



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



DEPARTMENT OF CHEMISTRY

PROGRAMME OUTCOMES OF UG COURSES (2021 ONWARDS)

Name of the Programme: B.Sc Chemistry	
PO1	An ability to apply knowledge of basic chemistry
PO2	Think critically and analyze chemical problems.
PO3	Present scientific and technical information resulting from laboratory experimentation in both written and oral formats.
PO4	work effectively and safely in a laboratory environment.
PO5	Use technologies and instrumentation together to explore new areas of research.
PO6	Work as a member of interdisciplinary problem solving team.
PO7	Apply their scientific skill to innovative studies.



PROGRAMME SPECIFIC OUTCOMES OF UG COURSES (2021 ONWARDS)

Name of the Programme: B.Sc Chemistry	
PSO1	Ability to analyze a basic chemistry problem
PSO2	Have enormous job opportunities at all levels of chemical, pharmaceutical and food product industries.
PSO3	Get specific placements in R & D and synthetic division of polymer industries & Allied divisions.
PSO4	Appear in competitive exams conducted by service commission.
PSO5	Gain complete knowledge about all fundamental aspects of chemistry
PSO6	Learn about the emerging field of green chemistry, nanochemistry and polymer chemistry
PSO7	Carry out experiments in the area of organic analysis, estimation, inorganic semi-micro analysis, conductometric & potentiometric equipment



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



COURSE OUTCOMES OF UG COURSES (2019 ONWARDS)

Name of the Programme: B.Sc Chemistry		
Course Code & Course Title	Course Outcome	
SEMESTER-I		
21UCH01 CORE-I GENERAL CHEMISTRY-I	CO1	Bridgethe fundamental concepts of chemistry with the present level of knowledge of the students.
	CO2	Learn the periodic table properties such as atomic number, atomic size, mass number, and electronegativity, metal and non-metal properties.
	CO3	Understand the basic organic reaction
	CO4	Demonstrate the nucleophilic substitution reactions
	CO5	Understand the effect heat with physical and chemical process
	CO6	Learn about nature of chemical bonding
21UCHA01 ALLIED CHEMISTRY-I	CO1	Study about the Chemical Bonding
	CO2	Outline the Nuclear Chemistry
	CO3	Describing the Basic Concepts of Organic Chemistry
	CO4	Exploring the Aromatic compounds
	CO5	Study the basic concepts of Polymer Chemistry



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



SEMESTER-II

21UCH02 CORE-II GENERAL CHEMISTRY-II	CO1	Get an idea about the p-Block Elements in periodic table
	CO2	Exploring the Aromatic Compounds and Electrophilic Substitution
	CO3	Exploring the Aliphatic Nucleophilic Substitution & Elimination:
	CO4	Have a understand on the physical state of molecules (Liquid State, Liquid Crystals & Colloids)
21UCHA02 ALLIED CHEMISTRY-II	CO1	Study the basics of Co-ordination chemistry
	CO2	Describing the Carbohydrates & Aminoacids
	CO3	Have knowledge on Pharmaceutical chemistry
	CO4	Have knowledge on Photochemistry:
	CO5	Exploring the Electro Chemistry



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



21UCHS01 SKILL-I-FOOD AND NUTRITION	CO1	Have knowledge on Food Sources
	CO2	Describing the various sources of Nutrition
	CO3	Exploring the Food Poisoning, Adulteration And Food Preservation
	CO4	Study the basics of Vitamins And Minerals
	CO5	Outline the importance Foods In Relation To Disease
21UCHP01 CORE PRACTICAL –I VOLUMETRIC ESTIMATIONS AND ORGANIC PREPARATIONS	CO1	Understing the principles of volumetric estimation
	CO2	Learn about the making standard solutions
	CO3	Study the types of titrations
	CO4	Learn about the complexometric titrations
	CO5	Learn about the precipitation titrations



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



<p>21UCHAP01 ALLIED CHEMISTRY PRACTICAL-I</p>	CO1	Understanding the principles of volumetric estimation
	CO2	Learn about the making standard solutions
	CO3	Understanding the acidimetry- alkalimetry estimations
	CO4	Determination of hardness of water by complexometric titrations
	CO5	Learn about the identification of organic compounds by systematic analysis.
SEMESTER-III		
<p>21UCH03 CORE-III GENERAL CHEMISTRY-III</p>	CO1	Learn about the Inorganic Qualitative Analysis and Nuclear Chemistry
	CO2	Understand the basics of Halogen Family and Chemistry of Rare Gases
	CO3	Study the basics of Carbonyl Compounds including ester, carboxylic acids etc.
	CO4	Learn about the Thermodynamics and Thermochemistry
	CO5	Describing the Second Law of Thermodynamics
<p>CODE -21UCHS02 SKILL BASED ELECTIVE COURSE – II POLYMER CHEMISTRY</p>	CO1	Study the Basic concepts: Monomer and polymerization
	CO2	Understand the Structure of polymers
	CO3	Study the Molecular weight of polymers



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



	CO4	Study the Preparation, properties and uses of Poly olefins-polythene, PTFE, Freons, PVC, polypropylene and polystyrene.
	CO5	Exploring the Plastics and Resins
21UCHA01 ALLIED CHEMISTRY-I	CO1	Study about the Chemical Bonding
	CO2	Outline the Nuclear Chemistry
	CO3	Describing the Basic Concepts of Organic Chemistry
	CO4	Exploring the Aromatic compounds
	CO5	Study the basic concepts of Polymer Chemistry



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



SEMESTER-IV

<p>21UCH04 CORE-IV GENERAL CHEMISTRY-IV</p>	CO1	Study the principles of d-Block elements & Principles of Metallurgy
	CO2	Get deep understating in the Gravimetric Analysis
	CO3	Study the chemistry of Carboxylic Acids
	CO4	Exploring the organic Reaction Mechanism
	CO5	Describing the Second law of thermodynamics
<p>21UCHA02 ALLIED CHEMISTRY -II</p>	CO1	Study the concept of Co-ordination chemistry
	CO2	Basics of Carbohydrates & Aminoacids
	CO3	Understand the basic concept of Pharmaceutical chemistry
	CO4	Understand the basic knowledge on Photochemistry:
	CO5	Acquires the knowledge about Electro Chemistry-
<p>21UCHAP01 ALLIED CHEMISTRY PRACTICAL-I</p>	CO1	Understing the principles of volumetric estimation
	CO2	Learn about the making standard solutions
	CO3	Understanding the acidimetry- alkalimetry estimations
	CO4	Determination of hardness of water by compexometric titrations
	CO5	Learn about the identification of organic compounds by systematic analysis.



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



<p>21UCHPO2 CORE-PRACTICAL-II INORGANIC QUALITATIVE ANALYSIS AND INORGANIC PREPARATIONS</p>	CO1	Explain the basic separation and analysis of inorganic anions and cations
	CO2	Outline the semimicroqualitative analysis and inorganic preparations
	CO3	Get an idea about the anion and cations
	CO4	Outline the Inorganic metal complexes
	CO5	Acquires the knowledge about Inorganic metal complexes.



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



SEMESTER-V

21UCH05 INORGANIC CHEMISTRY	CO1	Study the advanced concepts of Coordination Chemistry
	CO2	Learn about the Theories of Coordination Compounds
	CO3	Reactions Mechanisms and Applications of Complexes
	CO4	Basics of Chemistry of f-block elements
	CO5	Concepts of acids, bases and non aqueous solvents
21UCH06 ORGANIC CHEMISTRY-I	CO1	Exploring the Concept of Stereoisomerism and Elements of symmetry
	CO2	Acquiring the knowledge of Geometrical isomerism and Conformational analysis
	CO3	Know the classification of Phenols and polyphenols
	CO4	Get an idea of Organic Molecular rearrangements
	CO5	Know the classification of - Terpenes and alkaloids
21UCH07 CORE-VI PHYSICAL CHEMISTRY	CO1	Exploring the Thermodynamic Chemical Equilibrium
	CO2	Understand the Concept of Chemical Kinetics
	CO3	Exploring the Collision theory, Lindemann theory of Unimolecular reactions, Theory of Absolute Reaction Rates (ARRT)



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal–637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f)&12(B))



	CO4	Exploring the Electrochemistry – Variation of conductance with dilution, Ionic mobilities and Ionic conductance
	CO5	Describing the Debye – Huckel – Onsager theory
<p style="text-align: center;">21UCHE01 ANALYTICAL CHEMISTRY</p>	CO1	Learn about the purification Techniques. Chromatography ; Column Chromatography, TLC and Paper Chromatography
	CO2	Understanding about the Thermoanalytical method
	CO3	Learn about Electroanalytical method
	CO4	Study the application of UV-Visible & IR spectroscopy in organic compounds
	CO5	Study the application of NMR & Mass spectroscopy in organic and inorganic compounds.
SEMESTER-VI		
<p style="text-align: center;">21UCHS03 Skill Based Elective Course –III AGRICULTURAL CHEMISTRY</p>	CO1	Learn about the Fertilizers
	CO2	Study of Manures : Organic manures - Bulky organic manures – Farm yard manure – Difference between fertilizers and manures
	CO3	Outline the Classification of Pesticides And Insecticides
	CO4	Outline the Fungicides And Herbicides
	CO5	Describing the Soils-Composition of soil-organic and inorganic constituents



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



<p style="text-align: center;">21UCHS04 Skill Based Elective Course –IV DYE CHEMISTRY</p>	CO1	Colour and constitutions, Definition- Dye, chromophore, auxochrome, bathochromic effect and hypsochromic effect –Quinoid theory
	CO2	Synthesis of Diphenylmethane, Triphenylmethane Dyes and Indigo
	CO3	Synthesis of Phthalein Dyes; Xanthein Dyes – Acridine dyes and Reactive dyes
	CO4	Exploring the Pigments and dyes
	CO5	Describing the Textile Effluent



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f)&12(B))



SEMESTER-VI

Core Chemistry Major Paper –VIII CODE -21UCH08 INORGANIC CHEMISTRY	CO1	Study of Organometallic compounds
	CO2	Describing the Metal carbonyls
	CO3	Concepts of Bioinorganic Chemistry
	CO4	Study of Some Special compounds
	CO5	Exploring the Magnetic properties of molecules
CODE -21UCH09 ORGANIC CHEMISTRY	CO1	Outline the Carbohydrates
	CO2	Importance of Amino acids and proteins
	CO3	Describe the concept of Organic photochemistry
	CO4	Describing the Steroids, Hormones and Vitamins
	CO5	Discuss about the Heterocyclic compounds
CODE -21UCH10 PHYSICAL CHEMISTRY	CO1	Understand the Solutions of gases in liquids
	CO2	phase rule of one and two component systems
	CO3	Learn about the– Galvanic cells
	CO4	Learn about the Cells and Batteries
	CO5	Exploring the importance of Photochemistry
Paper Code: 21UCHS05 Skill Based Elective Course -V PHARMACEUTICAL CHEMISTRY	CO1	Understanding of pharmacophore, pharmacodynamics, pharmacopoea, pharmacology
	CO2	Describing the mechanism and action of sulpha drugs and Antibiotics
	CO3	Exploring the Analgesics and Antipyretic
	CO4	Exploring the anaesthetics and Antianaemic drugs



PGPCOLLEGE OF ARTS AND SCIENCE

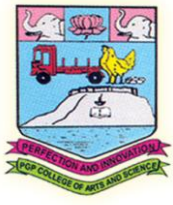
NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



	CO5	Study of important diseases such as AIDS and Cardio Vascular and Indian medicinal plants
<p>Paper Code: 21UCHE03 Elective Paper –III INDUSTRIAL CHEMISTRY</p>	CO1	Describe the various Industrial fuels
	CO2	Outline the Water treatment
	CO3	Describing the types of chemical Industries:
	CO4	Exploring the types of energy resources
	CO5	Outline the importance of industrial Wastes treatment:
	<p>CORE PRACTICAL – III CODE -21UCHP03 PHYSICAL CHEMISTRY PRACTICALS</p>	CO1
CO2		Understand the principles behind the molecular weight determination
CO3		Study the concept of Conductivity measurements
CO4		Understand the principles behind Potentiometric titration
CO5		Determine the rate and dissociate constant for a reaction.
<p>CORE PRACTICAL – IV CODE -21UCHP04 GRAVIMETRIC ESTIMATIONS AND ORGANIC PRACTICALS</p>	CO1	Outline the Gravimetric estimation
	CO2	Gain the knowledge of systematic gravimetric estimation
	CO3	Estimate Gravimetrically the amount of Inorganic ions
	CO4	Gain the knowledge on Systematic analysis of organic compound and determine the functional groups



PGP COLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))





PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



PROGRAMME OUTCOMES OF PGP PROGRAMMES (2021 ONWARDS)

Name of the Programme: M.Sc Chemistry	
PO1	To equip students to meet current industrial need
PO2	To equip students with advanced knowledge and insight in general and green chemistry
PO3	To enhance professional skills in chemistry by providing hands on training to operate the sophisticated instruments.
PO4	Acquire the knowledge on the role of chemistry in industries and to become entrepreneur
PO5	To equip students with different types of problem solving related to academic and industrial domain
PO6	Demonstrate, solve and understanding of major concepts in all disciplines of chemistry.
PO7	Develop analytical skills and problem solving skills requiring application of chemical principles.
PO8	The students can understand the role of chemistry in day to day life.
PO9	Create an awareness of the impact of chemistry on the environment, society, and development outside the scientific community.
PO10	Acquires the ability to synthesis, separate and characterize compounds using laboratory and instrumentation techniques



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



PROGRAMME SPECIFIC OUTCOMES OF PG COURSES (2021 ONWARDS)

Name of the Programme: M.Sc Chemistry	
PSO1	To build the firm foundation in the fundamentals and correlate the application with the current developments in chemistry.
PSO2	To emphasize on integrating various disciplines of Science and encourage for interdisciplinary approach
PSO3	To make current awareness on social, economic, and environmental problems facing globally
PSO4	To motivate the students to prepare for competitive examinations, job carriers and get trained for industrial entrepreneurship.
PSO5	To acquire problem solving capacity, interpretation of results with the use of sophisticated instruments and devises new preparation techniques.
PSO6	To get sufficient expertise in the operational knowledge and laboratory skills in all major fields of chemistry.



COURSE OUTCOMES OF PGCOURSES (2021 ONWARDS)

Name of the Programme: M.Sc Chemistry		
Course Code & Course Title	Course Outcome	
SEMESTER-I		
21PCH01 CORE I - ORGANIC CHEMISTRY – I	CO1	To learn about the stereochemistry of organic compounds and ORD and CD..
	CO2	To learn about the formation, stability and structure of intermediates and the mechanism of aliphatic electrophilic substitution.
	CO3	To learn about the effect of structure on reactivity
	CO4	To learn about the structural elucidation of alkaloids, flavones, isoflavones and anthocyanins.
	CO5	To learn about the mechanism of aliphatic nucleophilic substitution reactions.
21PCH02 CORE II - INORGANIC CHEMISTRY – I	CO1	To learn about the basic concepts of structure and bonding in Inorganic polymers and polyacids
	CO2	To understand the different metals used in Bioinorganic Chemistry
	CO3	To learn the basics of nuclear chemistry and different types of nuclear reactions
	CO4	Exploring the Nuclear Chemistry
	CO5	Study about the Radio-Isotopes and its importances



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



<p style="text-align: center;">21PCH03 CORE III - PHYSICAL CHEMISTRY – I</p>	CO1	To study in detail the basic concepts of classical thermodynamics and statistical thermodynamics
	CO2	To learn about theories of reaction rates and kinetics of reactions in solution phase
	CO3	To understand the principles of quantum chemistry and group theory
	CO4	Study about the Quantum Chemistry – I Planck's theory of black body radiation – Photoelectric effect; de – Broglie equation – Heisenberg uncertainty principle – Compton effect
	CO5	Learn about the Theories of reaction rates- Hard sphere collision theory and transition state theory of reaction rates– Comparison of collision theory and activated complex theory
<p style="text-align: center;">21PCHE01 ELECTIVE Paper I – POLYMER CHEMISTRY</p>	CO1	To study the basic concepts in Polymer.
	CO2	chemistry To study the determination of molecular weight and properties of polymers
	CO3	To know about the polymer processing and polymerization techniques.
	CO4	To learn about the synthesis and applications of commercial polymers and conducting polymers.
	CO5	Study on the conducting polymers such polyaniline, polypyrrole etc.



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



SEMESTER-II		
21PCH04 CORE IV - ORGANIC CHEMISTRY – II	CO1	To understand the basic concepts of aromaticity
	CO2	To learn the mechanism of Elimination reaction and free radical reactions.
	CO3	To study the mechanism of Aromatic electrophilic and Nucleophilic substitution reactions
	CO4	To know the effects of light in organic reactions.
	CO5	To study the basic concepts of the pericyclic reactions
21PCH05 CORE PAPER V - PHYSICAL CHEMISTRY – II	CO1	To gain knowledge about the distribution laws in statistical thermodynamics and partition function
	CO2	To study about the kinetics of complex and fast reactions
	CO3	To understand the principles of quantum chemistry and group theory
	CO4	Exploring the Kinetics of complex reactions – reversible reactions, consecutive reactions – Parallel reactions and Chain reactions
	CO5	Learn about the Symmetry selection rules for vibrational, Electronic and Raman Spectra – determination of vibrational modes in non-linear molecules such as H ₂ O, NH ₃ , CH ₄ and XeF ₄ , –
21PCH02 ELECTIVE II SPECTROSCOPY	CO1	To study in detail about UV-VIS, IR, spectrometer
	CO2	Learn about Massbauer spectroscopy
	CO3	Exploring the NMR spectroscopy
	CO4	To study the Mass spectrometry techniques
	CO5	To develop problem solving skills from various types of spectra



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



21PCHP01 CORE PRACTICAL I - ORGANIC CHEMISTRY PRACTICAL-I	CO1	To develop analytical skill in separation of organic mixture
	CO2	Determination Organic compounds by qualitative analysis
	CO3	Determination of boiling point/melting point for components and melting point for their derivatives.
	CO4	Learn about the Preparation of organic compound involving in multi stage.
21PCHP02 CORE PRACTICAL III INORGANIC CHEMISTRY PRACTICAL I O	CO1	To improve the skill in the qualitative analysis of mixture of four cations containing two common and two
	CO2	To impart the skill in estimation of metal ions by colorimetric
	CO3	Learn about Colorimetric analysis Visual and Photometric determination of Iron, Nickel, Manganese and Coppe
	CO4	Exploring the separation of familiar and non-familiar cations
21PCHP03 CORE PRACTICAL –III Physical chemistry Practical-I	CO1	Understand the principle of conductivity experiments and carry out conductometric titrations.
	CO2	Determine the rate constant for acid and base hydrolysis of esters.
	CO3	Learn the kinetics of adsorption of oxalic acid on charcoal
	CO4	Determination of equivalent conductance of a strong electrolyte & the verification of DHO equation.



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



	CO5	Verification of Ostwald's Dilution Law & Determination of pKa of a weak acid
Internship Training	CO1	Students should undergo Internship training to enrich their knowledge about Industry.
	CO2	Student has to spend minimum of 15 working days in the Industry/Laboratory.
	CO3	Students should maintain a work diary and prepare report of their internship training
	CO4	Students should submit their report with a letter of complete organization duly signed by the authorities.
	CO5	Students can select nearby for Industry/Soil testing/Water testing/Research Laboratory their internship training under the guidance of Faculty members.
	CO6	The training will commence soon after second semester Examinations. Industry/Laboratory for the internship training must be confirmed before the commencement of second semester.
SEMESTER- III		
21PCH06 CORE VI - ORGANIC CHEMISTRY – III	CO1	To learn the mechanism of addition to Carbon - Carbon and Carbon - Hetero atom multiple bonds..
	CO2	To learn the mechanism of molecular rearrangements.
	CO3	To study the mechanism of oxidation and reduction reactions.
	CO4	To study the structural elucidation of steroids.
	CO5	To learn the uses of reagents in organic synthesis



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f)&12(B))



<p style="text-align: center;">21PCH07 INORGANIC CHEMISTRY – II (SOLID STATE & COORDINATION CHEMISTRY)</p>	CO1	To develop the basic concepts of solid state.
	CO2	To understand the different studies used in solid state chemistry.
	CO3	To learn the various theories of coordination compounds
	CO4	To study the various reaction of coordination compounds
<p style="text-align: center;">21PCH08 CORE VIII - PHYSICAL CHEMISTRY III</p>	CO1	To impart knowledge on theoretical electrochemistry and applications of electrochemical cells
	CO2	To impart knowledge on photochemistry
	CO3	To understand the concepts and principles of quantum chemistry and spectroscopy
	CO4	Learn about advancement of Photochemistry. Absorption and emission of radiation-decay of electronically excited states – radiative and nonradiative processes
	CO5	Exploring the theory of chemical bonding – Born – Oppenheimer approximation – LCAO – MO approximation for hydrogen molecule ion and hydrogen molecule
<p style="text-align: center;">21PCHE03 ELECTIVE III PAPER I - EXPERIMENTAL METHODS IN CHEMISTRY</p>	CO1	To study in detail the fundamental aspects of various experimental and instrumental methods in chemistry
	CO2	To understand the principles and instrumentation of destructive and non-destructive techniques
	CO3	Learn about the various techniques in Chromatography



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



	CO4	Learn about Thin layer chromatography
	CO5	Exploring the concept of Column and paper chromatography



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



	CO5	
SEMESTER-IV		
21PCH09 CORE PAPER-IX INORGANIC CHEMISTRY-III	CO1	To understand the bonding in organometallic complexes and metal carbonyls.
	CO2	To learn the synthesis, bonding and reactions of organometallic complexes
	CO3	To understand the importance of catalysis and applications
	CO4	To understand the basics of Supramolecular chemistry and photochemistry and its applications.
	CO5	To understand the basics behind the origin and principle of electronic spectra
21PCHE04 SEMESTER - IV ELECTIVE IV MEDICINAL CHEMISTRY	CO1	Exploring the basic concepts of the drugs.
	CO2	To study the classification, synthesis and mode of action of various types of drugs.
	CO3	Describing the Drugs Affecting the Cardiovascular System
	CO4	Understanding the mechanism of Drugs Affecting the Hormonal System and Immune System.
	CO5	Learn about the Chemotherapeutic Agents.
21PCHP04 CORE PRACTICAL - IV ORGANIC CHEMISTRY PRACTICAL – II	CO1	To develop analytical skill in Estimation of organic compounds,
	CO2	Developing the skills for the Preparation of organic compounds involving two stages,
	CO3	Learn about the Extraction of natural products.
	CO4	To understand the Separation of mixture of organic compounds using Chromatographic technique
	CO1	To develop analytical skill in Quantitative analysis of complex materials,



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



21PCHP05 CORE PRACTICAL - V INORGANIC CHEMISTRY PRACTICAL – II	CO2	Learn about the Analysis of Ores and Alloys and Preparation of complexes
	CO3	Learn about the preparing of some useful inorganic complexes
	CO4	Quantitative analysis of complex materials
21PCHP06 CORE PRACTICAL – VI Physical chemistry Practical-II	CO1	Learn about the Viscosity Variation of viscosity of liquids with temperature
	CO2	Determination of Standard Potentials (Cu, Ag & Zn)
	CO3	Study the surface tension-concentration relationship of solutions (Gibb's equation)
	CO4	Exploring the Determination of solubility product of sparingly soluble salt by (Concentration cell method and EMF
	CO5	Learn about the Potentiometric Titrations
21PCHPR1 PROJECTS	CO1	Students will able to solve the problem independently
	CO2	Learn about the complete laboratory skill
	CO3	Learn about research paper writing
	CO4	Students will able to learn the thesis writing skills



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



PROGRAMME OUTCOMES OF PGP PROGRAMMES (2021 ONWARDS)

Name of the Programme: M.Sc Organic Chemistry	
PO1	To equip students to meet current industrial need
PO2	To equip students with advanced knowledge and insight in general and green chemistry
PO3	To enhance professional skills in chemistry by providing hands on training to operate the sophisticated instruments.
PO4	Acquire the knowledge on the role of chemistry in industries and to become entrepreneur
PO5	To equip students with different types of problem solving related to academic and industrial domain
PO6	Demonstrate, solve and understanding of major concepts in all disciplines of chemistry.
PO7	Develop analytical skills and problem solving skills requiring application of chemical principles.
PO8	The students can understand the role of chemistry in day to day life.
PO9	Create an awareness of the impact of chemistry on the environment, society, and development outside the scientific community.
PO10	Acquires the ability to synthesis, separate and characterize compounds using laboratory and instrumentation techniques



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

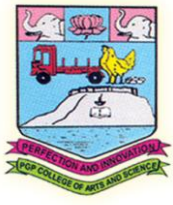
(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



PROGRAMME SPECIFIC OUTCOMES OF PG COURSES (2021 ONWARDS)

Name of the Programme: : M.Sc Organic Chemistry	
PSO1	To build the firm foundation in the fundamentals and correlate the application with the current developments in chemistry.
PSO2	To emphasize on integrating various disciplines of Science and encourage for interdisciplinary approach
PSO3	To make current awareness on social, economic, and environmental problems facing globally
PSO4	To motivate the students to prepare for competitive examinations, job carriers and get trained for industrial entrepreneurship.
PSO5	To acquire problem solving capacity, interpretation of results with the use of sophisticated instruments and devises new preparation techniques.
PSO6	To get sufficient expertise in the operational knowledge and laboratory skills in all major fields of chemistry.



PGP COLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))





COURSE OUTCOMES OF PG COURSES (2021 ONWARDS)

Name of the Programme: M.Sc ORGANIC CHEMISTRY		
Course Code & Course Title	Course Outcome	
SEMESTER-I		
21POC01 CORE I - ORGANIC CHEMISTRY – I	CO1	To learn about the stereochemistry of organic compounds and ORD and CD..
	CO2	To learn about the formation, stability and structure of intermediates and the mechanism of aliphatic electrophilic substitution.
	CO3	To learn about the effect of structure on reactivity
	CO4	To learn about the structural elucidation of alkaloids, flavones, isoflavones and anthocyanins.
	CO5	To learn about the mechanism of aliphatic nucleophilic substitution reactions.
21POC02 CORE II - INORGANIC CHEMISTRY – I	CO1	To learn about the basic concepts of structure and bonding in Inorganic polymers and polyacids
	CO2	To understand the different metals used in Bioinorganic Chemistry
	CO3	To learn the basics of nuclear chemistry and different types of nuclear reactions
	CO4	Exploring the Nuclear Chemistry
	CO5	Study about the Radio-Isotopes and its importances



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



<p style="text-align: center;">21POC03 CORE III - PHYSICAL CHEMISTRY – I</p>	CO1	To study in detail the basic concepts of classical thermodynamics and statistical thermodynamics
	CO2	To learn about theories of reaction rates and kinetics of reactions in solution phase
	CO3	To understand the principles of quantum chemistry and group theory
	CO4	Study about the Quantum Chemistry – I Planck's theory of black body radiation – Photoelectric effect; de – Broglie equation – Heisenberg uncertainty principle – Compton effect
	CO5	Learn about the Theories of reaction rates- Hard sphere collision theory and transition state theory of reaction rates– Comparison of collision theory and activated complex theory
<p style="text-align: center;">21POCE01 ELECTIVE Paper I – POLYMER CHEMISTRY</p>	CO1	To study the basic concepts in Polymer.
	CO2	chemistry To study the determination of molecular weight and properties of polymers
	CO3	To know about the polymer processing and polymerization techniques.
	CO4	To learn about the synthesis and applications of commercial polymers and conducting polymers.
	CO5	Study on the conducting polymers such polyaniline, polypyrrole etc.



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



SEMESTER – II		
21POC04 CORE IV - ORGANIC CHEMISTRY – II	CO1	To understand the basic concepts of aromaticity.
	CO2	To learn the mechanism of Elimination reaction and free radical reactions.
	CO3	To study the mechanism of Aromatic electrophilic and Nucleophilic substitution reactions
	CO4	To know the effects of light in organic reactions.
	CO5	To study the concepts of pericyclic reactions
21POC05 CORE PAPER V - IN ORGANIC CHEMISTRY – II	CO1	To learn the various theories of coordination compounds
	CO2	To study the various reaction of coordination compounds
	CO3	To understand the basics behind the origin and principle of electronic spectra
21POC06 CORE VI - PHYSICAL CHEMISTRY – II	CO1	To impart knowledge on quantum chemistry, group theory and spectroscopy
	CO2	2. To study the concepts and principles of surface chemistry and catalysis
	CO3	To understand theoretical electrochemistry and to learn the applications of electrochemical cells
	CO4	To understand theoretical electrochemistry and to learn the applications of electrochemical cells
	CO5	Learn about the group theory



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



21POCP01 CORE PRACTICAL I - ORGANIC CHEMISTRY PRACTICAL-I	CO1	To develop analytical skill in separation of organic mixture
	CO2	Determination Organic compounds by qualitative analysis
	CO3	Determination of boiling point/melting point for components and melting point for their derivatives.
	CO4	Learn about the Preparation of organic compound involving in multi stage.
21POCP02 CORE PRACTICAL III INORGANIC CHEMISTRY PRACTICAL I O	CO1	To improve the skill in the qualitative analysis of mixture of four cations containing two common and two
	CO2	To impart the skill in estimation of metal ions by colorimetric
	CO3	Learn about Colorimetric analysis Visual and Photometric determination of Iron, Nickel, Manganese and Coppe
	CO4	Exploring the separation of familiar and non-familiar cations
21POCP03 CORE PRACTICAL –III Physical chemistry Practical-I	CO1	Understand the principle of conductivity experiments and carry out conductometric titrations.
	CO2	Determine the rate constant for acid and base hydrolysis of esters.
	CO3	Learn the kinetics of adsorption of oxalic acid on charcoal
	CO4	Determination of equivalent conductance of a strong electrolyte & the verification of DHO equation.



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



	CO5	Verification of Ostwald's Dilution Law & Determination of pKa of a weak acid
Add on Course Internship Training	CO1	Students should undergo Internship training to enrich their knowledge about Industry.
	CO2	Student has to spend minimum of 15 working days in the Industry/Laboratory.
	CO3	Students should maintain a work diary and prepare report of their internship training
	CO4	Students should submit their report with a letter of complete organization duly signed by the authorities.
	CO5	Students can select nearby for Industry/Soil testing/Water testing/Research Laboratory their internship training under the guidance of Faculty members.
	CO6	The training will commence soon after second semester Examinations. Industry/Laboratory for the internship training must be confirmed before the commencement of second semester.
SEMESTER- III		
21POC06 CORE VI I - ORGANIC CHEMISTRY – III	CO1	To learn the mechanism of addition to Carbon - Carbon and Carbon - Hetero atom multiple bonds..
	CO2	To learn the mechanism of molecular rearrangements.
	CO3	To study the mechanism of oxidation and reduction reactions.
	CO4	To study the structural elucidation of steroids.
	CO5	To learn the uses of reagents in organic synthesis



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



21PCH07 CORE-VIII Bioorganic Chemistry	CO1	To know about the structure of mono saccharides and disaccharides
	CO2	To understand the structure of Vitamins, Terpenoids, Carotenoids and Nucleic acids
	CO3	To know about the basic concepts of Nucleic acids,.
	CO4	Learn about the Proteins, Enzymes and Coenzymes
21POCE02 ELECTIVE PAPER –II SPECTROSCOPY	CO1	To study in detail about UV-VIS, IR, spectrometer
	CO2	Learn about Massbauer spectroscopy
	CO3	Exploring the NMR spectroscopy
	CO4	To study the Mass spectrometry techniques
	CO5	To develop problem solving skills from various types of spectra
21POCE03 ELECTIVE III PAPER I - Experimental Methods in Chemistry / Electroanalytical Techniques	CO1	To study in detail the fundamental aspects of various experimental and instrumental methods in chemistry
	CO2	To understand the principles and instrumentation of destructive and non-destructive techniques
	CO3	Learn about the various techniques in Chromatography



PGP COLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



	CO4	Learn about Thin layer chromatography
	CO5	Exploring the concept of Column and paper chromatography



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



	CO5	
SEMESTER-IV		
21POC09 CORE PAPER-IX Synthetic and Industrial Organic Chemistry	CO1	To study about heterocyclic compounds containing two heteroatoms.
	CO2	To study about retro synthesis and protecting groups
	CO3	To learn about named reactions and their applications 4.
	CO4	To gain knowledge of petrochemicals, paints and dyes
	CO5	Learn about Petrochemicals
21POCE04 SEMESTER - IV ELECTIVE IV MEDICINAL CHEMISTRY	CO1	Exploring the basic concepts of the drugs.
	CO2	To study the classification, synthesis and mode of action of various types of drugs.
	CO3	Describing the Drugs Affecting the Cardiovascular System
	CO4	Understanding the mechanism of Drugs Affecting the Hormonal System and Immune System.
	CO5	Learn about the Chemotherapeutic Agents.
21POCP04 CORE PRACTICAL - IV ORGANIC CHEMISTRY PRACTICAL – II	CO1	To develop analytical skill in Estimation of organic compounds,
	CO2	Developing the skills for the Preparation of organic compounds involving two stages,
	CO3	Learn about the Extraction of natural products.
	CO4	To understand the Separation of mixture of organic compounds using Chromatographic technique
	CO1	To develop analytical skill in Quantitative analysis of complex materials,
	CO2	Learn about the Analysis of Ores and Alloys and Preparation of complexes



PGPCOLLEGE OF ARTS AND SCIENCE

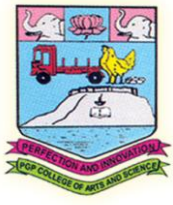
NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))



21POCP05 CORE PRACTICAL - V INORGANIC CHEMISTRY PRACTICAL – II	CO3	Learn about the preparing of some useful inorganic complexes
	CO4	Quantitative analysis of complex materials
21POCP06 CORE PRACTICAL – VI Physical chemistry Practical-II	CO1	Learn about the Viscosity Variation of viscosity of liquids with temperature
	CO2	Determination of Standard Potentials (Cu, Ag & Zn)
	CO3	Study the surface tension-concentration relationship of solutions (Gibb's equation)
	CO4	Exploring the Determination of solubility product of sparingly soluble salt by (Concentration cell method and EMF)
	CO5	Learn about the Potentiometric Titrations
21POCPR1 PROJECTS	CO1	Students will able to solve the problem independently
	CO2	Learn about the complete laboratory skill
	CO3	Learn about research paper writing
	CO4	Students will able to learn the thesis writing skills



PGPCOLLEGE OF ARTS AND SCIENCE

NH-7, Namakkal – Karur Main Road, Namakkal – 637207

(Affiliated to Periyar University, Salem and Approved by AICTE,

New Delhi, Reaccredited by NAAC and Recognized by UGC with 2(f) & 12(B))

