goods

BUSINESS TOOLS FOR DECISION MAKING

PCO-1 : It provides an understanding for the graduate business student on statistical concepts to include measurements of locations and dispersion, probability, regression, correlation analysis.

PCO-2 : To prepare for competitive examinations

PCO-3 : To understand the concept of shares and to calculate dividend

PCO-4 : To understand the concept of population and sample

PCO-5 : To use frequency distribution to make decisions

COMPUTER APPLICATION IN BUSINESS

PCO-1 : This subject teaches the students to use standard software programmes.

PCO-2 : Students learn to input, review, design and present information in a productive and efficient manner.

PCO-3 : To make the students familiars with computer environment

PCO-4 : To make the students familiars with the basics of operating system and business communication tools

PCO-5 : To make the students familiars with basics of network, internet and related concepts

PCO-6 : To enable students to develop the own website

MANAGEMENT ACCOUNTING

PCO-1 : This course provides students with an understanding of management accounting concepts related to the management functions of planning, control and decision making.

PCO-2 : To enlighten the students thought a knowledge on management accouting

PCO-3 : Help to give proper idea on financial statement analysis in practical point of view

PCO-4 : To introduce the concept of fund flow and cash flow statement

PCO-5 : To provide knowledge about budget control keeping in mind the scope of the concept

INCOME TAX THEORY LAW AND PRACTICE

PCO-1 : To introduce basic concepts of income tax

PCO-2 : In order to familiarize the different know how and heads of income with compounds

PCO-3 : It helps to build an idea about income from house property as a concept

PCO-4 : It give more idea about the income from business or profession

PCO-5 : The students can understand income tax system properly and learn to assess the income tax of a person according to income tax provisions.

COST ACCOUNTING

PCO-1 : The students understand clearly to reduce and control the cost during the course of production because cost is a vital aspect in modern business.

PCO-2 : It advice the management to maximize its profits.

PCO-3 : To provide knowledge about the concepts and principles applications of overheads

PCO-4 : to impart knowledge regarding costing techniques

AUDITING

PCO-1 : It gives the knowledge of examines the principles and practices of internal and external auditing.

PCO-2 : The students can capable to understand the auditing as a component of recurrent the strategic activities.

MARKETING

PCO-1 : To create awareness about market and marketing

PCO-2 : To establish link between commerce / business and marketing

PCO-3 : To understand the basic concept of marketing

PCO-4 : To know the relevance of marketing in modern competitive world

CORPORATE ACCOUNTING

PCO-1 : To enable the students to develop awareness about corporate accounting in conformity with the provisions of the Companies Act and Accounting as per Indian Accounting satandards

PCO-2 : To make aware the students about the computerized aspects of corporate accounting

COMPANY LAW

PCO-1 : To impact students with knowledge of fundamentals of company law

PCO-2 : To update the knowledge of provision of Companies Act of 2013

PCO-3 : To appraise the students of new concepts involving in company law regime

BUSINESS MANAGEMENT

PCO-1 : To provide basic knowledge and understanding about business management concept

PCO-2 : To provide an understanding about various functions of management

ENTREPRENEURIAL DEVELOPMENT

PCO-1 : To aiming to develop students about entrepreneurship development

PCO-2 : To create an awareness of on various entrepreneurship development programme

PCO-3 : To enable them to understand project formulation

PCO-4 : To familiarize the students with EDP schemes

FINANCIAL MANAGEMENT

PCO-1 : To provide introduction to financial management

PCO-2 : To make them understand the cost of capital in wide aspects

PCO-3 : To provide knowledge about dividend policies and various dividend model

PCO-4 : To enable them to understand working capital management

FINANCIAL SERVICES

PCO-1 : It give an idea about fundamental of financial services and players in financial sectors

PCO-2 : To provide knowledge about leasing ans hire purchase concepts

PCO-3 : To make them understand about different types of insurance and IRDA Act

PROGRAMME COURSE OUTCOME FOR M.COM (COMMERCE)

E-COMMERCE

PCO-1 : Ability to start up and operate e-commerce website.

PCO-2 : Familiarization with online payment services and different cyber laws.

PCO-3 : Ability understands customer relationship life.

PCO-4 : Knowledge of cyber world.

SERVICE MARKETING

PCO-1 : Capability to evaluate the suitability of different pricing

PCO-2 : Method of service

PCO-3 : Understanding of the roles of employees and customers in service delivery

PCO-4 : Capability through analyze different service quality models

TOTAL QUALITY MANAGEMENT

PCO-1 : To introduce the students regarding contemporary issues in accounting

PCO-2 : To enable the students account for human resource and price level changes in the books of accounts

PCO-3 : To enable the students to understand the process leading to the formulation of accounting standard

PCO-4 : To make students understand the concept of value added reporting, economic value added

STRATEGIC MANAGEMENT

PCO-1 : Familiarization with the strategic management process

PCO-2 : Understanding about the techniques to scan an environment and role of environment.

PCO-3: Scanning in hurdle less strategic management of an organization.

PCO-4 : Understanding about the equal importance of strategy formulation and implementation

MANAGERIAL ECONOMICS

PCO-1 : Ability to forecast demand in light of changing circumstances and to formulate business plan

PCO-2 : Ability to chalk out business policies

PCO-3 : Knowledge about profit planning and control

PCO-4 : Skill to analyze effects of government policies

RESEARCH METHODOLOGY

PCO-1 : Familiarization with research and research problems

PCO-2 : Understanding of the quantitative and quantitative methods of research

PCO-3 : Skill to write research paper

PCO-4 : Detailed knowledge about SPSS and its application

PCO-5 : Ability to represent data in tabular as well as graphical manner

HUMAN RESOURCE MANAGEMENT

PCO-1 : Capability to understand employee recruitment and selection process

PCO-2 : Understanding of different types of remuneration plans and the it significance

PCO-3 : Capability to evaluate different training programme and understanding of their limitations

PCO-4 : Knowledge regarding the developing role of human resource management in the globalized world

PROGRAMME COURSE OUTCOME FOR M.Phil (COMMERCE)

MARKETING MANAGEMENT

PCO-1 : Understand various dimensions of marketing environment

PCO-2 : Determine the factors influencing consumer behavior

PCO-3 : Describe various factors of product and pricing

PCO-4 : Analyse the performance of distribution channel intermediaries

PCO-5 : Evaluate the status of web marketing in the Indian scenario

ADVANCED FUNVTIONAL MANAGEMENT

PCO-1 : Scholars would learn to appreciate the various research domains relating tofinancial management

PCO-2 : Scholars would have understood the research scope available in HRM

PCO-3 : Scholars would aware of the research avenues in portfolio management

PROGRAMME SPECIFIC OUTCOME FOR B.COM (COMMERCE)

PSO-1: students will demonstrate progressive affective domain development of values the role of accounting in society and business.

PSO-2: Students will learn relevant financial accounting carrier skills applying both quantity and quality knowledge to their future carriers in business

PSO-3: Learners will be able to prove proficiency with the ability to engage in competitive exams like CA, CS, ICWA and courses

PSO-4: Learners will gain through systematic and subject skills with in various disciplines of commerce, business, accounting, economics, finance, auditing and marketing

PSO-5: Learners will be able to do higher education in advance research in the field of commerce and finance.

PROGRAMME SPECIFIC OUTCOME FOR M.COM (COMMERCE)

PSO-1: To impact the knowledge basic accounting principles and the latest application oriented corporate accounting methods

PSO-2: To create awareness and application oriented through research for business decision

PSO-3: To enhance the computer literacy and its applicability and business through latest version and Tally and E-commerce principles

PSO-4: To develop the decision making skill through costing methods and practical applications of management accounting principles

PSO-5: to enhance the horizon of knowledge in various field of commerce through advertising and sale promotion auditing and entrepreneurial development.

PROGRAMME SPECIFIC OUTCOME FOR M.Phil (COMMERCE)

PSO-1: Acquired the knowledge in the field of commerce
PSO-2: Familiarize the students about the promotion of human relation
PSO-3: Provide a source of inspiration by appearing competitive exams
PSO-4: Understanding the emerging changes in the field of foreign trade and commerce
PSO-5: Acquired the knowledge about placement
PSO-6: Know the social responsibility of business

PG & RESEARCH DEPARTMENT OF COMPUTER SCIENCE

GOVERNMENT ARTS COLLEGE(GRADE-I),ARIYALUR 621 713

PROGRAM OUTCOME FOR ALL COURSE B.Sc/M.Sc/M.Phil/Ph.D

Student outcomes describe what students are expected to know and be able to do by the time of graduation. The Computer Science Department's Bachelor of Science, Master of Science, M.Phil and Ph.D program must enable students to attain, by the time of graduation:

COURSE	PROGRAM OUTCOME
B.Sc(CS)	An ability to apply knowledge of computing and mathematics appropriate to the discipline. **PO 1 :** An ability to identify, formulate, and develop solutions to computational challenges. **PO 2 :** An ability to design, implement, and evaluate a computational system to meet desired needs within realistic constraints. **PO 3**: An ability to function effectively on teams to accomplish shared computing design, evaluation, or implementation goals. **PO 4:** An understanding of professional, ethical, legal, security, and social issues and responsibilities for the computing profession. **PO 5:**An ability to communicate and engage effectively with diverse stakeholders.

PROGRAM SPECIFIC OUTCOME FOR B.Sc(COMPUTER SCIENCE)

COURSE	PROGRAM SPECIFIC OUTCOME
B.Sc(CS)	Each graduate student should be able to: **PSO 1**: Design, correctly implement and document solutions to significant computational problems **PSO 2**: Impart an understanding of the basics of our discipline. **PSO 3:** Prepare for continued professional development. **PSO 9**: Develop proficiency in the practice of computing. **PSO 5:** Moulding the students in such a way which will make them having superficial knowledge about everything in computer science and in depth knowledge about core subjects.

PROGRAM COURSE OUTCOME FOR B.Sc(COMPUTER SCIENCE)

There any ways computers are used in life science; usually through either the use of sensors and other hardware that only a computer can understand, or computers' incredible capacity for doing complex analyses quickly

SEMESTER	SUB.CODE	SUBJECT	PROGRAM COURSE OUTCOME
I	16SCCCS1& 16SCCCS1P	PROGRAMMING IN C & LAB	**PCO:** On successful completion of this subject the students have the programming ability in C Language
I	18UGVED	VALUE EDUCATION	**PCO:** Ability to increase capacity to work independently, implement their learning in their practical life, to make their own decisions and develops healthy mind in them.
II	16SCCCS2 & 16SCCCS2P	PROGRAMMING IN C++ & LAB	**PCO:** To inculcate knowledge on Object-oriented programming concepts using C++.
II	16UGCES	ENVIRONMENTAL SCIENCE	**PCO:** To create enthusiastic students and innovative Teachers-Leaders, helps build critical thinking and relationship skills.
III	16SCCCS3 & 16SCCCS3P	PROGRAMMING IN JAVA & LAB	**PCO:** To inculcate knowledge on Java Programming concepts

IV	16SCCCS4 &16SCCCS4P	DATABASE SYSTEMS & LAB	**PCO:** To inculcate knowledge on DBMS Concepts and Programming with SQLSERVER.
IV	16RSBE4:1	PAGE MAKER	**PCO**: To create professional-quality publications for personal or business needs.
V	16SCCCS5	DATA STRUCTURE AND ALGORITHM	**PCO:** To design and implementation of various basic and advanced data structures. To introduce various techniques for representation of the data in the real world. and to develop application using data structures.
V	16SCCCS6	COMPUTER NETWORKS	**PCO:** To inculcate knowledge on Networking concepts and technologies like wireless, broadband and Bluetooth.
V	16SCCCS7 & 16SCCCS5P	DIGITAL ELECTRONICS AND MICROPROCESSOR & LAB	**PCO:** On successful completion of this subject the students should have Knowledge on Digital circuits, Microprocessor architecture, and Interfacing of various components

V	16SMBECS1:1	SOFTWARE ENGINEERING	**PCO:** To introduce software project management and to describe its distinctive characteristics and to discuss project planning and the planning process and show how graphical schedule representations are used by project management and the risk management process
V	16RSBE4:2	CORELDRAW	**PCO:** To inculcate knowledge for creating graphics layouts, illustration, photo editing, web images, print projects, art, typography and more.
V	16RSBE4:3	DREAMVIEWER	**PCO:** Ability to create consistent-looking webpages and opportunity to manage and update websites dynamically and easy to upload using FTP.
V	RUGSDC	SOFT SKILLS DEVELOPMENT	**PCO:** Ability to communicate effectively, improvement of time management, development of leadership skills, development of presentation skills, ability to recognize stress symptoms and develop stress deflecting strategies.

VI	16SCCCS8	OPERATING SYSTEMS	**PCO:** Enable the student to get sufficient knowledge on various system resources
VI	16SCCCS9 & 16SCCCS6P	PROGRAMMING IN PHP & LAB	**PCO:** To inculcate knowledge on PHP Programming concepts
VI	16SMBECS2:2	CLOUD COMPUTING	**PCO:** To inculcate knowledge of Cloud concepts.
VI	16SMBECS1P	DOT NET	**PCO:** To inculcate knowledge on Dot Net Programming concepts

PROGRAM OUTCOME FOR M.Sc(COMPUTER SCIENCE)

COURSE	PROGRAM OUTCOME
M.Sc(CS)	An ability to apply knowledge of computing and mathematics appropriate to the discipline. **PO 1 :** An ability to analyze impacts of computing on individuals, organizations, and society. **PO 2 :** Recognition of the need for and ability to engage in continuing professional development. **PO 3:** An ability to use appropriate techniques, skills, and tools necessary for computing practice. **PO 4**: An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computational systems in a way that demonstrates comprehension of the tradeoffs involved in design choices. **PO 5:** An ability to apply design and development principles in the construction of software systems of varying complexity.

PROGRAM SPECIFIC OUTCOME M.Sc(COMPUTER SCIENCE)

COURSE	PROGRAM SPECIFIC OUTCOME
M.Sc(CS)	Each graduate student should be able to: **PSO 1:** An ability to use current techniques, skills and tools for programming practically. **PSO 2:** Capability of the students to apply design and development principles in the construction of software systems. **PSO 3:**Student can develop major projects. **PSO 4:** Enabling the student's practical exposure in the software development field. **PSO 5:** Entrusting student interests in building their career in the field of IT by providing latest technologies like Cloud computing, Dot Net and so on.

PROGRAM COURSE OUTCOME M.Sc(COMPUTER SCIENCE)

SEMESTER	SUBJECT CODE	SUBJECT	PROGRAM COURSE COUTCOME
I	P16CS11	MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE	**PCO 1:**To inculcate knowledge on mathematics and computer science
I	P16CS12 & P16CS15P	WEB TECHNOLOGIES & LAB	**PCO 1:** Enable the student to get knowledge on HTML, XHTML, AJAX,Javascript,HTTP and scripting language.
I	P16CS13	DESIGN AND ANALYSIS OF ALGORITHMS	**PCO 1:** Ability to solve a given problem easily.
I	P16CS14	DISTRIBUTED OPERATING SYSTEMS	**PCO 1:** To understand how the system shared resources used by multiple processes, the process scheduling activity, the communication, synchronization between running process and so on.
II	P16CS21	OOAD & UML	**PCO 1:**Enable the student to get knowledge on graphical language(UML) for OOAD to write a software system's blue print.
II	P16CS22 & P16CS23P	DISTRIBUTED TECHNOLOGIES & LAB	**PCO 1:** To inculcate knowledge on Dot Net Programming concepts and web services.

II	P16CSE1A	ELECTIVE – I MOBILE COMMUNICATION	PCO 1:Ability to understand mobile and wireless devices, to understand telecommunication systems, to understand wireless LAN , to understand mobile IP and wireless protocols.
II	P16CSE2B	ELECTIVE – II ARITIFICIAL INTELLIGENCE	**PCO 1:**Enable the student to understand AI and Heuristic search techniques, to understand Predicate Logic, to representing knowledge using rules and game playing.
III	P16CS31 & P16CS33P	DATAMINING AND WAREHOUSING & LAB	**PCO 1:**Enable the student to get knowledge on data preprocessing, data mining techniques like clustering and association rules, data warehousing and online analytical processing .
III	P16CS32	COMPILER DESIGN	**PCO 1:**To understand design issues of a lexical analyzer and use of Lex tool, to understand design issues of a parser and use of Yacc tool, to understand issues related to memory allocation and to understand and design code generation scheme.

III	P16CSE3B	ELECTIVE – III ADVANCED COMPUTER ARCHITECTURE	**PCO 1:** To inculcate knowledge on parallel computer models, processor and memory hierarchy, multiprocessor and multicomputer and software parallel programming.
III	P16CSE4A	ELECTIVE – IV NETWORK SECURITY	**PCO 1:** Ability to understand the protection of information that is shared between computer on the network
IV	P16CS41	CLOUD COMPUTING	**PCO 1:** Enable the students to understand the concepts and technologies associated with cloud computing
IV	P16CS42	WIRELESS SENSOR NETWORKS	**PCO 1:** On successful completion of the course the students should have understanding wireless sensor nodes and tools.
IV	P16CS43P	OPEN SOURCE LAB	**PCO 1:**To understand fundamental concept of Internet, Javascript, XML, JSP and ASP.

IV	P16CSE5A	ELECTIVE – V BIG DATA ANALYTICS	**PCO 1:** To inculcate knowledge on big data analytics and Hadoop for analytics.
IV	P16CSPW	PROJECT	PCO 1: The student can get the knowledge to prepare the document, to implement tools for the specific problem and learn the industrial need programs for their placement.

PROGRAM OUTCOME FOR ALL COURSE M.Phil(COMPUTER SCIENCE)

COURSE	PROGRAM OUTCOME
M.Phil(CS)	Enable students to develop their capabilities to: **PO 1 :** Engage in critical and intellectual enquiry **PO 2 :** Demonstrate a thorough knowledge of research methodologies and techniques at an advanced level **PO 3:** Conduct innovative , high impact and leading edge research **PO 4:** Provide novel solutions to complex problems **PO 5:** Demonstrate adherence to personal and professional ethics

PROGRAM SPECIFIC OUTCOME FOR M.Phil(COMPUTER SCIENCE)

COURSE	PROGRAM SPECIFIC OUTCOME
M.Phil(CS)	Each scholar should be able to **PSO 1:** Able to apply the knowledge gained during the course of the program from Mathematics, Basic Computing, Basic Sciences and Social Sciences in general and all computer science courses in particular to identify, formulate and solve real life complex problems faced in industries and/or during research work with due consideration for the public health and safety, in the context of cultural, societal, and environmental situations. **PSO 2:** Able to provide socially acceptable technical solutions to complex computer science problems with the application of modern and appropriate techniques for sustainable development relevant to professional practice. **PSO 3:** Able to apply the knowledge of ethical and management principles required to work in a team as well as to lead a team. **PSO 4:** Able to comprehend and write effective project reports in multidisciplinary environment in the context of changing technologies.

PROGRAM COURSE OUTCOME FOR M.Phil(COMPUTER SCIENCE)

SEMESTER	SUB.CODE	SUBJECT	PROGRAM COURSE OUTCOME
I	M18CS1	RESEARCH METHODOLOGY	**PCO 1:**To understand the types of research and thesis writing **PCO 2:** To learn to use tools related to research in computer science **PCO 3:** To learn to calculate the computing time of algorithm **PCO 4:** To learn formal language of computer science **PCO 5:** To learn and use probability and to understand the concepts of logic and natural deduction system
I	M18CS2	ADVANCED TOPICS IN COMPUTER SCIENCE	**PCO 1:** To understand the basic ideas of data science **PCO 2:** To understand the cloud computing as an emerge area of public and scientific use **PCO 3:** To learn and apply of the ideas of virtualization and its various use **PCO 4:** To appreciate IOT as a fast growing paradigm on Research in computer science **PCO 5**:To understand the basics of machine learning and its application and to understand the use of cryptography

I	M18TLS3	TEACHING AND LEARNING SKILLS	**PCO 1:** Acquaint different parts of computer system and their functions **PCO 2:** Develop skills of ICT and its role in teaching , learning and research **PCO 3:** Understand the terms of communication technology and computer mediated teaching and develop multimedia /e-content in their respective subject **PCO 4:** Understand the communication process through web **PCO 5:** Acquire the knowledge of instructional technology and its applications
I	M18CS4	PAPER ON TOPIC OF RESEARCH – BIG DATA	**PCO 1**: Understanding of basic idea of data science and capacity to analyze big data sets. **PCO 2:** Ability to understand the distributed computing using Hadoop **PCO 3:** Understanding the NOSQL database **PCO 4:** To understand the cloud computing as an emerge area of public and scientific use **PCO 5:** Ability to understand the data mining techniques

II		DISSERTATION & VIVA-VOCE	**PCO 1:** To enhance a wide range of skills, including, project planning, project management, market analysis, time management, and possibly, skill to communicate managers and/or customers in real business world **PCO 2:** Present research to the people **PCO 3:** To improve subject knowledge **PCO 4:** Improve analytics and cognitive abilities **PCO 5:** Getting better at the academic writing

B. Sc. Environmental Science UGEVS

Program Out Come

PO1: To understand and appreciate the interrelation existing between Abiotic and Biotic environment Concepts of Environment and Ecology.

PO2: To understand the various forms of Environmental pollution their causes, effects and control. Environmental Health and Safety Management,

PO3: Understand the set of Natural Resource Management,

PO4: Student should be able Environmental Toxicology and Environmental Remediation and Restoration.

PO5: Acquire the Knowledge of recent trend in Environmental Sustainable Development,

PO6: To determine the Environmental Monitoring and Assessment,

PO7: To analysis of Global warming and Climate, Disaster Management, etc.

PO8: Waste Water and Solid Waste Management.

M. Sc. Environmental Science UGEVS

Program Out Come

PO1: To study the ecological factors, structure and function of ecosystem.

PO2: To study about biodiversity and natural resources in the Biosphere.

PO3: To understand the sources, distribution, transport, chemodynamics and fate of chemicals/pollutants in the ecosystems.

PO4: To acquire broad knowledge of Environmental Chemistry including development of methods for ultra-trace analysis of pollutants in air, water, soil and biological matrices.

PO5: To describe important chemical reactions in the lithosphere, hydrosphere and atmosphere, including smog formation, ozone chemistry, acid rain chemistry, etc.

PO6: To understand the structure and composition of the Earth.

PO7: To describe the climatology pattern, changes and its effect on earth.

PO8: To discuss the climate change impact and its mitigation.

CONCEPTS OF ENVIRONMENT- **18SCCES1**

PCO1: To know the physical environment encompassing atmosphere, hydrosphere, lithosphere and biosphere

PCO2: To realize the importance of interations among various spheres and appreciate the inter-relationships among them.

PLANT DIVERSITY AND PHYSIOLOGY, MUSHROOM TECHNOLOGY AND PLANT BIOTECHNOLOGY – **18 SACES1**

PCO1: To expose the diversity of plant kingdom and their salient features

PCO2: To acquire skills for engaging themselves in self-employment especially in the broad field of Mushroom Culture.

PCO3: To expose various avenues of opportunities in the field of plant biotechnology considering its recognition, importance and utility value.

ECOLOGY-**18SCCES2**

PCO1: To understand the ecological principles governing the environment.

PCO2: To understand and appreciate the interrelation existing between Abiotic and Biotic environment

ENVIRONMENTAL POLLUTION -**18SCCES3**

PCO1: To understand the various forms of pollution their causes, effects and control.

PCO2: To acquire the knowledge of chemical reactions taking places in the environment

Environmental toxicology-18SCCES6

PCO1: To impart the knowledge of principals and scope of toxicology

PCO1:To gain the knowledge about the factors influence the toxicity

Sustainable development-18SCCES7

PCO1: To understand the concepts of sustainable development

PCO2: To know the global issues and initiatives taken for sustainable development

Global warming and climate change-18SMBEES1

PCO1: To understand the main aspects of climate and how it is affected due to various anthropogenic activities.

PCO2: To impart the potential social, economic and environmental consequences of climate change and the actions plans involved in its mitigation

Waste management-18SCCES8

PCO1: To importance of waste management for better living

PCO2: To gain the knowledge on the waste treatment techniques for different kinds of wastes.

ECOTOURISM -182SMBEES2

PCO1: This course introduces the students to the economic, cultural and environmental impacts of ecotourism.

PCO2: To aware of the different ecotourist spots and its activities.

PCO3: To understand ecotourism as a significant aspect of tourism in future.

DISASTER MANAGEMENT- 18SMBEES3

PCO1: The course focuses on the reasons responsible for disaster, its impact on the environment and society.

PCO2: To impart the knowledge on the measures and steps to minimise or overcome the burden on the ecosystem.

GOVERNMENT ARTS COLLEGE ARIYALUR

DEPARTMENT OF HISTORY

STUDENT LEARNING OUTCOME FOR UG , PG AND PH.D

BA History

- Historiographical Literacy. Students will be able to identify and describe the contours and stakes of conversations among historians within defined historiographical fields.
- Critical Thinking. Students will learn to apply historical methods to evaluate critically the record of the past and how historians and others have interpreted it.
- Research Skills. Students will acquire basic historical research skills, including (as appropriate) the effective use of libraries, archives, and databases.
- Communication Skills. Students will learn to organize and express their thoughts clearly and coherently both in writing and orally.
- Writing and Intellectual Integration. Students should demonstrate their mastery of the knowledge and skills involved in historical practice by conceptualizing and executing a significant piece of original research.

MA History

- Students will be able to demonstrate broad knowledge of historical events and periods and their significance.
- Students will be able to explain and critique the historical schools of thought that have shaped scholarly understanding of their fields of study.
- Students will be able to deploy skills of critical analysis:
    1. Formulating persuasive arguments
    2. Evaluating evidence and critiquing claims in the literature
    3. Interpreting a variety of primary sources

- Students will be able to conduct research that makes an original contribution to knowledge, deploying these essential skills:
    1. Reviewing the state of the field to identify a new topic and locate their work within larger scholarly conversations
    2. Identifying and accessing a sufficient base of primary sources
    3. Producing a high-quality research paper, well-written and meeting professional standards typical for conference presentation or academic publication.

PH.D History

- Students will be able to demonstrate broad knowledge of historical events and periods and their significance.
- Students will be able to explain and critique the historical schools of thought that have shaped scholarly understanding of their fields of study.
- Students will be able to deploy skills of critical analysis:
    1. Formulating persuasive arguments
    2. Evaluating evidence and critiquing claims in the literature
    3. Interpreting a variety of primary sources
- Students will be able to design and conduct major research projects, deploying these essential skills:
    1. Reviewing the state of the field to identify a new topic and locate their work within larger scholarly conversations.
    2. Identifying and accessing a sufficient base of primary sources.
    3. Producing a high-quality research paper, well-written and meeting professional standards, suitable as the basis for conference presentation or academic publication.
    4. Designing and writing a dissertation based on extensive research that makes an original contribution to knowledge.

- The skills listed above can lead to positions outside academia, such as in museums, archives, and government service. They also apply to students who seek faculty positions. For the latter group, students will additionally develop teaching skills, such as course design, classroom management, lecturing, leading discussions, and crafting assignments and evaluation methods.
- Students will be able to engage in professional dissemination of their work by presenting their research at conferences or submitting manuscripts to academic journals.

GOVERNMENT ARTS COLLEGE ARIYALUR

DEPARTMENT OF HISTORY

COURSE OUTCOMES

NAME OF THE COURSE: BA. HISTORY

S.NO	COURSE CODE	TITLE OF PAPER	COURSE OUTCOMES
1	16ACCHI1	History of India From Prehistory to 1206 AD	I- Understand the salient features of Indus valley civilization II- Evaluate the features of Buddhism and Jainism III- Visualize the administration of Mauryas and the art and architecture of Mauryas IV- Identify the administration of Guptas and their contribution to Nalanda University V- Examine the Arab conquest of Sindu and the battle of Tarain.
2	16ACCHI2	History of Tamilnadu upto 1565 A.D.	I- Understand the socio, economic and cultural condition of the Sangam age. II- Identify the contribution of Pallavas to art and architecture III- Narrate the socio, economic condition of Tamil Nadu under the rule of Chola IV- Describe the advent of Islam in Tamil Nadu. V- Visualize the advent of the Europeans to Tamil country.
3	16ACCHI3	History of India from 1206 A.D. to1707 A.D.	I- Understand the foundation of the Delhi sultanate and the Sultanate administration. II- Recognise the Socio, economic and religious conditions under Vijayanagar Empire. III- Identify the condition of India under the Mughal Empire. IV- Explain the Administration and art and architecture of Mughals. V- Analyse the rise of the Marathas and the contribution of Shivaji.

4	16ACCHI4	History of Tamilnadu from 1565 A.D.to 2000 A.D.	I- Evaluate the establishment of the British rule in Tamil Nadu and Vellore mutiny. II- Narrate the growth of language and literature under the British. III- Identify the socio- religious reform movements in Tamil Nadu. IV- Describe the role of Tamil Nadu in Freedom movement. V- Examine the development of education in Tamil Nadu after Independence
5	16ACCHI5	History of India from 1707 A.D. to 1857 A.D.	I- Discuss the advent of Europeans and their administration II- Evaluate the Anglo-Mysore wars and Anglo-Sikh wars. III- Realise the Permanent Revenue system and Lord Ripon's Local Self Government. IV- Understand about the Socio-religious reform movements in 19th century. V- State the role of moderates and extremists in the freedom movement
6	16ACCHI6	History of Europe from 1453 A.D to1789 A.D.	I- Describe the Geographical discoveries and the Renaissance movement in Europe. II- Assess the causes and effects of Reformation and Counter-Reformation movements. III- Narrate the enlightened despotism in Europe, especially in France ,Prussia and Austria. IV- Learne the causes and results of Thirty years war. V- Discuss the reforms of Peter the Great and Catherine II of Russia.
7	16ACCHI8	History of Europe from 1789 A.D. to 1945 AD	I- Realize the cause and results of French Revolution and the achievements ofNapolean Bonaparte. II- Visualise the importance of revolt of 1830 and 1848 in France and the efforts of Bismarck for the unification of Germany. III- Understand the causes and results for the First world war. IV- Examine the Nazism and Fascism in German and Italy. V- Understand the causes and results of Second World War and the

			establishment of UNO.
8	16ACCHI9	Contemporary India	I- Recognise the integration of Indian states and SardarVallabai Patel's effort for this. II- Examine the internal and external policy of Jawaharlal Nehru, LalBahadurSastri and Indhira Gandhi. III- Narrate the internal external policies of Rajiv Gandhi, V.P.singh, Vajpayee, Manmohan Singh and NarendraModi. IV- Recognise the role of planning commission, five year plans and the development of science and technology in India. V- Identify the contemporary challenges like terrorism, liberalization, privatization and globalization.
9	16ACCHI10	History of USA upto 1865 A.D	I. Discuss the Causes for the American war of Independence II. Debate the achievements of George Washington III. Evaluate the role of Abraham Lincoln as the President IV. Elucidate rise of USA as a World Power V. Illustrate the participation of USA in the World Wars
10	16ACCHI11	East Asia from 1894 A.D to 1970 A.D.	I. To understand the circumstances leading to the Chinese revolution. II. To know the effect of First World War in China. III. To know the peoples republic in China. IV. To understand Japanese imperialism.
11	16ACCHI12	History of Russia upto 1991 A.D.	I. To understand the rise of Russian empire. II. To understand the circumstance which the communism in Russia. III. To survey the Importance of Russia revolution. IV. To trace the formation of U.S.S.R. V. To find the disintegration of U.S.S.R.
12	16ACCHI14	Introduction to Historiography	I. Produce written work that incorporates consideration of the relevant historiography along with the theory that informs it

			II. Construct original historical arguments based on primary source material research. III. Demonstrate a superior quality of writing both in terms of mechanics and in developing an argument effectively IV. Develop an ability to convey verbally their thesis research and relevant historiography and theory.
13	16ACCHI15	History of England from 1603 A.D. to 1914 A.D	I. To understand the history of Great Britain. II. To trace the rise of Parliamentary Democracy in England. III. To find the history of Stuart and Honoverian dynasties. IV. To understand the rise of political party and cabinet systems.
14	16AACHI1	Modern Governments – I	I. To know the evolution of states II. To understand the classification of governments III. To know the concepts of separation of powers IV. To know the administration judiciary
15	16AACHI3	Public Administration - I	I. To understand the concepts of public administration II. To know the various theories of organisations III. To understand the importance of field administration
16	16AMBEHIA	Archaeology	I. Understand the various Kinds of Archaeology II. Study the important Archaeologists III. Evaluate the excavation methods IV. Trace the Megalithic cultural sites in Tamil Nadu V. Analyse the archaeological sites in South India
17	16AMBEHIC	Panchayat Raj with Special Reference to Tamilnadu	I. Understand the ancient panchayatraj system under the Cholas II. Narrate the reforms of Lord Ripon to Local Government III. Evaluate the Ashok Mehta Committee Report on panchayatraj IV. Study the powers and functions of panchayat president V. Describe the Rural Development programmes
18	16AMBEHID	Human Rights	I. To understand the value of human rights II. To study various theories of human rights III. To know various laws and acts pertaining to human rights

GOVERNMENT ARTS COLLEGE ARIYALUR

DEPARTMENT OF HISTORY

COURSE OUTCOMES

NAME OF THE COURSE: MA. HISTORY

S.NO	COURSE CODE	TITLE OF PAPER	COURSE OUTCOMES
1	P16HI11	Indian Civilization and Culture from Pre history to 1206 A.D	I.Students of history will acquire knowledge regarding the primitive life and cultural status of the people of ancient India. II.They can gather knowledge about the society, culture, religion and political history of ancient India as well. III.They will learn about the origin of the Indian empire, trade and urbanizations of ancient civilization, like Harappan civilization, Vedic civilizations, later Vedic civilizations etc. IV. How to develop Paleolithic, Neolithic and Chalcolithic cultures in pre-Harappan period.
2	P16HI13	Socio - Cultural History of	I. Comprehend knowledge about the development of Tamil language

		Tamilnadu from the Sangam Age to 1800 A.D	during the sangam Age. II. To Analyze the Geography Tamil country and about Sangam Age III. To Illustrate about the Pallavas and Bakthi Movement and Evaluate the Empire and Art of Cholas. IV. To know about Second Pandya Empire and the Establishment of Madurai Sultanate
3	P16HI14	History of World Civilizations upto 1453 A.D. (Excluding India)	I. Students of can acquire knowledge about the evolution of human Society & how the society of agricultural and animal husbandry had begun in Ancient Times. II. They also learn how the human society had Transformed from Nomadic to civilized society in ancient history of the World. III. They can acquire knowledge about the origin, features, nature and class composition of ancient Greek and Polis society. IV. They can compare to each and other among the several societies of the world.
4	P16HI22	Socio - Cultural History of Tamilnadu from 1800 A.D to 1967 A.D.	I- Understand the socio, economic and cultural condition of the Sangam age. II- Identify the contribution of Pallavas to art and architecture III- Narrate the socio, economic condition of Tamil Nadu under the rule of Chola IV- Describe the advent of Islam in Tamil Nadu. V- Visualize the advent of the Europeans to Tamil country.
5	P16HI23	History of Europe from 1453 A.D. to 1789 A.D.	I- Describe the Geographical discoveries and the Renaissance movement in Europe. II- Assess the causes and effects of Reformation and Counter-Reformation movements. III- Narrate the enlightened despotism in Europe, especially in France ,Prussia and Austria. IV- Learne the causes and results of Thirty years war. V- Discuss the reforms of Peter the Great and Catherine II of Russia.
6	P16HI24	History of Science and	I. This course provides students with an in-depth examination of the

		Technology	history of technology and science. II. It entails the study of societal and cultural development, as to how societies have been shaped by various forms of technological and scientific advances. III. Thus the course will explore scientific and technological developments within a range of cultural, social and economic contexts. IV. A solid understanding of the place of science and technology in society.
7	P16HI31	Freedom Movement in India	I. Student will understand the nature, policies and administration of British Rule in India. II. Student will be able to explain the causes and development of Nationalism. III. Student will know about the Indian National Movement and role of National Congress, especially under the leadership of Mahatama Gandhi in the national movement.and know about the Revolutionary Movement. IV.Student will understand the history of partition and the historical events of the independence of India
8	P16HI32	History of Europe from 1789 A.D. to 1945 A.D.	I. They will learn about the French Revolution and its impact of European countries. II. Unity and power makes people to strength which has showed in the French revolution in 1789. III. How the Industrialization had occurred and it's affected on socio economic transformation of Europe. III. They will know about the politics of super power among the European countries. IV. How the sense regarding the nationalism and unification had developed among the European countries on eve of the 2nd world war.
9	P16HI33	International Relations Since 1945 A.D.	I. Students will be able to understand the foundations of International Economics and, With the knowledge the of analytical tools they will be ready to understand the different models of International Trade and policies covered in other modules.

10	P16HI41	India since 1947 A.D.	I- Recognize the integration of Indian states and SardarVallabai Patel's effort for this. II- Examine the internal and external policy of Jawaharlal Nehru, LalBahadurSastri and Indhira Gandhi. III- Narrate the internal external policies of Rajiv Gandhi, V.P.singh, Vajpayee, Manmohan Singh and NarendraModi. IV- Recognize the role of planning commission, five year plans and the development of science and technology in India. V- Identify the contemporary challenges like terrorism, liberalization, privatization and globalization.
11	P16HI42	Constitutional History of India	I. Narrate the back ground of Government and Politics II. Analyse the salient features of Indian Council Act of 1909 III. Trace the impact of Non Cooperation movement IV. Highlight the significance of Government of India Act of 1935 V. Learn the legacy of the British rule in I
12	P16HI34	Historiography	I. Student will understand the definition, nature and scope of history. II. Integrated and interdisciplinary approach will be developed. III. Students will be well acquainted with the thoughts of modern historical thinkers and major trends in Indian History Writings and understand the use and abuse of history. V. Student will be well acquainted with the scientific research methods in History
13	P16HIE3A	Environmental History	I. Create awareness among the public about environment II. Examine the Renewable and Non renewable resources III. Study the importance of Eco-system IV. Mention the causes and effect of pollution V. Study the importance of Plantation
14	P16HIE2B	Principles and Methods of Archaeology	I. Promote the education of the public in archaeology II. Advance and assist archaeological research III. Evaluate the excavation methods. IV. Analyse the archaeological sites in South India

			V. Encourage widespread participation in archaeology throughout society, identifying and addressing barriers to inclusivity.
15	P16HIE4A	Tourism and Travel Management	I. The course equips students on entrepreneurship in tourism by teaching those procedures for setting up Travel Agencies, Tour Operating Enterprises, various travel formalities and documents required for travel.

PG and Research Department of Mathematics

Govt. Arts College, Aryalur - 621 713

COURESE OUT COME

Real Analysis (sub code : 16SCCMM10)

PCO1 Real analysis serves are the basis for measure theory, axiomatic probability, which follow to stochastic processes.

PCO1 Stochastic processes are used in finance, trading, computer and network, simulations, modeling, manufacturing, quality control.

PCO2 Real Analysis with Real Applications.

PCO3 A well balanced subject.

Real Analysis (sub code : P16MA12)

PCO1 Applications of Fourier analysis and probability theory.

PCO2 Real Analysis tools in Harmonic Analysis and some applications.

The proof of the inverse function theorem. Simplified by means of the fixed point theorem about contraction mappings.

The chapter and the Riemann-Stieltses integral has been the useful subject.

Measure Theory and Integration (sub code :P16MA32)

PCO1 Measure theory and integration from there the reader is led to the general notion of measure, to the construction of the lebesgue integral as a measure space, and to the major limit theorems.

PCO2 Measure theory we look carefully at various ways to measure the size of a set. Measure theory along with the associated. Theory of Lebesque integration, has important Application in many areas. Including Functional Analysis, Harmonic Analysis and probability theory.

Functional Analysis (sub code :P16MA41)

PCO1 Functional analysis is a powerful tool when applied to mathematical problems. The present book provides, by careful selection of material, a collection of concept and techniques essential for the modern subject.

PCO2 Functional Analysis Problems related to ordinary and partial differential

equations, numerical analysis, calculus of variations, approximation theory,

integral equations.

Partial Differential Equations (sub code :P16MA23)

PCO1 A partial differential equation is differential equations that contain unknown multivariable functions and their partial derivatives.

PCO2 Partial differential equations used to formulate problems involving functions of several variables, used to create a computer model.

PCO3 This subjects the recent progress in linear and nonlinear partial differential equations. The real life of partial differential equations is heat and mass transfer and electrometric theory

Advanced Operation Research. (sub code :P16MAE4B)

PCO1 The Advanced Operation Research is the application of scientific and especially mathematical methods to the study and analysis of problems involving complex systems.

PCO2 If includes methods applied to the management and administration of organized military, governmental, commercial and industrial processes.

PCO3 Predation Research is the discipline of applying advance analytical methods to help make as better decisions.

PCO4 Non finding optimal decisions in production processes.

Operation Research(sub code :16SMBEMM1:1)

PCO1 Operation Research is a Arts and Science which deals with problem formulations solutions and finally appropriate decision making.

PCO2 It is most offers used to analyze complex real life problems typically with the goal of improving or optimizing performance.

PCO3 Simple method is an algebraic procedure in which a series of repetitive operation are used to reach at the optimal solution.

PCO4 The transportation problem is a distribution type problem. The main goal of which is to decide how to transfer goods from various receiving locations with minimal casts or maximum profit.

PCO5 Assignment problem refers to the analysis on how to assign objects to objects in the best possible way.

Graph Theory(sub code :16SMBEMM2:1)

PCO1 Graph Theoretical concepts are used to study and model various applications in different areas.

PCO2 Graph Theory is the study of graphs which are mathematical relations between objects.

PCO3 Graphs are useful is geometry and certain parts of topology such as know theory.

PCO4 The travelling sales man problem the show test spanning tree in a weighted graph, training as optimal mater of jobs and men and locating the shortest path between two vertices in a graph it also used in modeling transport networks, actively network and theory of graph.

Ordinary Differential Equations: (sub code :P16MA13)

PCO1 An equation involving one dependent variable and its derivatives with respect to one or more independent variables is called a differential equation. Application of this subject is second order linear equations, power series solutions, some special

functions, system of first order equations, the existence and uniqueness of solutions, qualitative properties of solutions nonlinear equations.

Uses of the subject are mathematics itself especially in geometry, and in engineering, economics and many other fields of applied science.

Complex Analysis: (sub code :P16MA21)

PCO1 Complex analysis is the branch of mathematics investigating holomorphic functions. Which are defined in some region of the complex plane, take complex values and are differentiable as complex functions.

PCO2 Applications of the complex analysis is analytic functions, complex integration, series and product developments. Uses of this subject is particular the theory of conformal mappings has many physical applications and is also used throughout analytic number theory. It has become very popular through a new boost from complex dynamics and the pictures of fractals produced by iterating holomorphic functions.

Differential calculus and Trigonometry (sub code :16SCCMM1)

PCO1 Y=f(x) represent a function that is differentiable on an open interval containing x. The differential of x is any non zero real number. The differential of y & dy=f' (x) dx.

PCO2 Applications of this paper Leibnitz theorem, maxima and minima, curvature, trigonometry.

PCO3 Uses of the paper is solve many types of real –world problems. We use the derivative to determine the maximum and minimum values of particular functions, examples cost, strength =, amount of material used in a building profit, loss, etc.

Analytical Geometry 3D: (sub code :16SCCMM4)

PCO1 The analytic geometry also known as coordinate geometry or Cartesian geometry, is the study of geometry using a coordinate system. This contrasts with synthetic geometry.

PCO2 Applications of this subject is coordinate in space planes, straight lines, sphere, the equation of the surface, cone, quadric cone.

PCO3 Analytic geometry is widely used in physics and engineering and also in aviation rocketry, space science and space and light.

Discrete MathematicsP16MAE3B)

PCO1 Discrete mathematics describes process that consist of a sequence of individual steps. This contrasts with calculus, which describes process that change in a continuous fashions.

PCO2 Where the ideas of calculus were fundamental to the science and technology of the industrial revolution, the ideas of discrete mathematics under lies the science and technology of the computer age.

PCO3 The main themes of a first course in discrete mathematics are logic and proof, induction and recursion, discrete structures, combinatory and discrete probability, algorithms and their analysis and applications and modeling.

Operation Research(sub code :16SMBEMM1:1)

Significant Features of Operation Research

PCO1 Decision making – Every Industrial organization faces multifacet problem to identify best possible solution to their problems. Operation Research aims to help the executives to obtain optimal solution with the use of Operation Research techniques.

PCO2 Scientific Approach: Operation Research applies scientific methods techniques and tools for the purpose of analysis and solution of the complex problems.

PCO3 System Approach: The main aim of the system approach is to trace for indirect effects on all sub – system on a system and to evaluate each action in terms of effects for the system as a whole.

PCO4 Use of computers: The models of Operation Research need lot of computation and therefore, the use of computers it is possible to handle compels problems requiring large amount of calculation.

SEQUENCES & SERIES(sub code :16SCCMM5)

PCO1 Sequences and series play an important role in various aspects of our daily life. They help us to predict, evaluate and monitor the outcomes of a situation as event and help us in decision making.

PCO2 Sequence is a list of objects which have been ordered in a sequential manner such that each number either comes before or after every other number. A series is a sum of a sequence of terms.

PCO3 Sequences and series deals with boundedness, monotonic, convergent, divergent, oscillating sequences, Algebra of limits, some theorems on limits and theorems on convergence and test of convergence.

LINEAR ALGEBRA(sub code :P16MA22)

PCO1 Linear algebra leads to abstract thinking to the linear. From the definitions, theorems and proofs of linear algebra one can think clearly and express themselves clearly to avoid misunderstanding and confusion.

PCO2 This subject deals with vector spaces, basis and dimension, matrix and inner product space, theory of matrices, characteristic equation and bilinear forms

APSTRACT ALGEBRA(sub code :16SCCMM12)

PCO1 Abstract algebra is the set of advanced topics of algebra that deal with abstract algebraic structures rather than the usual number system.

PCO2 These structures are groups, rings, fields, vector spaces.

PCO3 The real life problem can be converted into an equation which can be solved by using algebraic concepts abstract algebra introduce students a advanced mathematical concepts.

ASTRONOMY (sub code :16SMBEMM3:1)

PCO1 Astronomy is the study of the sun, moon, star, planet, etc and other non earthly bodies and phenomena. The astronomical knowledge is important for space.

PCO2 This subject gives the basic knowledge about earth, moon, sun and other celestials bodies and deals with the calculation of coordinates of celestial sphere, Dip of the horizon, season, calendar, kepler’s planetary lows, laws of refraction and lunar and solar eclipses.

GRAPH THEORY(sub code :16SMBEMM2:1)

PCO1 Graph theory pays a vital role in mathematical model to analyses many concrete real world problems successfully. Basic concepts such a paths walks, cycle has tremendous applications in network.

PCO2 Directed graphs and connectivity concepts are used in study of sequential machines, system, and analysis and communication network. Independent sets and coverings of graphs have several potential applications in practical situations.

PCO3 Matching has varied application in operations research. Kirkman's schoolgirl problem and scheduling problems are examples that can be solved by graph coloring.

LINEAR ALGEBRA(sub code : 16SCCMM10)

PCO1 Linear Algebra plays a significant role in all areas of mathematics which is used in most sciences and engineering areas.

PCO2 Systems of linear equations provides the origin of linear algebra and the computational techniques necessary to understand. Also deals with vector spaces, subspaces, bases and dimension.

PCO3 Linear transformations, polynomial, determinants, elementary canonical forms which roots, Taylor's formula, the Lagrange interpolation formula, develops determinates of square matrices and contains a discussion of the concepts which are basic to the analysis of a single linear transformation.

TOPOLOGY(sub code :P16MA33)

PCO1 Topology is concerned with the properties of space that are preserved under continuous deformation. This plays a significant role in functioning of networks.

PCO2 Topology is used in many branches of mathematics such as differentiable equations, Riemann surfaces in complex analysis, describing the space time structure of universe.

PCO3 Euclidean space, matrix spaces are topological spaces. The deformations are homeomorphism.

PCO4 The subject deals with topological spaces, connectedness, compactness and the countability and separation axioms.

STATICS (sub code :16SCCMM11)

PCO1 The six classification of simple machines were establishes by renaissance scientists. They are as follows, lever, wheel and axle, pulley, inclined.

PCO2 A simple machine is a device that changes the direction of a force or arguments a force. Simple machines fall into six categories.

PCO3 Arches and dames are structures that orbit structural strength and span large areas.

PCO4 The application of force alongside the glass will not disturb its equilibrium.

COMPLEX ANALYSIS(sub code :P16MA21)

PCO1 Complex analysis with applications in science and engineering weaves together theory and extensive applications in mathematics.

PCO2 Complex analysis has all roots of applications. Complex analysis is used in analytic behavior of defined sequences.

PCO3 Complex analysis has several applications to the study of Banch algebras in functional analysis.

PCO4 For example: Holomorphic functional calculus.

CALSSICAL DYNAMICS (sub code :P16MA31)

PCO1 Classical dynamics or Newtonian mechanics have many applications in daily life.

PCO2 Classical mechanics uses common-sense notions of how matter and forces exists and interact. It assumes that matter and energy have definite, knowable attributes such as 10 certain in space and speed.

PCO3 Dynamic viscosity, pressure and energy density , septic energy, energy.

DIFFERENTIAL GEOMETRY (sub code :P16MA42)

PCO1 Differential geometry can be applied to solve problems in digital signal processing. In probability, statistics, and information theory, one can interpret various structures as Riemannian manifolds.

PCO2 The latest results in Riemannian geometry, connections, sets, differential invariants. The calculus of variations differential equations, finagler structures and geometric methods.

Applications of Descriptive Statistics:

PCO1 The method is highly useful for professionals offering financial services as well as people who are conducting marketing research. The trends followed by a set of shares being traded on the market, or the fluctuations in the currencies across the world will be known. This helps the traders and brokers estimate the further movements and make the investment or advice their clients better. The latter can easily gauge the tends reflected by the consumers for a particular product. By knowing how many people on an average purchased the product during a certain period, the researchers will be able to formulate the marketing strategy in a more focused manner.

Applications of Probability Theory

PCO1 The subject of probability can be traced back to the 17^{th} century when it arose out of the study of gambling games.

PCO2 The range of applications extends beyond games into business decisions, insurance, law, medical tests, and the social sciences.

PCO3 The stock market, "the largest casino in the world," cannot do without it.

PCO4 The telephone network, call centers, and airline companies with their randomly fluctuating loads could not have been economically designed without probability theory.

Applications of Special Discrete Distributions

1. Binomial Distribution

PCO1 In many scientific works, in medical and military operations, in industries, quality control

2. Negative Binomial Distribution

PCO1 Large number of attempts are required to fix the number of success. Model for memory effect

3. Hyper Geometric Distribution

PCO1 Acceptance sampling in order to determine whether the entire lot is accepted or not

4. Poisson Distribution

PCO1 Number of spelling mistakes one makes while typing a single page. Number of phone calls at call centers per minutes.

Stochastic Process (sub code :P16MAE2A)

PCO1 An integral valued random variable is a power roll of generating function. Stochastic Process involves non negative integral valued random variable. T he principal advantage of stochastic process whole set of individual items. Stochastic process in queries theory in useful to telephone transfer.

Algebraic Number Theory(sub code :P16MAE5C)

PCO1 The theory of number is concurred with properties of the natural numbers. Prime number constitute an increasing and changeling area of research in number theory. Composite number play an important role in modern cryptography or coding system. Congruence is simple, useful powerful in the study of number theory. Number theory is used to develop

our skills, and confidence in reading, understating and writing mathematical arguments are improving.

ALGEBRA(sub code : P16MA11)

PCO1 Algebra as could as an outgrowth of all and a subject with an independent life and vigor. The word abstract is subject, concrete. The important algebraic systems are groups rings, side and vector space. An algebraic system can be described as a set of objects together with some operation for combining them. The main use of an algebra to develop over cortices knowledge thinking.

Classical Algebra and theory of numbers16SCCMM6)

PCO1 Algebra has evolved as an outgrowth of all and a subject with an independent life and vigor. An algebraic equation can be solved by using the method of A.P, G.P and H.P. The theory of numbers is concerned with the properties of natural number. Number theory is used to develop our skills.

Vector calculus and Fourier series (sub code :16SCCMM7)

PCO1 Vector calculus is the study of velocity, vector and scalar using addition, subtraction, dot product and Goss product operations. Integral is used to find out the length us the open curve.

PCO2 Surface integral is used to find out the area of a closed curve. Volume integral us used to find out the volume of the cubic region. Fourier series is used to find the value of the function using sine and cosine series.

Integral Equation calculus of variation transform: (sub code :P16MA15)

PCO1 **This course has been successfully used by almost all scientist and engineer**

PCO2 **Its importance as a discipline to be studied and cultivated.**

PCO3 **The object is to get single into the situation concerned.**

PCO4 **Expected that students will be able to transfer the learning gained from special case-studies.**

PCO5 **This courses at IIT. Kanpur, Manitoba university and university of waterloo to students from mathematics, science, engineering and commerce department.**

Mathematical Modeling: (sub code :P16MAE1B)

PCO1 Special courses on mathematical models in biology and medicine and maximum entropy models in science and engineering based subjects.

PCO2 Mathematical Modeling have appeared either discipline – centered, technique cented, situation centered.

PCO3 Mathematical Models are considered from different disciplines, but the choice is restricted to the models which can be understood through the particular class of techniques.

PCO4 Mathematical modeling can be learnt by making mathematical models.

DYNAMICS : (sub code : 16SCCMM14)

PCO1 This courses an introduction to the dynamics of a particle and is designed to meet the needs of undergraduate's students in mathematics physics and technology.

PCO2 Dynamics has since long, occupied a key place in applied mathematics curriculum and rightly so.

PCO3 Study of dynamics is to acquired an appreciation of the way mathematics creates in discipline and there by gains in strength and utility.

Differential Equation and Laplace Transform: (sub code :16SCCMM3)

PCO1 This course has several applications in almost all engineering disciplines, in system modeling, where large mathematical equations are used.

PCO2 In electrical circuits a Laplace transform is used for the analysis of linear time-invariant systems.

PCO3 Laplace transform methods have a key role to play in the modern approach to the analysis and design of engineering system.

PCO4 Laplace transform can be interpreted as a transformation from time domain where imparts and outputs are functions.

PCO5 The concepts of linear transform are applied in the area of science and technology in electric circuit analysis, communication engineering control engineering and nuclear physics.

Integral Calculus: (sub code :16SCCMM2)

PCO1 Computing the area between courses, volumes of work done by a varying force, average value of a function.

PCO2 Displacement which is the integral of velocity with respect to time.

PCO3 Integrals are used engineering in many areas of mathematics as well as in many other areas such as probability theory, determine the probability of some random variable falling within a certain range.

PCO4 The integrals discussed integral that connects differentiation also.

PROGRAM OUTCOME

B Sc Mathematics

PCO1 After your graduation from a B.Sc., mathematics degree, you can pursue course like MCA, M.Sc (IT), and actuarial sciences, MBA or M.Sc in mathematics.

PCO2 To get the most out of this course, it's best to immediately pursue higher studies after having completed your graduation. The world is your oyster afterwards, with a plethora of opportunities in research, academia, and technical institutes, Career opportunities can include hobs at financial companies, software developers, marketers and Bankers; everyone wants a good mathematician.

PCO3 In applied mathematics you have to creatively solve problems in business and social domains. Data analytics, a field which is the talk of town, often need people who are good with numbers and understand data. With excellent mathematical abilities you might just be picked up by political or military intelligence bodies to work as a cryptanalyst who deciphers encrypted messages.

PROGRAM OUTCOME

M Sc Mathematics

PCO1 M.Sc mathematics makes sure to provide advanced research skills and provide in – depth knowledge of reasoning and problem – solving skills to the students. It incorporates the foundation of mathematical thinking and teachers both pure and applied mathematics to the core.

PCO2 Mathematics offers a huge variety of career opportunities. These are

Accountancy and professional service:

The Actuarial Profession:

Banking

Computing and IT

Engineering Sciences

General Management

Postgraduate Study - PhD

Statistical Research Teaching etc.

B.Sc Physics UGPHY

Program Outcome

PO1: Study the concepts of Mechanics and Relativity, introduced at the College level

PO2: Understand the set of Physical laws, describing the motion of the bodies under the influence of the system of forces.

PO3: Know the elementary particles, fundamental particles and God particle.

PO4: Acquire the Knowledge of recent trend in Science and technology.

PO5: Student should be able to transfer and apply the acquired concept and Principles to study the different branches of Physics.

PO6: Demonstrate the ability to justify and explain their thinking or approach both oral and written.

PO7: Developing their scientific intuition, ability and techniques to tackle problems either theoretical or experiment in nature.

PO8: Understand the structure of solid materials and their physical properties along with metallurgy, electronics and material Science.

Program Specific Outcome -UGPHY

PSO1: Students are expected to acquire knowledge in physics, including the major premises of Properties of matter, Mechanics, Nuclear Physics etc

.

PSO2: Constructing and tacking problems of day to day life by correlating them with appropriate physical principles.

PSO3:Understand the basic concepts of physics particularly Optics, Atomic Physics, Theoritical Physics and Nuclear Physics.

PSO4: Students are expected to acquire knowledge about Materials, Nano Materials, Semiconductor devices and superconductor.

PSO5: This program explain recent trend in Neutrino Physics and Communication Physics.

Properties of Matter and Accoustics-16SCCPH1

After Successful Completion of the Course, the student is expected to

PCO1: Learn the basis of Properties of matter.

PCO2: Study the different types of modulus and relation between them

PCO3: Understand about Surface tension and Viscosity

PCO4: Learn the fundamentals of Sound

PCO5: Understand about good acoustical building.

Mechanics 16SCCPH2

PCO1: Learn the basis of dynamics.

PCO2: Study the two types of impacts

PCO3: Learn the different types of Pendulum

PCO4: Grasped the fundamentals of different types of frame of references

PCO5: Understand the magic of relativity

Thermal Physics-16SCCPH3

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

PCO1: Understand the basic idea of heat

PCO2: Understand the central concepts and basic formalisms of specific heat, entropy, quantum theory of radiation;

PCO3: Solving problems based on heat transfer, entropy and thermal radiation

PCO4: Find applications of the physical quantities.

PCO5: Understand the fundamentals of Statistical Mechanics

Electricity and Electromagnetism-16SCCPH4

PCO1: Understand the basic Knowledge about charge, current and voltage

PCO2: Study the fundamentals and types of capacitors

PCO3: Grasped the fundamentals of Electromagnetic induction and its laws

PCO4: Get the depth knowledge about a.c and d.c current.

PCO5: Get depth knowledge of this course in day today life

Optics-16SCCPH5

This course will enable the student to

PCO1: Apply basic knowledge of principles and theories about the behaviour of light and the Physical environment to conduct experiments.
PCO2: Understand the working of selected optical instruments like biprism, interferometer, diffraction grating, and holograms.
PCO3: Understand the wave nature of light from Huygens theory
PCO4: Get the depth knowledge interference and polarization.
PCO5: Get depth knowledge of this course in day today life

Atomic and Molecular Physics 16SCCPH6

After completion of this course, students should understand

PCO1: The behaviour of atoms in an external applied electric field and magnetic field

PCO2: X-ray characteristics and their applications-Brag's Law and its importance

PCO3: Different types of atom model and various quantum numbers

PCO4: Photoelectric effects and its applications

PCO5: Different types of Lasers and their action.

Electronics-16SCCPH7

Upon completion of the course student will have

PCO1: Understand the basics of semiconducting devices

PCO2: Acquire the knowledge about amplifiers and oscillators

PCO3: Know about the digital number systems

PCO4: Understand the combinational and sequential digital systems

PCO5: Acquire the knowledge about the operational amplifier

Nuclear Physics-16SCCPH8

After completion of this course, students should understand

PCO1: Constituents of nucleus and its Properties

PCO2: Radioactivity and its effect

PCO3: Neutrinos and their Properties

PCO4:Nuclear reactions and Reactors

PCO5: Different types of particles and fundamental quarks.

Theoretical Physics 16SCCPH9

After completion of this course, students should understand

PCO1: D Alembert's principle and Virtual work

PCO2: The Lagrangian and Hamiltonian approaches in Classical Mechanics.

PCO3: Matter wave and its properties-dual nature of matter

PCO4: Why electron cannot exist inside the nucleus-Uncertainty principle

PCO5: Schrodinger's Equations and their applications

Materials Science-16SMBEPH1

Upon completion of the course student will have

PCO1: Acquire knowledge about the crystal structure

PCO2: Acquire knowledge about the superconducting materials

PCO3: Understand the basics of nano materials

PCO4: Know about the smart materials

PCO5: Acquire the knowledge of mechanical behaviour of materials

Microprocessor and C programming 16SMBEPH2

After completion of this course, students should understand

PCO1: Real and ideal microprocessor-INTEL 85

PCO2: Architecture of Microprocessor and pin diagram

PCO3: Applications of Microprocessor

PCO4: Character set of C-language

PCO5: Class ,functions and simple programs

Communication Physics- 16SMBEPH3

After completion of this course, students should understand

PCO1: Electromagnetic spectra and different frequency bands.

PCO2: Satellite communication including uplinking and downlinking.

PCO3: understand the basic concepts of communication.

PCO4: Modulation, different types of modulation and about super heterodyne receivers.

PCO5: communication system and its working

M.Sc Physics PGPHY

Program outcome

PO1: Study the concepts of Classical Mechanics, Quantum Mechanics Electromagnetic theory ,Nuclear Physics and Advanced Physics, Explained at the high level

PO2: Understand the set of Physical laws, describing the motion of the celestial bodies under the influence of the system of forces.

PO3: Know the elementary particles, fundamental particles and God particle.

PO4: Acquire the Knowledge of recent trend in Nano Science andNano technology.

PO5: Demonstrate the ability to justify and explain their thinking or approach both oral and written.

Program Specific outcome -PGPHY

PSO1: Students are expected to acquire knowledge in physics, including the major premises of Classical Mechanics, Quantum Mechanics, Condensed Matter Physics, Non linear Optics, Nuclear Physics and Advance Physics etc.

PSO2:Learn to carry out experiments in basic as well certain advanced areas of physics such as, semiconductor Physics, laser and electronics

.

PSO3:Gain the knowledge of physics through theory and experiments.

PSO4: Develop research oriented skills through project work.

PSO5: Develop reading and understanding skill through LFD method.

Program Course Outcome

Mathematical Physics P16PY11

After completion of this course, students should understand

PCO1: Green's theorem, Stoke's theorem and their applications

PCO2: Matrix and Tensor

PCO3: Reducible and irreducible representations

PCO4: Complex Analysis- Taylor's and Laurent's Series

PCO5: Special Functions-Properties.

Classical Dynamics &Relativity-16PY12

After completion of this course, students should understand

PCO1: Conservation laws for a particle and System of Particles

PCO2: The Lagrangian and Hamiltonian approaches in Classical Mechanics

PCO3: Kinematics and Dynamics of rigid body in detail

PCO4: Theory of small oscillations and motion symmetric top

PCO5: four velocities and four force and other important Relativistic phenomenon

Quantum Mechanics-P16PY22

After completion of this course, students should understand

PCO1: Wave function and its Properties

PCO2: Schrodinger's Equations and their applications

PCO3:Perturbation Theory, Tunnelling problem

PCO4: The Concept of Angular Momentum

PCO5: Klein –Gorden Equation and Dirac Equation for a free particle.

Statistical Mechanics-P16PY31

After completion of this course, students should understand

PCO1: Thermo dynamics Laws and their consequence

PCO2: Why the entropy of Universe always increasing

PCO3: Transport Phenomena, ensembles

PCO4: Classical and quantum Statistical Mechanics

PCO5: Photons and Black body radiations

Nuclear &Particle Physics P16PY41

Upon completion of the course student will have

PCO1: Acquire knowledge in the content area of nuclear and Particle Physics, focusing on concepts that are commonly used in this area.

PCO2: Basic properties of nuclear forces, nucleus and nuclear models to study the nuclear structure properties.

PCO3: Understanding atom bomb, nuclear bomb and thermo nuclear reaction.

PCO4: Importance of Neutrino research in Tamil Nadu

PCO5: Knowledge about fundamental particles.

Microprocessor and Microcontroller – P16PYE1

Upon completion of the course student will have

PCO1: Acquire the knowledge 8085 microprocessor architecture

PCO2: Know the various instructions sets of 8085.

PCO3: Acquire the knowledge of peripheral devices

PCO4: Know the principles of microcontroller 8051.

PCO5: Acquire the knowledge of 8051 instructions.

Methods of Spectroscopy – P16PY14

Upon completion of the course student will have

PCO1: Students learn and understand the concept of Molecular spectroscopy

PCO2: know the microwave and IR spectroscopy

PCO3: know the theories of Raman spectroscopy

PCO4 : Understand the principles of NMR spectroscopy

PCO5: know the UV and ESR spectroscopy

Electronics - P16PY13

Upon completion of the course student will have

PCO1: Acquire knowledge about semiconductor devices.

PCO2 : Acquire knowledge about operational amplifiers.

PCO3: Apply the circuit theory to design digital circuits

PCO4: Acquire the knowledge memory devices

PCO5: Acquire the knowledge IC fabrication.

Crystal growth and thin film physics P16PYE3

Upon completion of the course student will have

PCO1: Know the theories of nucleation of crystals; understand their different types of nucleation

PCO2: Know the growth of single crystals by various techniques

PCO3 : know the melt and vapour growth methods

PCO4: Know various methods to prepare thin film

PCO5: Analyze the properties and characteristics of crystals by different techniques

Nanophysics – P16PYE5

Upon completion of the course student will have

PCO1: Know the nano types of materials

PCO2: Acquire the knowledge of carbon nano-materials

PCO3: Acquire the knowledge of fabrication of nano-materials

PCO4: Know the various characterization methods of nano-materials

PCO5: Acquire the applications of nano-materials

Advanced Physics-P16PYE6

After completion of this course, students should understand

PCO1: Properties of stars-Life cycle of a stsr

PCO2: Indian Space programmes and Geo informatics ideas

PCO3: Ear and hearing aids and several bio-medical instruments

PCO4: Data communication and personal communication system.

PCO5: Satellite communication and wireless packet data services.

Programme Specific out come for Ph.D. in Physics

- Research scholars become globally proficient to publish their research works in referred journals.
- Research scholars experience gathering for various analytical instrumentation skills
- Research scholars learn the teaching / presentation techniques in physics
- Research scholars to explore and expedite the recent possibility in physics research
- To obtain the recent advance techniques toward research in different research fields
- To develop the problem solving skills and effective communication skills
- To launch different project from the getting the various funding agencies.

Course outcome.

- Know various methods to prepare thin films crystal growth.
- Know the measurement of thickness, other properties of thin films.
- Know the theories of nucleation kinetics of crystals
- Know the growth of single crystals by various techniques.
- Analyze the properties and characteristics of crystals by different techniques.

DEPARTMENT OF STATISTICS

GOVT. ARTS COLLEGE, ARYALUR - 621 713

COURESE OUT COME

Descriptive Statistics (16SCCBS1)

CO1	Organize, manage and present data.
CO2	Analyze statistical data graphically using frequency distributions and cumulative frequency distributions.
CO3	Analyze statistical data using measures of central tendency, dispersion and location.

Probability Theory (16SCCBS2)

CO1	Use the basic probability rules, including additive and multiplicative laws, using the terms, independent and mutually exclusive events.
CO2	Translate real-world problems into probability models.
CO3	Derive the probability density function of transformation of random variables
CO4	Calculate probabilities, and derive the marginal and conditional distributions of bivariate random variables.
CO5	Analyze Statistical data using MS-Excel

Theoretical Discrete Distributions (16SCCBS3)

CO1	Use discrete and continuous probability distributions, including requirements, mean and variance, and making decisions.
CO2	Define binomial outcomes and compute probability of getting X successes in N trials.
CO3	Identify the characteristics of different discrete and continuous distributions.
CO4	Identify the type of statistical situation to which different distributions can be applied.
CO5	Use Poisson, exponential distributions to solve statistical problems.

Theoretical Continuous Distributions (16SCCBS4)

CO1	Use the normal probability distribution including standard normal curve calculations of appropriate areas.
CO2	Partial differential equations used to formulate problems involving functions of several variables, used to create a computer model.
CO3	This subjects the recent progress in linear and nonlinear partial differential equations. The real life of partial differential equations is heat and mass transfer and electrometric theory

PROGRAM SPECIFIC OUTCOME

B Sc STATISTICS

By the end of a degree program in Statistics, a student will:

PSO1	Have the **versatility** to work effectively in a broad range of analytic, scientific, government, financial, health, technical and other positions.
PSO2	Have a **broad background** in statistics, an appreciation of how its various sub-disciplines are related, the ability to use techniques from different areas, and an **in-depth knowledge** about topics chosen from those offered through the department.
PSO3	Recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines;
PSO4	Be familiar with a variety of examples where mathematics or statistics helps accurately explain abstract or physical phenomena;
PSO5	Recognize and appreciate the connections between theory and applications;
PSO6	Be able to independently read statistical literature of various types, including survey articles, scholarly books, and online sources
PSO7	Be life-long learners who are able to independently expand their statistical expertise when needed, or for interest's sake.

PROGRAM OUTCOME

B Sc Statistics

PO1	Find employment utilizing their statistical knowledge.
PO2	Use statistical knowledge to identify and solve problems.
PO3	Undertake graduate studies related to statistics.
PO4	convert a problem description into testable research hypotheses.
PO5	select appropriate statistical tools to investigate a research hypothesis.
PO6	apply appropriate statistical methodology and interpret results in a variety of settings.
PO7	apply likelihood principles and calculus to derive fundamental results in Probability, estimation and hypothesis testing.
PO8	select standard experiment designs, with consideration of selection process, data Collection, issues of bias, causality and confounding, based on specifications of a scientific study.
PO9	write code to extract and reformat real data and to utilize statistical programming Environments.
PO10	identify limitations to statistical results and avoid misleading quantitative analysis.
PO11	Effectively present statistical findings to an audience lacking statistical expertise And work collaboratively.

Programme outcome

பி.ஏ., தமிழ்:

இளநிலை தமிழ் இலக்கியம்:

- இளநிலை பட்டப்படிப்பு – மாணவர்களின் எழுத்தாற்றலையும் பேச்சாற்றலையும் வளர்த்து, மிகச் சிறந்த தமிழறிஞராக உயர வழிவகுக்கிறது.
- இளநிலை பட்டத்தோடு, கல்வியியல் (பி.எட்.,) பட்டம் பெற்று, ஆசிரியர் பணியில் சிறந்து விளங்க முடியும்.

எம்.ஏ., தமிழ்:

முதுகலை தமிழ் இலக்கியம்:

- முதுகலை பட்டப்படிப்பு – மாணவர்களின் எழுத்து, பேச்சாற்றலை வளர்த்து, தரமான தமிழறிஞராக பரிணமிக்க உதவிடுகிறது.
- ஆராய்ச்சி நோக்கில் கட்டுரைகள் எழுதி, தமிழ் ஆய்வு உலகிற்கு பெரும்பங்களிப்பை நல்கும் வாய்ப்பை ஏற்படுத்துகிறது.
- தமிழ்நாடு அரசு தேர்வாணையம் சார்பில் நடத்தப்பெறும் Group – I தேர்வினை எழுதி. அரசு உயர் பணிகளில் பணியாற்ற வாய்ப்பினை ஏற்படுத்தித் தருகிறது.
- மேல்நிலைப் பள்ளிகளில் முதுநிலை ஆசிரியராகப் பணியாற்ற வாய்ப்பினை வழங்குகிறது.

எம்..்.பில்.:

ஆய்வியல் நிறைஞர்:

- தமிழ் ஆய்வுகள் குறித்து நன்கு தெரிந்துகொண்டு. சிறந்த ஆய்வேட்டினையும், பல்வேறு ஆய்வு நூல்களையும் வெளியிட வித்திடுகிறது.
- இப்பட்டத்தோடு, பல்கலைக்கழக மானியக்குழு நடத்தும் தகுதித் தேர்விலும் (UGC – NET) தேர்ச்சி பெற்றால் கல்லூரி உதவிப் பேராசிரியராகப் பணி பெறுவதற்கு வாய்ப்பு ஏற்படுகிறது.
- தமிழ் ஆய்வுக் கட்டுரைகளையும், நூல்களையும் வெளியிட்டு தனித்தன்மையோடு சிறப்புற்றுத் திகழ வாய்ப்பு ஏற்படுகிறது.

பிஎச்.டி.,:

முனைவர் பட்டம்:

- தரமான ஆராய்ச்சிகளை மேற்கொண்டு, தமிழ் ஆய்வு நூல்கள் பல வெளியிட வித்திடுகிறது.
- முனைவர் பட்டம் பெற்றபின்பு, பல்வேறு கல்லூரி மற்றும் பல்கலைக்கழகங்களில் உதவிப் பேராசிரியாராகப் பணிபுரிய வாய்ப்பு ஏற்படுகிறது.
- மேலாய்வுகள் பல நிகழ்த்தவும், பல்கலைக்கழக அளவில் பல கருத்தரங்குகள் மற்றும் பயிலரங்குகள் நிகழ்த்திட வழிவகை செய்கிறது.
- தானும் ஒரு முனைவர் பட்ட ஆய்வு நெறியாளராக கடமையாற்றிட வாய்ப்பு ஏற்படுகிறது.
- அரசு வழங்கும் பல்வேறு நிதி ஆதாரங்களைப் பெறுவதற்கு உதவிடுகிறது.

Programme Course Outcome

பி.ஏ. தமிழ்:

ஊடகவியல்:

- இலக்கியங்களோடு பொது அறிவையும் அறிந்து கொள்ளும் நோக்கத்தை இது நிறைவு செய்கிறது.
- தற்காலத்தில் மிகவும் செல்வாக்கு பெற்றுத் திகழும் வானொலி, தொலைக்காட்சி, திரைப்படம், இணையம் போன்ற துறைகளில் வேலை வாய்ப்பினைப் பெற உதவுகிறது.
- சொந்த படைப்பாற்றலை வெளிப்படுத்தி, தனது தனித்தன்மைகளை வெளிக்கொணர்ந்து, உலக அளவில் சிறப்புப் பெயர் பெற வழிவகுக்கிறது.
- மக்கள் தகவல் தொடர்பு அலுவலராகப் பணியாற்றிட வாய்ப்பு ஏற்படுகிறது.
- சுய தொழிலில் ஈடுபட்டு, வெளி உலகில் சொந்த காலில் நிற்க உதவிடுகிறது.

எம்.ஏ. தமிழ்:

நாட்டுப்புறவியல்:

- நமது தமிழ்ப் பண்பாட்டின் ஆணிவேரினை அறிந்து கொள்ள முடிகிறது.
- நம் அக்கால மக்களின் வாழ்வியலை வெளிக்கொணர உதவிடுகிறது.

- நாட்டுப்புறப் பாடல்கள், கதைகள், நடனங்கள், நம்பிக்கைகள் போன்றவற்றைத் திறனாய்வு செய்யவும், பல்வேறு ஆய்வுகள் நிகழ்த்தி, பாரம்பரியத்தைக் காப்பாற்றும் வாய்ப்பினையும் வழங்குகிறது.

கல்வெட்டியல்:

- தமிழ் மொழியின் தொன்மையைச் சான்றுகளுடன் தெள்ளிதின் உணர்ந்துகொள்ள வாய்ப்பு ஏற்படுகிறது.
- கல்வெட்டுக்கள் வழியாகப் பழந்தமிழர் வரலாற்றை கற்றுக் கொள்ள முடிகிறது.
- தமிழ் மொழி, தமிழ் இனத்தின் படிப்படியான வரலாற்றுப் பதிவுகளை உணர்ந்து கொள்ள முடிகிறது.
- கல்வெட்டுக்கள் வழியாக தமிழ்ப் பண்பாட்டின் செழுமையை அறிய முடிகிறது.
- புதிய கல்வெட்டு ஆய்வுகளை மேற்கொள்ள வழிவகை ஏற்படுகிறது.
- கல்வெட்டு பற்றிய புதிய செய்திகளை வெளிக்கொணர வித்திடுகிறது.

எம்..்.பில்., தமிழ்:

தமிழாய்வுக் களங்கள்:

- இலக்கிய ஆய்வுகளின் இன்றைய நிலை குறித்து அறிந்து கொண்டு, எதிர்காலத்தில் தரமான ஆய்வுகள் நிகழ்த்த வாய்ப்பினைத் தருகிறது.
- பழந்தமிழ் நூல்களைப் பதிப்பித்து வெளியிட வாய்ப்பினை ஏற்படுத்துகிறது.

- நவீன ஆய்வுகளின் போக்குகள் குறித்து அறிந்து கொண்டு, புதிய கோணத்தில் தமிழுலகிற்குப் புதிய ஆய்வுகளைத் தந்திட வித்திடுகிறது.
- பல்வேறு மொழிகளோடு தமிழுக்குரிய உறவுநிலைகள் குறித்து ஆய்வு நிகழ்த்த வழிவகை செய்கிறது.
- திறனாய்வு முறைகளின் வளர்ச்சி நிலைகளை அறிந்து கொண்டு உலகத் தரத்திற்கு ஆய்வுகள் நிகழ்த்த வழிகாட்டுகிறது.

Specific Outcome

பி.ஏ. தமிழ்:

படைப்பிலக்கியம்

- புதிய படைப்புகளைப் படைக்க ஆர்வமூட்டல்.
- படைப்பிலக்கிய மொழியின் தனித்தன்மைகளை அறிவுறுத்தல்.
- கவிதை, நாடகம், உரைநடை கட்டுரைகள், சிறுகதை ஆகியவற்றை தனித்தன்மையுடன் படைக்க வித்திடுதல்.
- புதிய உரைநடை மற்றும் இலக்கிய வகைகளையும், உத்திகளையும் அறிந்து உலக அளவில் புகழ் பெறுதல்.
- எழுத்துலகிற்கு இளையத் தலைமுறையினரைத் தயார் செய்து அனுப்புதல்.
- படைப்பாற்றல் தனித்த அடையாளத்தை ஏற்படுத்தி, உலகில் புகழ் பெறச் செய்யும்.

எம்.ஏ. தமிழ்:

பக்தி இலக்கியம் - சைவமும் தமிழும்

- இலக்கியங்களில் பக்தி இலக்கியத்தின் தனிச் சிறப்புகளைப் புலப்படுத்துதல்.
- வாழ்வியல் ஒழுக்க நெறிகளில் பக்தி இலக்கியத்தின் பங்கு பற்றி எடுத்துரைத்தல்.

- பக்தி இலக்கியப் படைப்பாளர்களின் உத்தி முறைகளைப் புலப்படுத்துதல்.
- சைவ சமயம் தமிழகத்தில் பெற்றிருந்த தனி இடம் - சைவ மடங்கள் - பணிகள் குறித்து அறிவித்தல்.
- தமிழ்நாடு அரசின் தேர்வாணையத் தேர்வு – குழு-8 (Group – VIII) - இந்து அறநிலையத் துறையின் தேர்விற்குத் தயார்படுத்துதல்.
- சமூக வளர்ச்சிக்கு சைவத்தின் பங்கு பற்றி விரிவாக உணரச் செய்தல்.
- பக்தி இலக்கிய ஆய்வுகளை முன்னெடுத்தல்.

எம்..்.பில்., - ஆய்வியல் நிறைஞர்:

கற்றல் கற்பித்தல்

- ✓ கணிப்பொறியின் அடிப்படைகளையும் - அதன் செயல்பர்டுகளையும் நன்கு அறிந்து கொள்ளுதல்.
- ✓ கணிப்பொறியின் பயன்பாடுகள் ஆய்விற்கு எவ்வாறெல்லாம் உதவிடும் என்று வழிகாட்டுதல்.
- ✓ நூல்களைக் கணிப்பொறி உதவியுடன் தேடுதல், படியெடுத்தல், அச்சடித்தல், சேமித்தல், பரிமாறுதல் என அனைத்து வகை பயன்பாடுகளையும் அறிதல்.
- ✓ வகுப்பறையில் எவ்வாறு கற்பிப்பது. எவ்வாறு வினாக்களை எழுப்புவது, கவனிக்கும் திறனை வளர்த்தல், மனனம் செய்வதைப் பயிற்சியாக்குவது. சிறந்த ஆசிரியராக மிளிர வழிமுறைகள் தெரிவித்தல்.
- ✓ மாணவர்களின் தரம், மனநிலை, போக்கு, கவனிக்கும் ஆற்றல் போன்றவற்றை உணரச் செய்தல்.
- ✓ செய்யுள், உரைநடை, சிறுகதை போன்றவற்றைக் கற்பிக்கும் உத்திகளை அறிமுகம் செய்தல்.

பிஎச்.டி., - முனைவர் பட்டம்

- ❖ ஆய்வு உலகில் தனிச்சிறப்புடன் திகழ வழிவகுத்தல்.
- ❖ ஆதாரங்களைத் தொகுத்துத் தரமான ஆய்வு வெளிவர வித்திடுதல்.
- ❖ மொழிக்கும், சமூகத்திற்கும் பயனுள்ளதான ஆய்வுகளை அறிமுகப்படுத்துதல்.
- ❖ மொழி வளத்தினையும், கள ஆய்வின் தேவையையும் பயிற்சியாக்குதல்.
- ❖ உயர் படிப்பிற்கும், வேலைவாய்ப்பிற்கும் வழிவகுத்தல்.
- ❖ ஆய்வுகளை நூலாக்கம் செய்வதும், பல்வேறு ஆய்வுக்கட்டுரைகளை வெளியிடவும் ஆவன செய்தல்.

Programme outcome

பி.ஏ., தமிழ்: (B.A. Tamil)

இளநிலை தமிழ் இலக்கியம்:

16ACCTA1 - இக்கால இலக்கியம் (கவிதை, உரைநடை):

தற்கால இலக்கியங்களின் போக்குகள், கருத்துகள் குறித்து அறிதல்.

16ACCTA2 – நன்னூல் - எழுத்து (காண்டிகையுரை):

தமிழ் இலக்கண அறிவை வளர்த்தல், பிழையின்றி எழுத அறிதல்.

16AACCTA1 – ஊடகவியல்:

சமூக ஊடங்களின் தோற்றம், வளர்ச்சி, பயன்பாடுகள் குறித்து அறிதல்.

RUGVED - மதிப்பீட்டுக் கல்வி:

மனித உறவுகளின் உன்னதம், மனித நேயம் குறித்த அறிமுகம்.

16ACCTA3 – சிற்றிலக்கியம்:

சிற்றிலக்கியங்களின் இலக்கணம் அறிந்து, முருகியல் பண்பு உணர்தல்.

16ACCTA4 - நன்னூல் - சொல்லதிகாரம்:

தமிழ்ச் சொற்களின் வகை அறிதல்.

16AACCTA2 – தமிழ் இலக்கிய வரலாறு:

தமிழ் இலக்கியங்களின் பரிணாம வளர்ச்சி பற்றி விரிவாக அறிதல்.

16UGCES – சுற்றுச் சூழலறிவியல்:

சுற்றுச் சூழல் விழிப்புணர்வை ஏற்படுத்துதல்.

16ACCTA5 – சித்தர் இலக்கியம்:

சித்தர் இலக்கியங்களின் சிறப்புகள் அறிமுகம் செய்தல்.

16ACCTA6 – யாப்பருங்கலக் காரிகை (ஒழிபியல் நீங்கலாக):

யாப்பிலக்கணக் கோட்பாடுகள் அறிதல்.

16AACCTA3 – தமிழக வரலாறும் பண்பாடும்:

தமிழ்நாட்டின் வரலாறையும் மக்கள் வாழ்வியலையும் அறிதல்.

16ANMETA1 – மனித உரிமைகள்:

மனித உரிமைகள் குறித்து விரிவாக அறிதல்.

16ACCTA7 – சமய இலக்கியம்:

பல்வேறு சமயங்களின் இலக்கியங்கள் குறித்த அறிமுகம்.

16ACCTA8 – தண்டியலங்காரம்:

அணியிலக்கணம் குறித்து விரிவாக அறிதல்.

16AACCTA4 – படைப்பிலக்கியம்:

கவிதை, சிறுகதை, நாடகம் எழுதும் பயிற்சி.

16ANMETA2 – சமகால சமூகப் பிரச்சினைகள் மற்றும் சிக்கல்கள்:

சமூக நடப்புகளைத் தெள்ளிதல் உணரச் செய்தல்.

16RSBE10:1 – சுற்றுலா பயண மேலாண்மை:

சுற்றுலா துறைகள் குறித்து விரிவாக அறிதல்.

16ACCTA9 – காப்பியம்:

தமிழ்க் காப்பியங்களின் சிறப்புகள் அறிதல்.

16ACCTA10 – அற இலக்கியம் (திருக்குறள் நீங்கலாக):

நீதி இலக்கியங்களை விரிவாகப் படித்தல்.

16ACCTA11 – திருக்குறள்:

திருக்குறளின் வாழ்வியல் கருத்துக்களைத் தெள்ளிதின் அறிதல்.

16ACCTA12 – நம்பியகப்பொருள்:

தமிழ் அகப்பொருள் மரபுகளை உணர்தல்.

16AMBETA1 – நாட்டுப்புறவியல்:

நாட்டுப்புறக் கலைகள் குறித்து விரிவாக அறிதல்.

16RSBE10:2 - இந்தியாவில் கலாச்சாரச் சுற்றுலா (கலாச்சாரம்):

சுற்றுலா வாயிலாக ஏற்படும் கலாச்சாரப் பரிமாற்றம், வளர்ச்சி பற்றி அறிதல்.

16ACCTA7 – சுற்றுலா உற்பத்தி–III:

சுற்றுலாவினால் விளையும் பொருளாதார வளர்ச்சி குறித்து அறிதல்.

RUGSDC – Soft Skills Development:

மென்திறன் பயிற்சி – மனப் பக்குவம் குறித்து அறிதல்.

16ACCTA13 – பண்டைய இலக்கியம்:

தமிழின் தொன்மையான இலக்கியங்களை அறிதல்.

16ACCTA14 – தமிழின் செம்மொழிப் பண்புகள்:

தமிழ் மொழியின் தனிச்சிறப்புகள் மற்றும் செம்மொழி இலக்கணம் அறிதல்.

16ACCTA15 – புறப்பொருள் வெண்பா மாலை:

தமிழனின் புறம் பற்றிய விரிவான வாழ்வியலை அறிதல்.

16AMBETA2 – தமிழ்மொழி வரலாறு:

தமிழ்மொழியின் தோற்றம், மாற்றம், திரிபு, வளர்ச்சி பற்றி அறிதல்.

16AMBETA3 – கல்வெட்டியல்:

தமிழில் கிடைத்தப் பழைமையானக் கல்வெட்டுகளை அறிதல்.

UGGS – பாலின சமத்துவம்:

பாலின வேறுபாடுகளைக் களைதல், பெண்களுக்கெதிரான வன்முறைகள் குறித்து விழிப்புணர்வு ஏற்படுத்துதல்.

Programme Specific outcome

பி.ஏ., தமிழ்: (B.A. Tamil)

இளநிலை தமிழ் இலக்கியம்:

16ACCTA1 - இக்கால இலக்கியம் (கவிதை, உரைநடை):

தற்கால இலக்கியங்கள் குறித்து அறிந்து, அதுபோல் படைக்க முயலுதல்.

16ACCTA2 – நன்னூல் - எழுத்து (காண்டிகையுரை):

தமிழ் இலக்கண அறிவை வளர்த்து, நூல் பல படைக்கத் திட்டமிடுதல்.

16AACCTA1 – ஊடகவியல்:

சமூக ஊடங்கள் குறித்து அறிந்து அவற்றில் வேலை வாய்ப்பினைப் பெறுதல்.

RUGVED - மதிப்பீட்டுக் கல்வி:

மனித உறவுகளின் உன்னதம் அறிந்து, சக மனிதனை மதித்து வாழ வழி ஏற்படுகிறது.

16ACCTA3 – சிற்றிலக்கியம்:

சிற்றிலக்கியங்கள் பற்றி அறிந்து, சிற்றிலக்கியங்கள படைக்க முயலுதல்.

16ACCTA4 - நன்னூல் - சொல்லதிகாரம்:

தமிழ்ச் சொற்களின் சிறப்புகள் உணர்ந்து, புதிய கலைச் சொற்களை உருவாக்குதல்.

16AACCTA2 – தமிழ் இலக்கிய வரலாறு:

தமிழ் இலக்கியங்களின் வரலாறு அறிந்து, போட்டித் தேர்வுகளில் வெல்லுதல்.

16UGCES – சுற்றுச் சூழலறிவியல்:

சுற்றுச் சூழல் விழிப்புணர்வு அடைந்து, பூவுலகைப் பேணுதல்.

16ACCTA5 – சித்தர் இலக்கியம்:

சித்தர் இலக்கியங்களை அறிந்து, இயற்கை வளங்களைக் காத்தல்.

16ACCTA6 – யாப்பருங்கலக் காரிகை (ஒழிபியல் நீங்கலாக):

யாப்பிலக்கணக் கோட்பாடுகள் அறிந்து, பாடல் இயற்ற முயலுதல்.

16AACCTA3 – தமிழக வரலாறும் பண்பாடும்:

தமிழ்நாட்டின் வரலாறையும் மக்கள் வாழ்வியலையும் உணர்ந்து, அதனைப் பிறருக்கும் உணரச் செய்தல்.

16ANMETA1 – மனித உரிமைகள்:

மனித உரிமைகள் குறித்து அறிந்து, விழிப்புணர்வுடன் அச்சமின்றி வாழ்தல்.

16ACCTA7 – சமய இலக்கியம்:

பல்வேறு சமயங்கள் பற்றி தெரிந்து, பிற மதத்தையும் மதித்து, மத நல்லிணக்கத்தை நிலைநாட்டப் பாடுபடுதல்.

16ACCTA8 – தண்டியலங்காரம்:

அணியிலக்கணம் குறித்து அறிந்து, பா வகை புனைதல்.

16AACCTA4 – படைப்பிலக்கியம்:

கவிதை, சிறுகதை, நாடகம் எழுதும் முறை அறிந்து, புதியனப் படைத்து, சமூக ஊடகங்களில் பணியாற்றி, சிறப்புறுதல்.

16ANMETA2 – சமகால சமூகப் பிரச்சினைகள் மற்றும் சிக்கல்கள்:

சமூக நடப்புகளைத் தெள்ளதின் தெரிந்து, வாழ்க்கையை நன்முறையில் அமைத்துக் கொள்ளுதல்.

16RSBE10:1 – சுற்றுலா பயண மேலாண்மை:

சுற்றுலா துறைகள் குறித்து அறிந்து, அத்துறையில் வேலைவாய்ப்பினைப் பெறுதல்.

16ACCTA9 – காப்பியம்:

தமிழ்க் காப்பியங்களின் சிறப்புகள் உணர்ந்து, திறனாய்வு செய்தல்.

16ACCTA10 – அற இலக்கியம் (திருக்குறள் நீங்கலாக):

நீதி இலக்கியங்களை விரிவாகப் படித்து, பிறரையும் நன்முறையில் வாழ வகுத்தல்.

16ACCTA11 – திருக்குறள்:

திருக்குறளின் வாழ்வியல் கருத்துக்களை அறிந்து, அதன்படி நாமும் வாழ உறுதி ஏற்றல்.

16ACCTA12 – நம்பியகப்பொருள்:

தமிழ் அகப்பொருள் மரபுகளை உணர்ந்து, புதிய அக இலக்கியங்கள் படைக்க முயலுதல்.

16AMBETA1 – நாட்டுப்புறவியல்:

நாட்டுப்புறக் கலைகள், நம்பிக்கைகள் குறித்து ஆய்வுகள் மேற்கொள்ளல்.

16RSBE10:2 - இந்தியாவில் கலாச்சாரச் சுற்றுலா (கலாச்சாரம்):

சுற்றுலா வாயிலாக ஏற்படும் வளர்ச்சி நிலைகளை அறிந்து, அத்துறையை வளர்க்கும் வழிவகைகளை அரசுக்குத் தெரிவித்தல்.

16ACCTA7 – சுற்றுலா உற்பத்தி–III:

சுற்றுலாவினால் விளையும் பொருளாதார வளர்ச்சி குறித்து ஆய்வு செய்து, அரசுக்கும் ஊடகங்களுக்கும் தெரிவித்தல்.

RUGSDC – Soft Skills Development:

மென்திறன் பயிற்சி – மனப் பக்குவப்படுத்தி நல்ல வாழ்க்கை முறையைப் பின்பற்றுதல்.

16ACCTA13 – பண்டைய இலக்கியம்:

தமிழின் தொன்மையான இலக்கியச் சுவைகளை அறிந்து பல்வேறு ஆய்வுகள் மேற்கொள்ளல்.

16ACCTA14 – தமிழின் செம்மொழிப் பண்புகள்:

தமிழ் மொழியின் தனிச்சிறப்புகளை வெளி உலகிற்கு எடுத்துரைத்தல்.

16ACCTA15 – புறப்பொருள் வெண்பா மாலை:

தமிழனின் வீர வாழ்வியலை உலகிற்குப் பறைசாற்றுதல்

16AMBETA2 – தமிழ்மொழி வரலாறு:

தமிழ்மொழியின் தோற்றம், மாற்றம், திரிபு, வளர்ச்சி குறித்து அறிந்து, மொழி வளர்ச்சிக்கு ஆவன செய்தல்.

16AMBETA3 – கல்வெட்டியல்:

தமிழில் கிடைத்தப் பழைமையானக் கல்வெட்டுகளைப் படியெடுத்து வெளி உலகிற்கு எடுத்துச் செல்லல்.

UGGS – பாலின சமத்துவம்:

பாலின வேறுபாடுகளை அறிந்து, பெண்களுக்கெதிரான வன்முறைகளைத் தடுக்க முயற்சிகள் மேற்கொள்ளல்.

Programme Course outcome

பி.ஏ., தமிழ்: (B.A. Tamil)

இளநிலை தமிழ் இலக்கியம்:

- இளநிலை பட்டப்படிப்பு – மாணவர்களின் எழுத்தாற்றலையும் பேச்சாற்றலையும் வளர்த்து, மிகச் சிறந்த தமிழறிஞராக உயர வழிவகுக்கிறது.
- இளநிலை பட்டத்தோடு, கல்வியியல் (பி.எட்.,) பட்டம் பெற்று, ஆசிரியர் பணியில் சிறந்து விளங்க முடியும்.

16AACCTA1 – **ஊடகவியல்:**

- இலக்கியங்களோடு பொது அறிவையும் அறிந்து கொள்ளும் நோக்கத்தை இது நிறைவு செய்கிறது.
- தற்காலத்தில் மிகவும் செல்வாக்கு பெற்றுத் திகழும் வானொலி, தொலைக்காட்சி, திரைப்படம், இணையம் போன்ற துறைகளில் வேலை வாய்ப்பினைப் பெற உதவுகிறது.
- சொந்த படைப்பாற்றலை வெளிப்படுத்தி, தனது தனித்தன்மைகளை வெளிக்கொணர்ந்து, உலக அளவில் சிறப்புப் பெயர் பெற வழிவகுக்கிறது.
- மக்கள் தகவல் தொடர்பு அலுவலராகப் பணியாற்றிட வாய்ப்பு ஏற்படுகிறது.

- சுய தொழிலில் ஈடுபட்டு, வெளி உலகில் சொந்த காலில் நிற்க உதவிடுகிறது.

16AACCTA4 – **படைப்பிலக்கியம்:**

- புதிய படைப்புகளைப் படைக்க ஆர்வமூட்டல்.
- படைப்பிலக்கிய மொழியின் தனித்தன்மைகளை அறிவுறுத்தல்.
- கவிதை, நாடகம், உரைநடை கட்டுரைகள், சிறுகதை ஆகியவற்றை தனித்தன்மையுடன் படைக்க வித்திடுதல்.
- புதிய உரைநடை மற்றும் இலக்கிய வகைகளையும், உத்திகளையும் அறிந்து உலக அளவில் புகழ் பெறுதல்.
- எழுத்துலகிற்கு இளையத் தலைமுறையினரைத் தயார் செய்து அனுப்புதல்.
- படைப்பாற்றல் தனித்த அடையாளத்தை ஏற்படுத்தி, உலகில் புகழ் பெறச் செய்யும்.

Programme outcome

எம்.ஏ., தமிழ்: (M.A. Tamil)

முதுகலை தமிழ் இலக்கியம்:

P16TA11 - இக்கால இலக்கியம்-I:

தற்காலத் தமிழ் இலக்கியங்களின் நடை குறித்து அறிதல்.

P16TA12 - இக்கால இலக்கியம்-II:

இக்கால இலக்கியங்கள் பற்றி அறிந்து, புதிய இலக்கியங்களைப் படைத்தல்.

P16TA13 – சிற்றிலக்கியம்:

சிற்றிலக்கிய வகைகளின் சிறப்புகள் பற்றி அறிந்து, திறனாய்வு செய்தல்.

P16TA14 – தொல்-எழுத்து (நச்சினார்க்கினியர் உரை):

தொல்காப்பியர் வெளிப்படுத்தும் தமிழ் எழுத்துக்களின் தனிச்சிறப்புகளை அறிதல்.

P16TAE1 – கணினித் தமிழ்:

கணிப்பொறியின் பாகங்கள், செயல்திறன் குறித்து அறிதல்.

P16TA21 - சமய இலக்கியம்:

பல்வேறு சமய இலக்கியங்களின் சிறப்புகளை அறிதல்.

P16TA22 – காப்பிய இலக்கியம்:

தமிழ்க் காப்பியங்களின் இயல்புகளை அறிந்து, இலக்கிய நயம் பாராட்டல்.

P16TA23 - அற இலக்கியம்:

அற இலக்கியங்களின் தனிச்சிறப்புகளை அறிந்து, நல்வாழ்வு வாழ வழிவகை செய்தல்.

P16TA24 - தொல்-சொல் (சேனாவரையர் உரை):

தொல்காப்பியச் சொல்லிலக்கணக் கோட்பாடுகளை அறிந்து கொள்ளல்.

P16TAE2 – ஒப்பிலக்கியம்:

தமிழ் இலக்கியங்களை உலக இலக்கியங்களோடு ஒப்பிட்டுப் பார்க்கும் திறனாய்வுத் திறனை வளர்த்தல்.

P16TA31 – சங்க இலக்கியம் - எட்டுத்தொகை:

எட்டுத்தொகை நூல்களின் தனிச்சிறப்புகளை அடையாளப் படுத்துதல்.

P16TA32 - சங்க இலக்கியம் - பத்துப்பாட்டு:

பத்துப்பாட்டு நூல்களின் தனித்தன்மையை ஆய்வு நோக்கில் அறிதல்.

P16TA33- ஒப்பீட்டு நோக்கில் உலகச் செம்மொழிகள்:

தமிழ்மொழியின் சிறப்புகளைப் பிற உலக மொழிகளோடு ஒப்பிட்டு ஆய்தல்.

P16TA34 – தொல்-பொருள் (முன் 5 இயல்கள்):

தொல்காப்பியம் வெளிப்படுத்தும் அகம், புறம் வாழ்வியல் கூறுகளைத் தெள்ளிதின் உணர்தல்.

P16TAE3 – நாட்டுப்புறவியல்:

நாட்டுப்புற இலக்கிய வகைகளை அறிதல்.

P16TA41 - இலக்கியக் கொள்கையும், திறனாய்வும்:

இலக்கியங்களின் இயல்புகளை அறிந்து. அவற்றைத் திறனாய்வு செய்யும் முறைகளை அறிதல்.

P16TA42 – தொல்-பொருள் (பின் 4 இயல்கள்):

தொல்காப்பியம் குறிப்பிடும் மெய்ப்பாடுகள், உவமைகள், யாப்பியலக்கணம், மரபு அறிதல்.

P16TAE54 – பெண்ணியம்:

பெண்களுக்காக சட்டங்கள், பெண்களுக்கெதிரான வன்முறைகள், பெண்களின் உரிமைகள் குறித்து விரிவாக அறிதல்.

P16TAE4A – சைவமும் தமிழும்:

சைவ சமய இலக்கியங்களின் தனிச்சிறப்புகளை அறிதல்.

Programme Specific outcome

எம்.ஏ., தமிழ்: (M.A. Tamil)

முதுகலை தமிழ் இலக்கியம்:

P16TA11 - இக்கால இலக்கியம்-I:

தற்காலத் தமிழ் இலக்கியங்களைத் திறனாய்வு செய்தல்.

P16TA12 - இக்கால இலக்கியம்-II:

இக்கால இலக்கியங்கள்வழி புதிய இலக்கியங்களைப் படைத்தல்.

P16TA13 – சிற்றிலக்கியம்:

சிற்றிலக்கிய வகைகளின் சிறப்புகள் பற்றி அறிந்து, புதுவகை சிற்றிலக்கியங்களைப் படைக்க முற்படுதல்.

P16TA14 – தொல்-எழுத்து (நச்சினார்க்கினியர் உரை):

தொல்காப்பியர் வெளிப்படுத்தும் தமிழ் எழுத்துக்களின் இயல்புகளை ஆய்ந்து மெய்ம்மைகளை நிறுவுதல்.

P16TAE1 – கணினித் தமிழ்:

கணிப்பொறியின் செயல்திறன் மற்றும் பயன்பாடுகளை அறிந்து வாழ முயலுதல்.

P16TA21 - சமய இலக்கியம்:

பல்வேறு சமய இலக்கியங்களின் சிறப்புகளை அறிந்து, சீரான வாழ்க்கை வாழ முயலுதல்.

P16TA22 – காப்பிய இலக்கியம்:

தமிழ்க் காப்பியங்களின் தனித்தன்மைகளை ஆய்வுக்கு உட்படுத்துதல்.

P16TA23 - அற இலக்கியம்:

அற இலக்கியங்களின் சிறப்புகளை அறிந்து, மனித நேயத்தோடு வாழ்தல்.

P16TA24 - தொல்-சொல் (சேனாவரையர் உரை):

தொல்காப்பியச் சொல்லிலக்கண மரபுகளை அறிந்து, பிழையின்றி எழுதப் பயிலுதல்.

P16TAE2 – ஒப்பிலக்கியம்:

தமிழ் இலக்கியங்களை உலக இலக்கியங்களோடு ஒப்பிட்டுப் பல்வேறு ஆய்வுகளை நிகழ்த்துதல்.

P16TA31 – சங்க இலக்கியம் - எட்டுத்தொகை:

எட்டுத்தொகை நூல்களின் தமிழன் வாழ்க்கை உலகிற்று உரைத்தல்.

P16TA32 - சங்க இலக்கியம் - பத்துப்பாட்டு:

பத்துப்பாட்டு நூல்களின் தனித்தன்மைகளை மதிப்பீடு செய்தல்.

P16TA33- ஒப்பீட்டு நோக்கில் உலகச் செம்மொழிகள்:

தமிழ்மொழியின் இலக்கியங்களைப் பிற உலக இலக்கியங்களோடு ஒப்பிட்டு ஆய்தல்.

P16TA34 – தொல்-பொருள் (முன் 5 இயல்கள்):

தொல்காப்பியம் வெளிப்படுத்தும் தமிழர்தம் அகம், புறம் வாழ்வியலை ஆய்தல்.

P16TAE3 – நாட்டுப்புறவியல்:

நாட்டுப்புற இலக்கியத் தனித்தன்மைகளைப் பேணிப் போற்றுதல்.

P16TA41 - இலக்கியக் கொள்கையும், திறனாய்வும்:

இலக்கியங்களின் இயல்புகளை அறிந்து, நடுவுநிலையோடு ஆய்வுகளை மேற்கொள்ளல்.

P16TA42 – தொல்-பொருள் (பின் 4 இயல்கள்):

தொல்காப்பியம் குறிப்பிடும் மெய்ப்பாடு வகைகளை இன்றைய உளவியல் கருத்துக்களோடு ஒப்பிடுதல்.

P16TAE54 – பெண்ணியம்:

பெண்களுக்கெதிரான வன்முறைகளை ஒழித்து, பெண்களின் உரிமைகளைப் பேணுதல்.

P16TAE4A – சைவமும் தமிழும்:

சைவ சமய இலக்கியங்களின் வளர்ச்சி, தாக்கம் குறித்து ஆய்தல்.

Programme Course outcome

எம்.ஏ., தமிழ்: (M.A. Tamil)

முதுகலை தமிழ் இலக்கியம்:

- முதுகலை பட்டப்படிப்பு – மாணவர்களின் எழுத்து, பேச்சாற்றலை வளர்த்து, தரமான தமிழறிஞராக பரிணமிக்க உதவிடுகிறது.
- ஆராய்ச்சி நோக்கில் கட்டுரைகள் எழுதி, தமிழ் ஆய்வு உலகிற்கு பெரும்பங்களிப்பை நல்கும் வாய்ப்பை ஏற்படுத்துகிறது.
- தமிழ்நாடு அரசு தேர்வாணையம் சார்பில் நடத்தப்பெறும் Group – I தேர்வினை எழுதி. அரசு உயர் பணிகளில் பணியாற்ற வாய்ப்பினை ஏற்படுத்தித் தருகிறது.
- மேல்நிலைப் பள்ளிகளில் முதுநிலை ஆசிரியராகப் பணியாற்ற வாய்ப்பினை வழங்குகிறது.

P16TAE3 – நாட்டுப்புறவியல்:

- நமது தமிழ்ப் பண்பாட்டின் ஆணிவேரினை அறிந்து கொள்ள முடிகிறது.
- நம் அக்கால மக்களின் வாழ்வியலை வெளிக்கொணர உதவிடுகிறது.
- நாட்டுப்புறப் பாடல்கள், கதைகள், நடனங்கள், நம்பிக்கைகள் போன்றவற்றைத் திறனாய்வு செய்யவும், பல்வேறு ஆய்வுகள் நிகழ்த்தி, பாரம்பரியத்தைக் காப்பாற்றும் வாய்ப்பினையும் வழங்குகிறது.

P16TAE4A – சைவமும் தமிழும்:

- இலக்கியங்களில் பக்தி இலக்கியத்தின் தனிச் சிறப்புகளைப் புலப்படுத்துதல்.
- வாழ்வியல் ஒழுக்க நெறிகளில் பக்தி இலக்கியத்தின் பங்கு பற்றி எடுத்துரைத்தல்.
- பக்தி இலக்கியப் படைப்பாளர்களின் உத்தி முறைகளைப் புலப்படுத்துதல்.
- சைவ சமயம் தமிழகத்தில் பெற்றிருந்த தனி இடம் - சைவ மடங்கள் - பணிகள் குறித்து அறிவித்தல்.
- தமிழ்நாடு அரசின் தேர்வாணையத் தேர்வு – குழு-8 (Group – VIII) - இந்து அறநிலையத் துறையின் தேர்விற்குத் தயார்படுத்துதல்.
- சமூக வளர்ச்சிக்கு சைவத்தின் பங்கு பற்றி விரிவாக உணரச் செய்தல்.
- பக்தி இலக்கிய ஆய்வுகளை முன்னெடுத்தல்.

Programme outcome

எம்..்.பில்., தமிழ்: (M.Phil., Tamil)

ஆய்வியல் நிறைஞர்:

9T1 – ஆராய்ச்சி நெறிமுறைகள்:

ஆய்வேடு எழுதும் முறைகளைத் தெளிவுபடுத்துதல்.

9T2 – தமிழாய்வுக் களங்கள்:

இதுவரை வெளிவந்துள்ள தமிழ் ஆய்வுகள் குறித்துத் தெளிவுபடுத்துதல்.

9MTLS4:1 – கற்பித்தல் - கற்றல் திறன்கள்:

தகவல் தொடர்பு வளர்ச்சி, வகுப்பறை கற்பித்தல் குறித்து விரிவாக அறிதல்.

9GT3 – நெறியாளர் தாள்:

ஆய்வின் களம் குறித்து அறிதல்.

Programme Specific outcome

எம்.ஃபில்., தமிழ்: (M.Phil., Tamil)

ஆய்வியல் நிறைஞர்:

9T1 – ஆராய்ச்சி நெறிமுறைகள்:

ஆய்வேடு எழுதும் முறைகளை அறிந்து ஆய்வுக் கட்டுரைகள் எழுதுதல்.

9T2 – தமிழாய்வுக் களங்கள்:

இதுவரை வெளிவந்துள்ள தமிழ் ஆய்வுகள் குறித்துத் தெரிந்துகொண்டு, புதிய ஆய்வுகளை முன்னெடுத்தல்.

9MTLS4:1 – கற்பித்தல் - கற்றல் திறன்கள்:

தகவல் தொடர்பு வளர்ச்சியின் துணையோடு புது வகையான முயற்சிகளை மேற்கொண்டு வகுப்பறை கற்பித்தல் திறனை மேம்படுத்துதல்.

9GT3 – நெறியாளர் தாள்:

ஆய்வின் களம் குறித்து அறிந்து, புதிய கோணங்களில் ஆய்வினை அணுகுதல்.

Programme Course outcome

எம்..்.பில்., தமிழ்: (M.Phil., Tamil)

ஆய்வியல் நிறைஞர்:

- தமிழ் ஆய்வுகள் குறித்து நன்கு தெரிந்துகொண்டு. சிறந்த ஆய்வேட்டினையும், பல்வேறு ஆய்வு நூல்களையும் வெளியிட வித்திடுகிறது.
- இப்பட்டத்தோடு, பல்கலைக்கழக மானியக்குழு நடத்தும் தகுதித் தேர்விலும் (UGC – NET) தேர்ச்சி பெற்றால் கல்லூரி உதவிப் பேராசிரியராகப் பணி பெறுவதற்கு வாய்ப்பு ஏற்படுகிறது.

- தமிழ் ஆய்வுக் கட்டுரைகளையும், நூல்களையும் வெளியிட்டு தனித்தன்மையோடு சிறப்புற்றுத் திகழ வாய்ப்பு ஏற்படுகிறது.

9T2 – தமிழாய்வுக் களங்கள்:

- இலக்கிய ஆய்வுகளின் இன்றைய நிலை குறித்து அறிந்து கொண்டு, எதிர்காலத்தில் தரமான ஆய்வுகள் நிகழ்த்த வாய்ப்பினைத் தருகிறது.
- பழந்தமிழ் நூல்களைப் பதிப்பித்து வெளியிட வாய்ப்பினை ஏற்படுத்துகிறது.
- நவீன ஆய்வுகளின் போக்குகள் குறித்து அறிந்து கொண்டு, புதிய கோணத்தில் தமிழுலகிற்குப் புதிய ஆய்வுகளைத் தந்திட வித்திடுகிறது.
- பல்வேறு மொழிகளோடு தமிழுக்குரிய உறவுநிலைகள் குறித்து ஆய்வு நிகழ்த்த வழிவகை செய்கிறது.
- திறனாய்வு முறைகளின் வளர்ச்சி நிலைகளை அறிந்து கொண்டு உலகத் தரத்திற்கு ஆய்வுகள் நிகழ்த்த வழிகாட்டுகிறது.

9MTLS4:1 – கற்பித்தல் - கற்றல் திறன்கள்:

- ✓ கணிப்பொறியின் அடிப்படைகளையும் - அதன் செயல்பர்டுகளையும் நன்கு அறிந்து கொள்ளுதல்.
- ✓ கணிப்பொறியின் பயன்பாடுகள் ஆய்விற்கு எவ்வாறெல்லாம் உதவிடும் என்று வழிகாட்டுதல்.
- ✓ நூல்களைக் கணிப்பொறி உதவியுடன் தேடுதல், படியெடுத்தல், அச்சடித்தல், சேமித்தல், பரிமாறுதல் என அனைத்து வகை பயன்பாடுகளையும் அறிதல்.

- ✓ வகுப்பறையில் எவ்வாறு கற்பிப்பது. எவ்வாறு வினாக்களை எழுப்புவது, கவனிக்கும் திறனை வளர்த்தல், மனனம் செய்வதைப் பயிற்சியாக்குவது. சிறந்த ஆசிரியராக மிளிர வழிமுறைகள் தெரிவித்தல்.
- ✓ மாணவர்களின் தரம், மனநிலை, போக்கு, கவனிக்கும் ஆற்றல் போன்றவற்றை உணரச் செய்தல்.
- ✓ செய்யுள், உரைநடை, சிறுகதை போன்றவற்றைக் கற்பிக்கும் உத்திகளை அறிமுகம் செய்தல்.

Programme outcome

பிஎச்.டி., தமிழ்: (Ph.D., Tamil)

முனைவர் பட்டம்:

- ❖ ஆய்வு உலகில் தனிச்சிறப்புடன் திகழ வழிவகுத்தல்.

- ❖ ஆதாரங்களைத் தொகுத்துத் தரமான ஆய்வு வெளிவர வித்திடுதல்.
- ❖ மொழிக்கும், சமூகத்திற்கும் பயனுள்ளதான ஆய்வுகளை அறிமுகப்படுத்துதல்.
- ❖ மொழி வளத்தினையும், கள ஆய்வின் தேவையையும் பயிற்சியாக்குதல்.
- ❖ உயர் படிப்பிற்கும், வேலைவாய்ப்பிற்கும் வழிவகுத்தல்.
- ❖ ஆய்வுகளை நூலாக்கம் செய்வதும், பல்வேறு ஆய்வுக்கட்டுரைகளை வெளியிடவும் ஆவன செய்தல்.

Programme Specific outcome

பிஎச்.டி., தமிழ்: (Ph.D., Tamil)

முனைவர் பட்டம்:

ஆய்வுத் தலைப்பிற்கேற்பத் தரவுகளைத் திரட்டி, தனித்துவம் பெற்ற ஆய்வேட்டினை உருவாக்குதல்.

Programme Course outcome

பிஎச்.டி., தமிழ்: (Ph.D., Tamil)

முனைவர் பட்டம்:

- தரமான ஆராய்ச்சிகளை மேற்கொண்டு, தமிழ் ஆய்வு நூல்கள் பல வெளியிட வித்திடுகிறது.
- முனைவர் பட்டம் பெற்றபின்பு, பல்வேறு கல்லூரி மற்றும் பல்கலைக்கழகங்களில் உதவிப் பேராசிரியாராகப் பணிபுரிய வாய்ப்பு ஏற்படுகிறது.
- மேலாய்வுகள் பல நிகழ்த்தவும், பல்கலைக்கழக அளவில் பல கருத்தரங்குகள் மற்றும் பயிலரங்குகள் நிகழ்த்திட வழிவகை செய்கிறது.
- தானும் ஒரு முனைவர் பட்ட ஆய்வு நெறியாளராக கடமையாற்றிட வாய்ப்பு ஏற்படுகிறது.
- அரசு வழங்கும் பல்வேறு நிதி ஆதாரங்களைப் பெறுவதற்கு உதவிடுகிறது.

Zoology Program Outcomes, Program Specific Outcomes and outcomes Zoology Program Outcomes:

1. P01 - Students gain Knowledge and skill in the fundamentals of animal sciences understands the complex interractions among various living organisms

2. P02 - Anylyse complex interactions among the carious animals of different phyla, their distribution and their distribution and their relationship with the environment.

3.P03 - Apply the knowledge of internal structure of cell, its function in control of various metabolic functions of organisms.

4.P04 - Understands the complex evolutionary processes and behaviour of animals

5.P05 - Correlates the physiological processes of animales and relationship of organ systems

6.P06 - Understanding of enviromental conservation processes and its importance pollution control and biodiversity and protection of endangered species.

7.P07 - Gain knowledge of Agro based Small scale industries like sericulture, fish farming, butterfly farming and vermicompost preparation.

8.P08 - Understands about various concepts of genetetics and its importance in human health.

9.P09 - Apply ethical priciples and commit to professional ethics and responsibilities in delivering his duties

10.P010 - Apply the Knowledge and understanding of Zoology to ons's own life and work.

11.P011 - Develops empathy and love towards the animals.

Program Specific Outcomes:

1. PS01. Understand the nature and basic concepts of cell biology, genetics taxonomy, physiology, ecology and applied Zoology

2.PS02. Analyse the relationship amoong aninmals,plants and microbes

3.PSO3. Perform procedures as per laboratory standards in the areas of Taxonomy, Physiology, Ecology, cell biology, Genetics, Applied Zoology, Clinical science tools and techniques of Zoology, Toxicology, Entomology, Nematology Sericulture, Biochemistry, Fish biology, Animal biotechnology, Immunogy and reserch methodology.

4.PS04. Understand the application of biological sciences in Apiculture Aquaculture, Aqriculture and Medicine

5. PS05. Gains knowledge about reserch methodologies, effective Communication and skills of problem solving methods

6.PSO6. Contributes the knowledge for nation building

Cource Outcomes:

Invertebrate - Sub Code - 16SCCZ01, 16SCCZ02

CO1 Describe general taxomonic rules on animal clasification

CO2 Classify Protista up to phylum using examples from parasitic adaptation

CO3 Classify Phylum Porifera to Echinodermata with taxonomic keys

CO4 Describe Phylum Nematoda and give example of pathogenic Nematodes

Environ - Bio - 16SCCZ08

Co1 Distribution of fauna in different realms interaction

CO2 Understand Animal behaviour and response of animals to different instincts

CO3 Interaction of bipta abiota

CO4 Various kinds of Animals adaptations

Chordata - 16SCZ03

CO1 Impart conceptual knowledge of verbrates, their adaptation and association in relation to their environment

CO2 Classify Phylum Protochordates to Mammaalia

CO3 Complex Vertebrate interaction

CO4 Basis concept of development biology

Cell - Bio 16SCCZ04 - Genetics and Evolution - 16SCCZ06

CO1 Structural and functional aspects of basic unit of life i.e cell concepts

CO2 Mendelian and Non Mendelian inheritance

CO3 Concept behing genetic disorder, gene mutation - various causes associated with inborn errors of metabolism

CO4 Theories of Evolution

CO5 Knowledge of ears and evolution of species.

Physiology and biochemistry - 16SCCZ05

C01 Seeks to understand the mechanisms that work to keep the human body alive and functioning

CO2 Physiological and biochemical understanding through scientific enquiry into the nature of mechanical, physical, and biochemical function of human their organs and the cells of with they are composed

CO3 Interactions and interdependence of phhysiological and biochemical processes

Entomology - 16MBEZ01:2

CO1 Imparts knowledge of beneficial and non - benefical insects

CO2 Knowledge of how they interact with their environment, other species and human

CO3 classsification of Insects

CO4 Role of insecs in spread of diseases

Sericulture - P16Z0E5A

CO1Gives knowledge of silk worm rearing

CO2 Mulberry cultivation

CO3 Pests and diseases associated with silk worm and mulberry

CO4 Various proccss involve in silk productions

Immunology - P16Z042

CO1 Imparts in depth knowledge of tissuses, cell and molecules involves in hots defense mechnisms

CO2 Underrstanding of immunity

CO3 Inreaction of antigens, antibodies, complements and immune components

Animal taxonomy, phylogeny and biodiversity - P16Z011

CO1 Imparts knowledge regarding the various Invertebrates species and the regulatory processes to safeguard them

CO2 With the study of this paper studends gain knowledge in the areas of responses to Systematic position, general organization and affinities of Ctenophora and Nemertea

CO3 Rhynchoceola, Systematic position, General organization and affinities of Rotifer

C04 Systematic position, general organization and affinities of Hemichordata

Biostatistics and computer Applications - P16Z032

CO1 Students gain knowledge about various tools & technigus used in biological system and gives them insights about their insights use in research

CO2 Biostatistics teaches them to use the best ananlysis method in their research tenndencies, probability

Animal pihysiology - P16Z021

CO1 Imparts knowledge about varoous metabolic and physiological mechanisma of the human body

CO2 Unmderstands about neurophysiology and receptors

CO3 Gain knowledge about Hormones and bioluminescence

CO2 Understanding of strees physiology and endocrine mechanisms will allow them to control their stress and emotoions by diverting towards the positive nation building activities

Fish Biology (FB) - P16Z0E4A

CO1 Course Provides them comprehensive unterstanding about aquatic ecosystem and various economic important fishes.

CO2 Students gain knowledge in the areas of responses characterization and classification of Ostracoderms, placoderms, acanthodians, holocephalic, elasmobranchs.

CO3 Students gain knowledge of integumentary system - basic structure of skin, dermal and epidermal pigments, fins and scales.

CO4 Understanding of embryogenisis - Early development and post embryonic development.

CO5 Understanding of fishes habits and habitats and their functional anatomy.

CO6 The students will be well equipped to become very competent in research or teaching fields.

CO7 It is one of the small scale industry which can provide the student employment opportunity.

Instrumentation and Computer Application in Biology

CO1 Understanding of basic concepts of instrumentation such as cell fractactionation, homogenation and centrifugation.

CO2 Students gain skills in techniques of chromatography, electrophoresis, spectroscopy and radio isotopes.

CO3 Students gain skills in histological immunological and electrophysiological techniques.

CO4 Students gain skills basics of computers, operating systems, overview of programming languages.