



ANDHRA PRADESH STATE COUNCIL OF HIGHER EDUCATION

Multidisciplinary Course

w.e.f. AY 2025-26

SEMESTER-II

PRINCIPLES OF CHEMICAL SCIENCES

Credits: 2

2 hrs/week

I. Course Outcomes: At the end of the course the student will be able to-

1. Understand the structure of atom.
2. Identify the isotopes and isobars.
3. Define acids and bases and predict the nature of salts.
4. Explain ionic and covalent bonding.
5. Describe the importance of Chemistry in daily life.

II. Syllabus:

Unit I: Matter, Atoms, Molecules & Nuclear Chemistry

Classification of matter, Dalton atomic theory, Thomson Model, Rutherford Model, Bohr's model of atom, quantum numbers, electronic configuration, Aufbau Principle, Pauli's exclusion principle, Hund's rule. Isotopes-Isobars, Nuclear decay, Band of Stability, Nuclear Reaction types, Nuclear Applications.

Unit II: Elements, Classification and Chemical Bonding

Classification of elements, Periodic Classification of elements based on electronic configuration, classification into types, classification into metals, non-metals and metalloids, periodic properties-atomic radii, ionisation enthalpy, electronegativity, Octet rule, ionic bond properties of Ionic compounds-covalent bond, properties of covalent molecule.

Unit III: Acids, Bases, Salts, Chemistry in Daily life

Definition, types and properties of Acids, Bases, Salts, strength of acids and bases, pH, Importance of Chemistry in daily life. (food, drugs, textiles, preservatives, soaps and detergents.)

III. List of Reference Books:

1. Inorganic Chemistry by Puri and Sharma
2. Basic concepts of Inorganic Chemistry by D.N.Singh

IV. Co-curricular activities:

Projects on Importance of Chemistry in food, drugs, textiles, preservatives, soaps and detergents.