

## **Programme Outcome B.Sc. Chemistry**

The Department of Chemistry provides training for students planning careers in the Chemical sciences.

The curriculum of the Department is designed to satisfy the diverse needs of the students.

The objective of the department is, the education should be knowledge-based and skills-based

Students should be able to master a broad set of chemical knowledge concerning the fundamentals in the basic areas of the discipline

## **Programme Specific Outcome B.Sc. Chemistry**

- Students should be able to solve problems competently by identifying the essential parts of a problem and formulating a strategy for solving the problem. They will be able to rationally estimate the solution to a problem, apply appropriate techniques to arrive at a solution, test the correctness of the solution, and interpret their results.
- Students should understand the objective of their chemical experiments, properly carry out the experiments, and appropriately record and analyze the results.
- Students should be able to use standard laboratory equipment, modern instrumentation, and classical techniques to carry out experiments.
- Students should know and follow the proper procedures and regulations for safe handling and use of chemicals.
- Students should be able to communicate the concepts and results of their laboratory experiments through effective writing and oral communication skills.

**Course Outcome B.Sc. Chemistry**

**MAIN PAPER – I**

**GENERAL CHEMISTRY – I**

**Students can learn the basic concepts of chemistry in order to improve their knowledge in the subject.**

**MAIN PAPER – II**

**GENERAL CHEMISTRY – II**

**Students learn general safety measures. First aid techniques, usage of goggles, lab coat etc especially how to handle chemicals during practicals.**

**MAIN PAPER - III**

**INORGANIC, ORGANIC & PHYSICAL CHEMISTRY – I**

**Students learn fundamental concepts in various branches of chemistry in order to enhance her knowledge for getting through in competitive exams like JAM.**

**MAIN PAPER – IV**

**INORGANIC, ORGANIC & PHYSICAL CHEMISTRY – II**

**Students learn fundamental concepts in various branches of chemistry in order to enhance her knowledge for getting through in competitive exams like JAM.**

**MAIN PAPER – V**

**ANALYTICAL CHEMISTRY**

**Students learn the instruments and its methods used to separate identify the quantity matter using chromatography, Electrophoresis etc.**

**MAIN PAPER –VI  
THERMODYNAMICS**

**Students will be able to learn about the concepts of heat volume and pressure and its relationship between all forms of energy which can be used for her higher studies and research purposes ahead.**

**NUTRITIONAL CHEMISTRY**

**To motivate the students and challenge them to a healthy diet, sensible exercise and valuable encounters with others.**

**MAIN PAPER –VII  
INORGANIC CHEMISTRY**

**Students can learn the applications in every aspects of chemical industry including catalysis material sciences etc.**

**MAIN PAPER –VIII  
ORGANIC CHEMISTRY**

**To study the structure properties and reactions of organic compounds .**

**MAIN PAPER – IX  
PHYSICAL CHEMISTRY**

**It is a boosting subject for the students to understand the physical characteristics or properties of molecules which is a foundation laid for theoretical Ph.D in thermodynamics, Quantum Chemistry etc.**

**MAIN PAPER-X  
CO-ORDINATION CHEMISTRY**

**Enhances the research capabilities of the students by studying co-ordination chemistry.**

**MAIN PAPER – XI**

**STEREOCHEMISTRY AND NATURAL PRODUCTS**

**To study the spatial arrangement of atoms that form the structure of molecules and their manipulation.**

**MAIN PAPER - XII**

**ELECTROCHEMISTRY**

**Students will attain JRF, SRF in CSIR CECRI IIT's etc.**

**MAIN PAPER – XIII**

**INSTRUMENTAL METHODS OF ANALYSIS**

**Students used to get investigation analysis using scientific instruments. Elements and compounds can also be detected and identified using Mass, NMR, IR. UV etc.**

**APPLICATION ORIENTED SUBJECT**

**INDUSTRIAL CHEMISTRY-I**

**The acquisition of position as quality controllers, production managers, sample analysers in cement, glass, refractories and paint industry.**

**APPLICATION ORIENTED SUBJECT**

**PHARMACEUTICAL CHEMISTRY**

**Students use their chemistry ability especially their abilities to use chemical principles to design effective therapeutic agents.**

**MAIN PAPER- XIV**

**ADVANCED INORGANIC CHEMISTRY**

**Basic Knowledge of complexes are developed and they get to know about the orientation of molecules and the composition of alloys which is used for higher studies.**

**MAIN PAPER XV**

**ADVANCED ORGANIC CHEMISTRY**

**To study the organic reactions including the chemical synthesis and isolation of natural products, drug, polymers and study of individual organic compounds.**

**MAIN PAPER - XVI**

**CHEMICAL KINETICS AND PHASE RULE**

**To develop the practical skills.**

**MAIN PAPER - XVII**

**SPECTROSCOPY**

**To characterize the various compounds using UV, NMR, Mass, FT-IR.**

**APPLICATION ORIENTED SUBJECT**

**INDUSTRIAL CHEMISTRY-II**

**Students get opportunities in various industries such as ONGC, CIPET etc.**

**PRACTICAL - I**

**INORGANIC QUALITATIVE ANALYSIS AND PREPARATIONS**

**To find the elemental composition of inorganic compounds mainly focused on detecting ions in an aqueous solutions through various reagents.**

**PRACTICAL - II**

**VOLUMETRIC ANALYSIS**

**It is a determination of the absolute or relative abundance (concentration) of one, several or particular substances present in the sample.**

### **PRACTICAL - III**

#### **ORGANIC ANALYSIS AND PREPARATIONS**

**Students can determine the most commonly occurring elements in organic compounds like carbon. Hydrogen, oxygen etc.**

### **PRACTICAL - IV**

#### **GRAVIMETRIC ANALYSIS**

**It is used in analytical chemistry for the quantitative determination of analyte (ions) based on its mass.**

### **PRACTICAL - V**

#### **PHYSICAL CHEMISTRY**

**Students can learn how to determine the molecular weight, transition temperature and rate of reaction.**

### **ALLIED CHEMISTRY FOR PLANT**

#### **BIOLOGY & BIO TECHNOLOGY / ZOOLOGY I**

**Skill development . The student will be able to develop her skill by solving various problems mentioned in the syllabus.**

#### **ALLIED CHEMISTRY FOR PHYSICS I**

**Skill development . The student will be able to develop her skill by solving various problems mentioned in the syllabus.**

### **ALLIED CHEMISTRY FOR PLANT**

#### **BIOLOGY & BIO TECHNOLOGY / ZOOLOGY II**

**Students can enhance new technological skills by studying the subject.**

#### **ALLIED CHEMISTRY FOR PHYSICS II**

**Students can enhance new technological skills by studying the subject.**

## **ALLIED CHEMISTRY PRACTICALS**

**(Common for Botany / Zoology / Physics Majors)**

**Students can learn the fundamental concepts of how to handle the devices and the basic concepts in it.**