

Subject Name	Description
Inorganic Chemistry I	This course provides knowledge of molecular symmetry, Group Theory, Electronic Structure, Spectra Spin, Magnetism of Transition Metal Complexes, Metal-Ligand Bonding and Metal $\pi$ -complexes.
Organic Chemistry I	This paper helps to impart advanced knowledge about nature of bonding in organic molecules, reactive intermediates, reaction mechanism, structure and reactivity, aliphatic nucleophilic substitution and aliphatic electrophilic substitution of organic compounds.
Physical Chemistry I	One can attain knowledge of advanced electrochemistry, classical and statistical thermodynamics. And to acquire knowledge of the quantum chemical description of chemical bonding, reactivity and their applications in molecular spectroscopy and inorganic chemistry after doing complete study of this course.
Bio Sciences/ Basic Mathematics for Chemists	This paper helps to introduce structure, function and organization of various bio-molecules present in the living cell./ To study Vectors, Matrices and Determinants, Logarithm, Graphical Representation of Equations, Partial Differentiation, Differential Calculus .
Inorganic Chemistry Practical I	Synthesis of inorganic complexes and their characterization with instrumental techniques is the main feature of this course
Organic Chemistry Practical I	This paper aims to develop experimental skills of various separation and purification techniques in organic chemistry.
Physical Chemistry Practical I	This practical helps students to have hand-on experiences of techniques for verifying physical and chemical properties.
Inorganic Chemistry- II	Chemistry of Lanthanides and Actinides, Metal ions in biology, Molecular mechanism of ion transport across membrane, ionophores, Photosynthesis, Photo system I and Photo system II, nitrogen fixation, oxygen uptake proteins, cytochromes, and ferredoxins are the major content of this paper.

Organic Chemistry- II	This paper impart knowledge of mechanisms of Aromatic Electrophilic substitution, Aromatic Nucleophilic substitution, Free Radicals, Elimination Reaction, Neighboring group participation, Carbocation rearrangement, Addition to Carbon-Carbon Multiple Bond, Addition to Carbon-Heteroatom Multiple Bond in organic chemistry.
Physical Chemistry -II	The electrochemistry, chemical kinetics, Quantum mechanics, and UV,IR and Raman spectroscopy are the key feature of this course
Spectroscopy and its Application in Organic Chemistry	This paper helps the students to have sound knowledge of spectroscopic techniques (UV, IR, <sup>1</sup> H NMR, <sup>13</sup> C NMR and Mass spectrometry) for structural analysis of organic compounds.
Inorganic Chemistry Practical II	This course include the synthesis of inorganic complexes and their characterization with instrumental techniques.
Organic Chemistry Practical II	This practical helps the students to have sound knowledge of laboratory techniques for organic synthesis and characterization.
Physical Chemistry Practical II	This lab covers different techniques of titration viz.; conductometry, Potentiometry / pH metry Viscosity, Chemical Kinetics, Spectrophotometry and Calorimetry.

**\*The students will be required to undergo six week industrial/research training after completion of second semester examinations.**