

COURSE OUTCOMES

Chemistry as Discipline Specific Course (DSC)

B.Sc. Semester – I CHEMISTRY: 1

- 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.
- Understand the concept of resonance, aromaticity and antiaromaticity.
- 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.
- Understand the existence of different states of matter in terms of balance

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B.Sc. Semester II

CHEMISTRY: 2

- 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 S^{N1} and S^{N2} reactions.
- Aromatic electrophilic substitution reactions like nitration sulphonation Friedel-Crafts reactions.
- Understand liquid crystals, classification with examples.
- Understand the different forms of solids, laws of crystallography, miller indices and its calculation, X-ray diffraction studies. Bragg's law and its equation.
- Defects in solids, properties of glasses and concept of liquid crystals.

COURSE OUTCOMES OEC-1 Chemistry

On completion of the course students will be able to:

- Understand the chemical constituents in various day to day materials using by a common man.
- Understand the chemical constituents in vitamins, soaps and detergents.
- Understand the renewable chemical energy resources.
- Understand different types of polymers and their applications.

COURSE OUTCOMES OEC-2 Chemistry

After studying this paper the student would be able to :

- Acquire knowledge about different types of sugars and their chemical structures.
- Identify different types of amino acids and determine the structure of peptides.
- Explain the actions of enzymes in our body and interpret enzyme inhibition.
- Predict action of drugs. Depict the biological importance of oils and fats. Importance of lipids in the metabolism. Differentiate RNA and DNA and their replication. Explain production of energy in our body.