

Subject Name	Description
Industrial & Environmental Chemistry	This paper helps to impart advanced knowledge of chemical approaches applied in Pharmaceutical Industries, Paper and pulp industries and Sugar and starch industries. Water quality requirements for industries, Lubricants, Environment chemistry, Green Chemistry are also the key features of this course.
Analytical Techniques	This course provides knowledge of atomic spectroscopy, separation techniques, electro-analytical methods, electron microscopy and thermal techniques used in industry.
Molecular Spectroscopy for inorganic Compounds and liquid Crystals	This paper helps the students to have sound knowledge of spectroscopic techniques (Vibrational, ESR, Mossbauer, Mass, Spectroscopy) for structural analysis and Liquid Crystals.
Photochemistry and Pericyclic Chemistry	This course includes principles of photochemistry, Photochemistry of Alkenes, Carbonyl Compounds, some important Photochemical reactions and Pericyclic Reactions.
Nuclear Chemistry	This paper helps to impart advanced knowledge about Radioactivity, Nuclear Reactions, Nuclear Fission and their applications.
Natural Products and Heterocyclic Chemistry	Natural products like Terpenoids, Steroids, Alkaloids, Porphyrins, and Aromatic Heterocycles with their synthesis are the major content of this paper.
Summer Training report	Students have to submit a Summer Training report of their industrial training and give a seminar.
Inorganic Special Practical -I	This lab includes preparation of selected inorganic complexes and their characterization using techniques/methods such as elemental analysis, conductance measurement, magnetic susceptibility measurements, infrared, UV, EPR, visible and mossbauer spectra
Organic Special Practical -I	This practical helps the students to have sound knowledge of laboratory techniques for organic synthesis and characterization.

Inorganic Special Practical- II	This lab covers different techniques viz.; flame photometric, Spectrophotometry, Calorimetry and chromatographic.
Organic Special Practical- II	This lab covers different techniques of separation and analysis of a binary organic mixture along with Isolation of some natural products like caffeine, casein, lactose and $\beta$ -carotene.
Applications of computers in chemistry	This paper gives the basic knowledge of Computer like MS-Word, MS-Excel, MS-Power point, operating system etc. and its application in chemistry. Introduction to internet and programming in C is also the major content of the paper.
Special topics in Inorganic Chemistry	Chemistry of Non-Transition Element, Nuclear chemistry, counting techniques such as G.M. ionization and proportional counter, Stereochemistry and bonding in main group compounds, Metal-Ligand Equilibria in solution like determination of binary formation constants by pH-metry and spectrophotometry. Metal Clusters compounds with metal-metal multiple bonds are the major content of this paper
Bioinorganic Chemistry	The Inorganic chemistry of biological system, Electron transfer, Photosynthesis and Respiration, Roles of metal ions in biology, Biochemistry of Non-metals and Medicinal Chemistry are the key feature of this course.
Advance organic synthesis	This paper imparts knowledge of Reagents and Rearrangements in organic synthesis. It also involves the Application of the following metals Pd, Hg and Rh, Tl and Si in Organic synthesis. One group and two group C-C disconnection approach are also the key feature of this paper.
Organometallic Chemistry	This paper helps to introduce types of compounds of transition metal with single, double and triple bonds to carbon, Compounds of transition metals with alkenes, alkynes and delocalized hydrocarbon system, Carbocyclic $\pi$ -complexes compounds, Nucleophilic attacks on cyclopentadienyl compounds, Oxidative Addition Reactions, Reductive Elimination Reactions and Fluxional Organometallic compounds.
Bio-organic and medicinal Chemistry	One can attain knowledge of Enzymes, Mechanism of Enzyme action, Co-Enzyme Chemistry, introduction, nomenclature and biological roles of prostaglandins, Drug Design, Synthesis and structure of Drugs.
Project	In this course students will go through a research project using different techniques on related topic.

Inorganic Special Practical III	This lab course covers different techniques viz.; flame photometric, Spectrophotometry, Calorimetry and chromatographic.
Organic Special Practical-III	This lab course covers different techniques of separation and analysis of a binary organic mixture along with Organic preparations involving some important names reactions
Inorganic Special Practical IV	This lab covers different techniques viz.; conductometric, Potentiometric and chromatographic.
Organic Special Practical-IV	This lab covers different techniques of separation and analysis of a ternary organic mixture along with Organic Preparations involving at least four steps.
Applications of computers in chemistry- Lab	This lab enables the students to understand the programmes related to mathematical and chemical equations like vanderwall's equation.