# DEPARTMENT OF CHEMISTRY

## B.Sc. CHEMISTRY

## PROGRAMME OUTCOMES & COURSE OUTCOMES

## PROGRAMME OUTCOMES

- **PO-1:** B.Sc. Chemistry course is designed to provide the students a comprehensive understanding about the fundamentals of chemistry covering all the principles and perspectives.
- **PO-2:** The branches of Chemistry such as Organic Chemistry, Inorganic Chemistry, Physical Chemistry, Analytical Chemistry, Applied Chemistry and structural chemistry expose the diversified aspects of chemistry where the students experience a broader outlook of the subject.
- **PO-3:** The curriculum of the B.Sc. Chemistry course are discretely classified to give stepwise advancement of the subject knowledge right through the three/four years of the term.
- **PO-4:** The practical exercises done in the laboratories impart the students the knowledge about various chemical reagents, reactions and sophisticated instrument. Thereby, hone their skills of handling the corrosive, poisonous, explosive and carcinogenic chemicals making themselves employable in any kind of chemical industries. They are also trained about the adverse effects of the obnoxious chemicals and the first aid treatment.

## PROGRAMME SPECIFIC OUTCOMES

- **PSO-1:** Understanding basic chemistry knowledge through theory and practical experiments. Also understanding the existence of matter in the universe as solids, liquids, and gases, which are composed of molecules, atoms and sub atomic particles.
- **PSO-2:** Students will learn to estimate inorganic salt mixtures and organic compounds both qualitatively and quantitatively using the classical methods of analysis in practical classes.
- **PSO-3:** To understand the basic principles of Organic, Inorganic, Physical and Analytical Chemistry and its applications through various laboratory experiments. Also aware and handle the sophisticated instruments/equipment's.
- **PSO-4:** Understand good laboratory practices and safety. Develop research-oriented skills.

## COURSE OUTCOMES

| Course Component | Outcomes |
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| BASIC CHEMISTRY | Completion of these papers' students will learn about concepts of Basic Chemistry, like atomic structure and periodic properties, chemistry of aliphatic and aromatic hydrocarbon, study of solvent, modes of concentration, acid-base theory, PH, buffer solution, various indicator, Coordination chemistry, metallurgy, selected organic molecules, gaseous state, and adsorption. In addition, students will be able the Qualitatively analyse unknown inorganic salt with a cation and an anion. The course will provide ability to student to identify any pure inorganic |
| GENERAL CHEMISTRY | Completion of these papers' students will learn about concepts of Basic Chemistry, like detailed study of VBT, MOT with LCAO concept, concept of hybridization, determination of molecular weight, various electron displacement effects in organic molecules, thermodynamics, and ionic equilibrium. In addition, students acquire knowledge about chemistry of s-block, acid and acid derivatives. In addition, students will be able to determine the normality, molarity and gms/liter of each component in a solution. Also study about Qualitatively analyse of unknown organic compound. |
| INORGANIC CHEMISTRY | Students will learn about theory of wave mechanics, chemical bonding in term of VBT, CFT and MOT, quantum chemistry, quantum chemistry, coordination chemistry, kinetic and reaction rates of substitution, Metal carbonyls, Magneto chemistry and Organo metallic compound. In addition, students will be able the Qualitatively analyse unknown inorganic salt with a mixture of cation and an anion. The course will provide ability to student to identify any pure inorganic salt. |
| ORGANIC CHEMISTRY | Completion of these course will enable the students to understanding of importance of Nucleophilic aliphatic and aromatic reaction, elimination reaction, electrophilic reaction, chemistry of carbohydrate, amino acid, protein, stereo chemistry, name reaction, rearrangement, reagent, isoprenoids, alkaloids, and chemistry of heterocyclic compounds. In addition, students will be able the qualitatively and quantitative analyse of unknown organic compound. The course will provide ability to student to identify any pure organic compound. |
| PHYSICAL CHEMISTRY | Completion of these papers' students will learn about concepts of Thermodynamics, electrochemistry, Nuclear chemistry, chemical kinetics, colloids, adsorption, electrochemistry, nuclear chemistry, |

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| | photochemistry and phase rule. In addition, students will be able the analyse of pH metry, Conductometry etc. |
| STRUCTURAL CHEMISTRY | Completion of these paper students will learn about structural chemistry concept like symmetry, term symbol, electronic spectra, Mossbauer, Mass, Raman, IR, NMR spectroscopy and related example. |
| ANALYTICAL CHEMISTRY | Completion of these paper students will learn about Analytical chemistry concept like treatment of analytical data, theory of precipitation, polarography, and different types of titration and chromatography techniques. |
| APPLIED CHEMISTRY | Students will know in details about applied chemistry concept like Research methodology. Solvent extraction, ceramic industries, photometry, AAA, polymer chemistry, green chemistry, nanomaterials, bioinorganic chemistry, perfumes & drugs molecules |