M.Sc. PROGRAMME IN POLYMER CHEMISTRY

Programme Outcome:

- To raise the academic and intellectual standards of the student in such a way that after the completion of the programme the student will be equipped with knowledge in various topics in chemistry both in basic and advanced levels
- To train the students to improve their practical knowledge during the first three semesters and to impart special practical skills depending on the work they choose for their dissertation in fourth semester
- To pave way for overall development of students by providing ground for improving their leadership qualities, communication skills, extra-curricular abilities, interpersonal relationships and civic sense.
- To mould the students so that they can be competent enough in order to clear national and international level examinations which determine their career
- To groom the students to become responsible citizens to serve the nation+

Programme Specific Outcome:

- Gains complete knowledge about all fundamental aspects of all the elements of chemistry
- Understands the background of organic reaction mechanisms, complex chemical structures,Instrumental method of chemical analysis, molecular rearrangements and separationTechniques.
- Gathers attention about the physical aspects of atomic structure, dual behavior, reactionpathways with respect to time, various energy transformationsl, significance of electrochemistry, molecular segregation using their symmetry.
- Apply appropriate techniques- for qualitative and quantitative analysis of chemicals in laboratories and in industries
- Understands structure, synthesis, properties and applications of important polymers.

COURSE OUTCOME

SEMESTER I	
COURSE	Outcomes

PC 211 INORGANIC CHEMISTRY I	1)To introduce coordination chemistry and its significance 2) To make the students understand the inorganic chemistry in biological systems 3)To enable students to build concept on the properties of inorganic compounds under various pH and in non-aqueous condition.
PC 212 ORGANIC CHEMISTRY I	1)To train the students in the art of writing organic reaction mechanism 2)To enable the student to view molecules understanding their stereochemistry 3)Stereochemical implications on addition, substitution, elimination and rearrangement reactions
PC 213 PHYSICAL CHEMISTRY I	1)To train the students in exactly solving the Schrodinger equation for simple systems. 2)To provide an in-depth analysis on the beautiful concept of symmetry and point groups. 3)To familiarize the students with the fundamentals of surface chemistry
PC 214 INORGANIC PRACTICALS I	To enable the students to practice separations of metal ions and identifications
PC 215 ORGANIC PRACTICALS I	To impart hands-on training in organic binary mixture separations using ether extraction and identification of the separated compounds.
PC 216 PHYSICAL PRACTICALS I	To enable the students to appreciate the distribution law, kinetics and adsorption.

SEMESTER II	
COURSE	Outcomes
PC 221 INORGANIC CHEMISTRY II	To help the students learn the spectral and magnetic properties of metal complexes, help the students understand the stability and reactivity of metal complexes and enable the students to master basic aspects of organometallic chemistry
PC 222 IORGANIC CHEMISTRY II	To enable the students to understand about free-radical and photochemical reactions, to identify the type of pericyclic reaction and to suggest mechanism for the same and To train the students in the art of identifying molecules based on spectroscopic data
PC 223 IPHYSICAL CHEMISTRY II	To provide the students with various approximations incorporated in solving the Schrodinger equation of many body problems and To provide an in-depth knowledge in physical principles of IR, Raman,UV-Visible, NMR and ESR spectroscopy
PC 214 INORGANIC PRACTICALS I	To master the art of volumetric estimations

PC 215 ORGANIC PRACTICALS I	To enable the students to practice thin layer chromatography
PC 216 PHYSICAL PRACTICALS I	To familiarize the students in using instruments such as refractometer,and polarimeter.
SEMESTER III	
COURSE	Outcomes
PC 231 INORGANIC CHEMISTRY III	To provide a ground knowledge about theories and properties of solid state materials, To provide an insight about the chemistry of open and closed structure compounds of important non-metallic elements and to introduce the concept of the structure and properties of various metallic clusters
PC 232 ORGANIC CHEMISTRY III	To introduce to the students the various synthetic reagents used in organic chemistry,introduce the large world of natural product chemistry and To give them knowledge about synthetic and bio-polymers, their synthesis, structure and reactivity
PC 233 PHYSICAL CHEMISTRY III	To provide a good understanding in classical and statistical thermodynamics and its important derivations, To familiarize the students with thermal and photochemical reactions and related rate theories and fundamentals of electrochemistry.
PC 234 POLYMER PRACTICALS I	To enable the students to practice latex analysis andDRC to measure different physical properties .
PC 235 ORGANIC PRACTICALS II	To enable the students to practice setting up of organic reactions and monitoring.
PC 236 PHYSICAL PRACTICALS II	1.To enable the students to perform experiments from various areas such as viscosity, surface tension, cryoscopy, phase equilibria, transition temperature and To enable the student to find out the unknown composition using viscosity and surface tension methods, and from eutectic diagram
SEMESTER IV	
COURSE	Outcomes
PC 241 POLYMER CHEMISTRY I	1. To familiarize the students with the synthesis of polymers, the significance and determination of their molecular mass. 2. To understand in detail the structure and configuration of polymers. 3. To learn about polymer solutions ,polymer degradation and stabilisation.
PC 242 POLYMER CHEMISTRY II	1. To introduce and familiarise nanotechnology in polymer synthes. 2. To introduce the students about biopolymers ,speciality polymers and their applications. 3.To give an idea about polymer physics and polymer technology
PC 234 POLYMER PRACTICALS I	To practice the students quantitative analysis of polymers.

PC 235 ORGANIC PRACTICALS II	To apply volumetric analysis for functional group estimation in organic compounds
PC 236 PHYSICAL PRACTICALS II	To enable the students to perform physical experiments using conductometer, potentiometer, polarpgraphic method.
PC 243 (a)DISSERTATION (b)R&D VISIT	To familiarize the student with the research area, To introduce the student to most essential research equipments/softwares and To train the student to write a report, present the results and think in-depth