**CHEMISTRY PROGRAM AND COURSE OUTCOME**

**(SESSION 2024-2025)**

**Program Outcomes (PO) for Under Graduate Programmes in subject of Chemistry.**

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| **PO1** | Knowledge | Capable of demonstrating comprehensive disciplinary knowledge gained during course of study |
| **PO2** | Communication | Ability to communicate effectively on general and scientific topics with the scientific community and with society at large |
| **PO3** | Problem Solving | Capability of applying knowledge to solve scientific and other problems |
| **PO4** | Individual and Team Work | Capable to learn and work effectively as an individual , and as a member or leader in diverse teams, multidisciplinary settings |
| **PO5** | Investigation of Problems | Ability of critical thinking, analytical reasoning and research based knowledge including design of experiments, analysis and interpretation of data to provide conclusions |
| **PO6** | Modern Tool usage | Ability to use and learn techniques, skills and modern tools for scientific practices |
| **PO7** | Science and Society | Ability to apply reasoning to assess the different issues related to society and the consequent responsibilities relevant to the professional scientific practices |
| **PO8** | Life-Long Learning | Aptitude to apply knowledge and skills that are necessary for participating in learning activities throughout life |
| **PO9** | Environment and Sustainability | Ability to design and develop modern systems which are environmentally sensitive and to understand the importance of sustainable development |
| **PO10** | Ethics | Apply ethical principles and professional responsibilities in scientific practices |

**MAJOR CHEMISTRY SEMESTER I**

**COURSE OUTCOME:** After completing this course, the learner will be able to:

1. Enable to understand the basis of quantum mechanics and structural idea and relevance in describing shapes of s, p and d orbitals.

2. To learn about role of temperature and pressure to establish the state of gases and describe the concept of critical constants of real gases.

3. Get knowledge about the electrophile/nucleophile and its role in mechanism of preparation of organic compounds.

4. To know the physical properties, morphology and crystalline study of liquid and different type of solids

5. Hand on practice in preparation of solutions, compounds, estimation and determination of

physical properties of some compounds.

**MAJOR CHEMISTRY SEMESTER II**

**COURSE OUTCOME :** After completing this course, the learner will be able to:

1. Able to understand the theories which governs the shape, structure and ionic behaviour, polarizability, ionic structures and concept of Lattice energy of crystals of molecules.

2. To know the basics of rates of chemical reactions ,the laws and solubility behavior of solutes in different of solvents

3. To know about alkanes, alkene, cycloalkanes and their chemical reactions.

4. To understand about weak interactions and bonding in metals.

5. Hand on practice for estimation and determination of viscosity, specific refractivity properties of some compounds.

**MINOR CHEMISTRY SEMESTER I**

**COURSE OUTCOME:** After completing this course, the learner will be able to:

1. To understand the basics of Covalent bonding in simple molecules.

2. To get the basics of rates of chemical reactions and factors affecting it.

3. To learn about the nomenclature, classification and methods of preparation of alkenes.

4. To learn about qualitative knowledge of conductors, semiconductors and insulators..

**MINOR CHEMISTRY SEMESTER II**

**COURSE OUTCOME:** After completing this course, the learner will be able to:

1. To know the basics of periodic properties and hybridization.

2. To learn about the ionic solids.

3. Understand about the semiconductors and metallic bonds.

4. Get the knowledge of stereochemistry of simple organic molecules.

**MAJOR AND MINOR CHEMISTRY 3RD SEMESTER**

**COURSE OUTCOME:** After completing this course, the learner will be able to:

1. To learn about the structure of S and P-block elements, their properties and discuss their use in daily life as well as industrial applications.

2. To understand about various laws and theories related to eletrochemistry-I and know about their thermodynamic properties.

3. To understand about variation of conductance studies with concentration and explain with many phenomenon.

4. The fundamental properties, structures and reactivity of organic compounds such alkene, alkyne arenes, alkyl and aryl halide .

5. Learning about reaction mechanism and predict the outcome of the reactions.

6. How to distinguish between the organic compounds by use of different chemical tests.

**MAJOR CHEMISTRY 4TH SEMESTER**

**COURSE OUTCOME:** After completing this course, the learner will be able to:

1. Classify d block and f block elements and also know their properties

2. Learn about the basic idea of analysis with respect to qualitative as well as quantitative measures

3. Know about the first and second law of thermodynamics and also their implications and also know about the concept of chemical equilibrium

4. Know about the alcohols, phenols, aldehydes and ketones with respect to their general characteristics and their important reactions

5. To get knowledge about identification and confirmation of acidic and basic radicals in a given inorganic salts/mixtures.