

PROGRAMME OUTCOME

Familiarizes the emerging areas of chemistry and their applications in various spheres of chemical sciences and to apprise the students of its relevance in future studies.

PROGRAMME SPECIFIC OUTCOMES AND COURSE OUTCOMES

Under Graduate Programme In Chemistry

- To understand basic facts and concepts in Chemistry while retaining the exciting aspects of Chemistry so as to develop interest in the study of chemistry as a discipline.
- To develop the ability to apply the principles of Chemistry.
- To appreciate the achievements in Chemistry and to know the role of Chemistry in nature and in society.
- To develop problem solving skills.

Semester - I

CHE1B01. Theoretical and Inorganic Chemistry -1

To develop interest among students in various branches of inorganic chemistry. To impart essential theoretical knowledge on atomic structure, periodic properties, chemical bonding, and nuclear chemistry.

Semester - II

CHE2B02. Theoretical and Inorganic Chemistry –II

To familiarise with the basic principles of quantum chemistry and to impart the students concepts of the fundamentals of quantum mechanics and its applications in the study of structure of atoms. To develop a broad idea about chemical bonding and molecular structure.

Semester – III

CHE3B03. Physical Chemistry -1

To understand the general characteristics of different states of matter. To impart knowledge to the students about the intermolecular forces in gases and liquids, the structure of solids and defects in solids.

Semester - IV

CHE4B04. Organic Chemistry -1

To impart the students a thorough knowledge about the chemistry of some selected functional groups with a view to develop proper aptitude towards the study of organic compounds and their reactions. To enable the students to understand and study organic reaction mechanism.

CHE4B05 (P). Inorganic Chemistry Practical-I

To develop skills for quantitative estimation using the different branches of volumetric analysis .

Semester - V

CHE5B06. Inorganic Chemistry - III

To give basics of analytical chemistry and to study the characteristics and properties of S and P block elements. Basic idea about environmental pollution and solid waste management.

CHE5B07. Organic Chemistry -I

To impart the students a thorough knowledge about the mechanisms of reactions of some selected functional groups in organic compounds and also to give an outline of applied organic chemistry and the applications of organic chemistry in various spheres of chemical sciences.

CHE5B08. Physical Chemistry - II

To provide an insight into the kinetic aspects of chemical reactions and phase equilibria. To derive some thermochemical equations and kinetic equations. To study phase diagrams and elementary idea of catalysis and chromatography. To impart a thorough knowledge of the fundamentals of microwave, infrared, Raman, electronic and magnetic resonance spectroscopy, mass spectrometry.

CHE5D01.Environmental Chemistry (Open Course)

To acquire knowledge about the environmental issues of the present world, types of pollution and methods to reduce pollutant. It makes awareness about waste management.

Semester – VI

CHE6B09. Inorganic Chemistry -1V

To understand the general characteristics of the d and f block elements. To give the students a thorough knowledge of the different theories to explain the bonding in coordination compounds. To improve the level of understanding of the chemistry of organometallic compounds, metal carbonyls and metal clusters.

CHE6B10. Organic Chemistry - III

To impart the students thorough Idea In in the chemistry of carbohydrates, heterocyclic compounds, amino acids, proteins and nucleic acids. To study the fundamentals of terpenoids, alkaloids, vitamins, lipids and steroids. To have an elementary idea of supramolecular chemistry and Green Fluorescent Proteins.

CHEGB11. Physical Chemistry - III

To provide an insight into the characteristics of different types of solutions and electrochemical phenomena. To learn ionic equilibria and electrical properties of ions in solution. To learn the concepts of acids and bases, pH and buffer solutions,

CHE6B12. Advanced and Applied Chemistry - III

To provide elementary ideas of advanced topics in chemistry like nano chemistry, computational, green chemistry, supramolecular and combinatorial chemistry.

CHE6B13. Polymer Chemistry - III (Elective)

To provide an insight into the types of polymerization and their properties and reactions.

CHE6B14(P). Physical chemistry practical

To develop skills in doing experiments in kinetics, conductometry, viscosity, potentiometry and phase rule.

CHE6B15(P). Organic chemistry practical

To develop skills required for the qualitative analysis of organic compounds, determination of physical constants.

CHE6B16(P). Inorganic chemistry practical

To impart the students a thorough knowledge of systematic qualitative analysis of inorganic mixtures by semi-micro method. The students will get training in the quantitative analysis of metal ions and anions using gravimetric method. To develop skills in the proper handling of apparatus and chemicals. To be exposed to the different processes used in industries and their applications.

At the completion of the programme

1. The student will be able to work in pure, interdisciplinary and multidisciplinary areas of chemical sciences.
2. Understand global level research opportunities to pursue Ph.D programme.
3. Develop a sound knowledge of fundamentals and a familiarity with current progress in the most active and important areas of chemistry.

MSc CHEMISTRY PROGRAMME SPECIFIC OUTCOME

1. Gains complete knowledge about all fundamental aspects of all the elements of chemistry.
2. Understands the background of organic reaction mechanisms, complex chemical structures, and instrumental method of chemical analysis, molecular rearrangements and separation techniques.
3. Appreciates the importance of various elements present in the periodic table, coordination chemistry and structure of molecules, properties of compounds, structural determination of complexes using theories and instruments.
4. Gathers attention about the physical aspects of atomic structure, dual behavior, reaction pathways with respect to time, various energy transformations, molecular assembly in nanolevel, significance of electrochemistry, molecular segregation using their symmetry.
5. Learns about the potential uses of analytical and industrial chemistry, medicinal chemistry and green chemistry.
6. Carry out experiments in the area of organic analysis, estimation, separation, derivative process, inorganic semi micro analysis, preparation, conductometric and potentiometric analysis.