Department of Chemistry
(2022-2023)

Course Outcomes

Fundamentals of Chemistry (B020101T):

1. Clear all the basic concepts of molecular geometries, physical and chemical properties of the molecules.
2. Current bonding models for simple inorganic and organic molecules in order to predict structures and important bonding parameters.
3. It enables to understand the reactants, catalyst, stereochemistry and major and minor products of any organic reaction.
4. Students will understand the clear picture of two-dimensional and three-dimensional structure of the molecules, and their role in reaction mechanism.
5. To develop the skills in the area of knowledge of introduction to computers and computing, computer programming in FORTRAN/C++/BASIC.
6. Introduction to basic computer system and mathematical concepts for chemistry.

Quantitative Analysis (B020102P):

Students will understand the laboratory methods and tests related to:
1. Potability tests of water samples and hydrated water in samples.
2. Estimation of metal ions in samples.
3. Estimation of alkali and acid contents in samples.

Bioorganic and Medicinal Chemistry (B020201T):

1. Biomolecules perform or trigger important biochemical reactions in living organisms.
2. Introduction of the students with basic experimental understanding of carbohydrates, amino acids, proteins, nucleic acids and medicinal chemistry.

Biochemical Analysis (B020202P):

1. This course will provide basic qualitative and quantitative experimental knowledge of biomolecules such as carbohydrates, proteins, amino acids, nucleic acids drug molecules.
2. Students may get job opportunities in food, beverage and pharmaceutical industries.

Chemical Dynamics & Coordination Chemistry (B020301T):

1. Define the different physical properties of each state of matter.
2. Clear all the concept of kinetic theory of gases, laws of crystallography, liquid state and liquid crystals.
3. Introduction of conductometric, potentiometric, optical methods, polarimetry and spectrophotometer technique to study Chemical kinetics and chemical equilibrium.
4. Students will be able to understand .metal- ligand bonding in transition metal complexes, thermodynamic and kinetic aspects of metal complexes.

Physical Analysis (B020302P):

1. Students will be able to calibrate apparatus and prepare solutions of various concentrations, estimation of components through volumetric analysis; to perform dilatometric experiments: one and two component phase equilibrium experiments.

Quantum Mechanics and Analytical Techniques (B020401T):

1. Students will be able to function as a member of an interdisciplinary problem solving

team.
2. Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.
3. Students will gain an understanding of how to determine the structure of organic molecules using IR and NMR spectroscopic techniques.
4. To develop basic skills required for purification, solvent extraction, TLC and column chromatography.

Instrumental Analysis (B020402P):

1. Students will gain an understanding of how to determine the structure of organic molecules using IR and NMR spectroscopic techniques.
2. Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.
3. To develop basic skills required for purification, solvent extraction, TLC and column chromatography.

Organic Synthesis A (B020501T):

1. Synthesis and chemical properties of aliphatic and aromatic hydrocarbons.
2. Synthesis and chemical properties of alcohols, halides carbonyl compounds, carboxylic acids and esters.
3. How to design and synthesize aliphatic and aromatic hydrocarbons.
4. How to convert aliphatic and aromatic hydrocarbons to other industrially important compounds.
5. Functional group interconversion.

Rearrangements and Chemistry of Group Elements (B020502T):

1. Will give the detailed knowledge of synthesis of various class of organic compounds and functional groups inter conversion.
2. Students will also understand a detailed knowledge on the elements present in our surroundings, their occurrence in nature.
3. also gives detailed understanding of the s, p, d and f block elements and their characteristics.

Qualitative Analysis (B020503P):

1. Identification of acidic and basic radicals in inorganic mixtures.
2. Separation of organic compounds from mixture.
3. Elemental analysis in organic compounds.
4. Identification of functional group in organic compounds.
5. Identification of organic compound.

Organic Synthesis B (B020601T):

1. Natural products have played an important role in the development of pharmaceutical drugs for a number of diseases including cancer and infection.
2. Define detailed study of natural products and heterocyclic compounds.
3. Learn the different types of alkaloids, & terpenes etc and their chemistry and medicinal importance.
4. Explain the importance of natural compounds as lead molecules for new drug discovery.

Chemical Energetics and Radio Chemistry (B020602T):

1. Students should be able to describe laws of thermodynamics and its applications, phase

equilibria of one and two component system, electro chemistry, ionic equilibrium applications of conductivity and potentiometric measurements.

Analytical Methods (B020603P):

1. Students should be able to quantify the product obtained through gravimetric method; determination of Rf values and identification of organic compounds through paper and thin layer chromatography laboratory techniques: perform thermo chemical reactions.