

DEPARTMENT OF CHEMISTRY

PROGRAMME OUTCOMES:

1. After studying this course the students will understand the application of chemistry in daily life. They will be able to differentiate between the various branches of chemistry- physical, inorganic and organic and their significance.
2. The course not only demonstrates different chemical phenomena and reactions but also gives a detailed theoretical explanation of these.
3. The practical sessions will teach the students about different aspects of synthesis and interaction- a field that may open up opportunities in the industrial field.
4. The students are also taught about computational methods, error analysis and programming. The in-depth knowledge of organic chemistry is essential for those who want to work in the pharmaceutical field.
5. It will make the students understand the inter-relation between chemistry and other branches of science.

COURSE OUTCOMES:

CHEMGT-1:

1. The course teaches students about basic concepts like the structure of an atom, chemical periodicity, acids and bases etc. They learn to balance chemical equations based on redox reactions.
2. The students are also introduced into the world of organic chemistry. They learn about organic nomenclature, electronic displacements in organic compounds.
3. They acquire knowledge on stereochemistry and hence learn to imagine a molecule in 3-D.
4. They learn mechanisms of common reactions and their applications in the chemistry of alkanes, alkenes and alkynes.

CHEMGP-1:

1. The students learn to distinguish between primary and secondary standards.
2. They learn the names of common oxidizing and reducing agents and how to determine the strength of an oxidant or reductant using redox titration methods like permanganometry, dichromatometry, iodometry and iodimetry.
3. They learn to identify the common functional groups by carrying out simple chemical tests.

CHEMGT-2:

1. The students are thoroughly taught about the different states of matter-solids, liquids and gases and the properties these states exhibit.
2. They learn to calculate the speed of chemical reactions in the chapter of Kinetics.
3. They also learn about molecular bonding and hybridization in detail.
4. The details of the p-block elements are also included in this part of the curriculum.

CHEMGP-2:

1. Students learn to use instruments such as Ostwald's viscometer, stalagmometer and tensiometer.
2. They learn to calculate kinetics of reactions using integrated rate methods.

CHEMGT-3:

1. The students are given a thorough idea about thermodynamics and energy transformation in chemical systems.
2. They learn about the two types of equilibrium-chemical and ionic and their applications.
3. They learn about higher organic compounds like phenols, alcohols, carbonyl compounds, aromatic hydrocarbons, aryl halides and organometallic compounds.

CHEMGP-3:

1. The students learn to calculate enthalpy of various reactions and calculate the heat capacity of a calorimeter.
2. They learn to measure the pH of solutions using indicators.
3. They learn to identify several unknown solid and liquid organic compounds.

CHEMGT-4:

1. The students acquire knowledge on different properties of solutions and the concept of phase equilibrium.
2. They are taught about conductance, different kinds of cells, their functioning and applications.
3. The students are also taught about the d-block elements in detail.
4. They are also made aware of the different kinds of coordination compounds and the related theories like valence bond theory and crystal field theory.

CHEMGP-4:

1. The students are taught to handle and use instruments like pH meter and conductometer.

2. They are also taught about complexometric titrations and preparation of some important complexes.

CHEMGTDSE-1:

1. This part teaches students important parameters to determine the quality of the environment, pollution and conservation.

2. This part also includes analysis of different substances using gravimetric, volumetric and chromatographic analysis.

3. Students are enable to calculate error in their data after studying error analysis.

4. The students study about several industrial preparations and applications.

CHEMGPDSE-1:

1. The students are taught to determine the impurities present in natural water samples.

2. They learn to separate and estimate the components of a mixture.

CHEMGTDSE-2:

1. Students learn about organic functionalities like carboxylic acid and diazonium salts.

2. They learn about biomolecules like carbohydrates and proteins.

3. They also acquire a detailed knowledge on industrial chemistry.

CHEMGPDSE-2:

1. They learn to perform several name organic reactions.

2. They learn several useful titration techniques followed in the industry.

Skill Enhancement Course (SEC):

The SEC course offers specialization on topics such as IT skills for Chemist, Basic Analytical Chemistry, Pharmaceutical Chemistry and Analytical clinical Biochemistry which are very much application based and will prove beneficial for securing jobs in the industries.