COURSE OUTCOME

Semester – I CHEMISTRY: 1(NEP)

- The concepts of chemical analysis, accuracy, precision and statistical data treatment
- Prepare the solutions after calculating the required quantity of salts in preparing the reagents/solutions and dilution of stock solution.
- Describe the dual nature of radiation and matter; dual behavior of matter and radiation, de Broglie's equations, Heisenberg uncertainty principle and their related problems.
- Quantum mechanics. Derivation of Schrodinger's wave equation. Radial and angular Orbital shapes of s, p, d and f atomic orbitals, nodal planes. Electronic configurations of the atoms.
- Pauli's exclusion principle, Hund's rule , Aufbau's principle and its limitation.
- The concepts of Organic reactions and techniques of writing the movement of electrons, bond breaking, bond forming
- The Concept of aromaticity, resonance, hyper conjugation, etc.
- Explain bond properties, electron displacement effects (inductive effect, electrometric effect, resonance effect and Hyper conjugation effect). steric effect and their applications in explaining acidic strength of carboxylic acids, basicity of amines.
- Understand basic concept of organic reaction mechanism, types of organic reactions.
- Understand the preparation and reactions of alkanes.
- Understand the stability and conformational analysis of cycloalkanes.
- Describe relative strength of aliphatic and aromatic carboxylic acids.
- Explain the existence of different states of matter in terms of balance between intermolecular forces and thermal energy of the particles. Explain the laws governing behavior of ideal gases and real gases. Understand cooling effect of gas on adiabatic expansion
- Understand the conditions required for liquefaction of gases. Realize that there is continuity in gaseous and liquid state.
- Understand the properties of liquids in terms of intermolecular attractions.

Semester II CHEMISTRY: 2 (NEP)

- Understand principles of titrimetric analysis.
- Understand principles of different type's titrations. Titration curves for all types of acids – base titrations.
- Gain knowledge about balancing redox equations, titration curves, theory of redox indicators and applications.
- Understand titration curves, indicators for precipitation titrations involving silver nitrate-Volhard's and Mohr's methods and their differences.
- Indicators for EDTA titrations - theory of metal ion indicators. Determination of hardness of water.
- Understand periodic table, classification and properties of s p d and f block elements.

- Understand different scales for the measurement of electro-negativity and factors affecting it.
- Understand the chemistry of the hydrides, carbides, oxides and halides of group 13 to 17.
- Understand nucleophilic substitution at saturated carbon, energy profile diagram stereochemistry and factors affecting SN1 and SN2 reactions.
- Aromatic electrophilic substitution reactions like nitration sulphonation Friedel-Crafts reactions etc.
- Understand liquid crystals, classification with examples.
- Understand the different forms of solids, laws of crystallography , miller indices and its calculation, X-ray diffraction studies. Brags law and its equation.
- Defects in solids, properties of glasses and concept of liquid crystals.

Programme outcomes: (NEP)

The students will be able to obtain the following knowledge and skill by the end of the programme

- To create enthusiasm among the students for chemistry and application in various fields of life.
- To provide students with broad and balanced knowledge and understanding of key concepts in chemistry.
- To develop in students a range of practical skills so that they can understand and assess risks and work safety measures to be followed in the laboratory.
- To develop in students the ability to apply standard methodology to the solution of problems in chemistry
- To provide students with knowledge and skill towards employment or higher education in analytical chemistry or multi-disciplinary areas involving chemistry.
- To provide students with the ability to plan carry out experiments independently and assess the significance of outcomes and to cater to the demands of chemical industries of well- trained graduates
- To develop in students the ability to adapt and apply methodology to the solution of unfamiliar types of problems.
- To instill critical awareness of advances at the forefront of chemical sciences, to prepare students effectively for professional employment or research degrees in chemical sciences and to develop an independent and responsible work ethics.