# COURSE OUTCOMES

## DEPARTMENT OF CHEMISTRY

## SEMESTER 1

Subject Name: **Introduction to Chemistry**

Subject Code: **U2CHC1**

In this course the students will

| | |
|---|---|
| **CO1:** | Understand the fundamentals concepts such as atomic structure, periodic properties and basics of organic chemistry. |
| **CO2:** | Knowthe basic idea of gaseous state. |

**Subject Name: Ancillary Mathematics – I** **Subject Code: U2MAA1X1**

**In this course the students will**

| | |
|---|---|
| **CO1:** | Gain knowledge on various series like binomial series, logarithmic series, trigonometric series. |
| **CO2:** | Develop the ability to solve equations and understand the nature of roots of higher order equations. |
| **CO3:** | Acquire knowledge on hyperbolic functions. |

Subject Name: **Oils and Fats-I**

Subject Code: **U2CHA11**

In this course the students will

| | |
|---|---|
| **CO1:** | Get a detailed account of physical properties and characteristic term for various oils and fats. |

Subject Name: **Principles of Chemical Analysis**

Subject Code: **U2CHS11**

In this course the students will

| | |
|---|---|
| **CO1:** | Know the basics concepts of electron transfer reactions. |
| **CO2:** | Understand the theories behind the chemistry practical and purification techniques. |

Subject Name: **Chemical Bonding - I**

Subject Code: **U2CHS12**

In this course the students will

| | |
|---|---|
| **CO1:** | Get knowledge about the properties of elements and bonds. |
| **CO2:** | Study the principles of chemical bond formation. |

**Semester – II**

Subject Name: **General Chemistry**

Subject Code: **U2CHC2**

In this course the students will

| | |
|---|---|
| **CO1:** | Get required ideas about stereo chemical isomers. |
| **CO2:** | Get expertized in surface chemistry and colloidal states. |

Subject Name: **LAB: Volumetric analysis**

Subject Code: **U2CHC2P**

In this course the students will

| | |
|---|---|
| **CO1:** | Know the applications of volumetric analysis. |
| **CO2:** | Understand the principles of redox reactions. |

**Subject Name: Ancillary Mathematics - II** **Subject Code: U2MAA2X2**

**In this course the students will**

| | |
|---|---|
| **CO1:** | Apply the reduction formula to solve problems in integral calculus. |
| **CO2:** | Utilize the concept of vector differentiation to identify the curl, divergence of a given vector. |
| **CO3:** | Construct the evolutes of any curve using differential calculus. |
| **CO4:** | Develop the skills of solving simultaneous equations by marking use of the rank of matrices. |
| **CO5:** | Find the eigeon values, eigeon vectors of a given matrix. |

Subject Name: **Oils and Fats-II**

Subject Code: **U2CHA21**

In this course the students will

| | |
|---|---|
| **CO1:** | Know a detailed account of different types of milk products. |
| **CO2:** | Get trained in the analysis of milk and milk products. |
| **CO3:** | Enable to analyze various samples of Oils and Fats products. |
| **CO4:** | Understand the basic details of Milk and Milk products. |
| **CO5:** | Gain knowledge about petrochemical and petroleum products. |

Subject Name: **LAB1: Oil Analysis**

Subject Code: **U2CHA2P**

In this course the students will

| | |
|---|---|
| **CO1:** | Understand the basis of food adulterations. |
| **CO2:** | Have knowledge about physical and chemical parameters of Oils. |

Subject Name: **Principles of Chemical analysis - II**

Subject Code: **U3CHS21**

In this course the students will

| | |
|---|---|
| **CO1:** | Understand the concept of purification of organic compounds. |
| **CO2:** | Master over molecular formulae calculations. |
| **CO3:** | Learn fundamental concepts of analytical chemistry. |

Subject Name: **Chemical Bonding - II**

Subject Code: **U3CHS22**

In this course the students will

| | |
|---|---|
| **CO1:** | Know Valence bond & Molecular Orbital theories in detail. |
| **CO2:** | Know the concept of hybridization and VSEPR theory. |
| **CO3:** | Study the relationship between the molecular structure and bonding theories. |
| **CO4:** | Get mastery over MO diagrams of different molecules and ions. |

**II B.Sc. Chemistry**

**Semester -III**

Subject Name: **Inorganic and Physical chemistry**

Subject Code: **U2CHC3**

In this course the students will

| | |
|---|---|
| **CO1:** | Understand the metallurgy process of metals and also to study the preparation of pure metals. |
| **CO2:** | Learn the fundamentals of nuclear reactions, phase rule, distribution law and liquid crystal. |
| **CO3:** | Study the application of distribution law to solvent extraction and purification of solvents. |

**Subject Name: Ancillary Mathematics – III** **Subject Code: U2MAA3X3**

**In this course the students will**

| | |
|---|---|
| **CO1:** | Understand the concepts of differential equations, partial differential equations, Laplace transforms and Analytical geometry. |
| **CO2:** | Analyse various methods solving partial differential equations. |
| **CO3:** | Acquire skill to solve many problems in Laplace transform and in Analytical geometry. |
| **CO4:** | Understand that Laplace domain allows algebraic manipulation of differential equations. |
| **CO5:** | Understand the linear equations occur in subareas of mathematics and especially in applied mathematics. |

Subject Name: **Oils and Fats – III** Subject Code: **U2CHA31**

In this course the students will

| | |
|---|---|
| **CO1:** | Gain knowledge about oil extraction and constituents and chemical properties of different oils. |
| **CO2:** | Study the fundamentals of hydrolytic and oxidative rancidity. |
| **CO3:** | Master over purification process such as refining and bleaching processes. |

**Subject Name: MECHANICS, PROPERTIES OF MATTER AND SOUND**

**Subject Code: U1PHA1X1/U1PHA3X1**

**In this Course, the students will**

| | |
|---|---|
| **CO1:** | Understand the concept of force, friction and energy. |
| **CO2:** | Get the knowledge about the angular momentum, torque and moment of inertia . |
| **CO3:** | Understand principle of gravity. |
| **CO4:** | Learn about the principles of Elasticity and bending of beams. |
| **CO5:** | The types of wave motions and their equations. |

**Semester -IV**

Subject Name: **Organic and Physical chemistry**

Subject Code: **U2CHC4**

In this course the students will

| | |
|---|---|
| **CO1:** | Get expertised in arenes and heterocycles. |
| **CO2:** | Gain structural knowledge about different carbohydrates and crystals. |
| **CO3:** | Understand the basics and application of colligative property. |

Subject Name: **LAB: Semi-Micro Inorganic Qualitative Analysis**

Subject Code: **U1CHC4P**

In this course the students will

| | |
|---|---|
| **CO1:** | Understand the fundamentals of inorganic qualitative analysis. |
| **CO2:** | Practice the identification of various anions and cations present in minerals. |

**Subject Name: Ancillary Mathematics - IV** **Subject Code: U2MAA4X4**

**In this course the students will**

| | |
|---|---|
| **CO1:** | Learn the various statistical tools to analyse the data collected. |
| **CO2:** | Know the basic concepts of group theory. |
| **CO3:** | Learn Fourier transformations and solving techniques. |
| **CO4:** | Gain knowledge in varieties of index numbers. |

Subject Name: **Oils and Fats – IV**

Subject Code: **U2CHA41**

In this course the students will

| | |
|---|---|
| **CO1:** | Understand the role of constituents of food and lipids. |
| **CO2:** | Study the balanced diet. |
| **CO3:** | Get expertise in the food preservation. |

Subject Name: **LAB: Food Analysis**

Subject Code: **U1CHA4P**

In this course the students will

| | |
|---|---|
| **CO1:** | Study the role of food Adulterants. |
| **CO2:** | Get the basic knowledge about nutrients. |

**Subject Name: THERMAL PHYSICS**

**Subject Code: U1PHA2X2/U1PHA4X2**

**In this Course, the students will**

| | |
|---|---|
| **CO1:** | Have knowledge about the concept of specific heat capacity and experimental determination of specific heat capacities. |
| **CO2:** | Understand the concepts convection, stability of atmosphere, different latent heat equations. |
| **CO3:** | Know about Stefan's law, pyrometry and solar constant. |
| **CO4:** | Understand the kinetic theory and transport phenomena of gases. |
| **CO5:** | Understand Carnot's engine, Joule- Thomson effect and liquefaction of gases. |

## III B.Sc Chemistry

### Semester – V

Subject Name: **Organic chemistry - I**

Subject Code: **U2CHC51**

In this course the students will

| | |
|---|---|
| **CO1:** | Study fundamentals of polynuclear hydrocarbons and green chemistry. |
| **CO2:** | Understand aromaticity and aromatic substitution reactions. |
| **CO3:** | Acquire fundamental knowledge about dyes. |

Subject Name: **Physical Chemistry-I**

Subject Code: **U2CHC52**

In this course the students will

| | |
|---|---|
| **CO1:** | Learn thermodynamics in detail and its applications in heat engine & refrigeration. |
| **CO2:** | Understand the basic concepts of electrochemistry and its applications. |
| **CO3:** | Learn fundamental of chemical kinetics and hence writing reaction path-way of the reaction. |
| **CO4:** | Understand UV and IR spectroscopies in detail. |

Subject Name: **Inorganic Chemistry I**

Subject Code: **U2CHC53**

In this course the students will

| | |
|---|---|
| **CO1:** | Acquire knowledge about d-block elements, f-block elements and acid-base concepts. |
| **CO2:** | Learn fundamental concepts of co-ordination chemistry. |
| **CO3:** | Understand the basics of error analysis, curve fitting and data analysis. |

**Subject Name: ELECTRICITY & ELECTRONICS**

**Subject Code: U1PHA3X3/U1PHA5X3**

**In this Course, the students will**

| | |
|---|---|
| **CO1:** | Understand the fundamentals of electrostatic parameters, Gauss's law and its application, Electric Potential, Capacitance and different types Capacitors. |
| **CO2:** | Learn about Kirchhoff's Laws and its applications, principle of potentiometer. |
| **CO3:** | Understand the principle & working of galvanometer and LCR circuits. |
| **CO4:** | Know about performance of transistor amplifiers and op-amps. |
| **CO5:** | Learn the principle of digital electronics and related concepts. |

Subject Name: **NME- Chemistry in day-to - day life**

Subject Code: **U2CHN51**

In this course the students will

| | |
|---|---|
| **CO1:** | Know the basis of different types of polymers and their applications. |
| **CO2:** | Learn the chemical aspects of fuels, oils and their importance. |
| **CO3:** | Understand the role of chemistry in food science. |

Subject Name: **Self Learning Course - Cosmetics**

Subject Code: **U1CHSL5**

In this course the students will

| | |
|---|---|
| **CO1:** | Study the formulation of face powder. |
| **CO2:** | Know the herbals in cosmetics. |
| **CO3:** | Understand the fundamental of cosmetics. |

**Semester – VI**

Subject Name: **Organic Chemistry- II**

Subject Code: **U1CHC61**

In this course the students will

| | |
|---|---|
| **CO1:** | Get mastery over conformational analysis of alkanes, cyclohexanes and mono substituted cyclohexanes. |
| **CO2:** | Know the mechanism of various rearrangement reactions. |
| **CO3:** | Learn the fundamentals of UV, IR and NMR. |

Subject Name: **Physical Chemistry -II**

Subject Code: **U2CHC62**

In this course the students will

| | |
|---|---|
| **CO1:** | Know the fundamentals of photochemistry and mechanism of photochemical reactions. |
| **CO2:** | Understand basic principles of group theory. |
| **CO3:** | Study the application of thermodynamics. |
| **CO4:** | Know the fundamentals of IR, Raman, NMR and EPR. |
| **CO5:** | Learn the structural elucidation of compounds. |

Subject Name: **Inorganic Chemistry II**

Subject Code: **U2CHC63**

In this course the students will

| | |
|---|---|
| **CO1:** | Study the basics of thermoanalytical methods. |
| **CO2:** | Learn the basics of metal carbonyls. |
| **CO3:** | Understand the various Chromatographic techniques. |
| **CO4:** | Learn the basics of bio-inorganic Chemistry. |

Subject Name: **LAB III-Organic preparation and Gravimetric Estimation**

Subject Code: **U1CHC6P1**

In this course the students will

| | |
|---|---|
| **CO1:** | Study the basics of organic preparation. |
| **CO2:** | Acquire knowledge on gravimetric estimation. |

Subject Name: **LAB IV-Organic Analysis and Organic Estimation**

Subject Code: **U1CHC6P2**

In this course the students will

| | |
|---|---|
| **CO1:** | Acquire knowledge about the analysis of simple organic compounds. |
| **CO2:** | Know fundamental strategies of organic estimation. |

Subject Name: **LAB V-Physical Chemistry Experiments**

Subject Code: **U1CHC6P3**

In this course the students will

| | |
|---|---|
| **CO1:** | Learn the applications of conductometric and potentiometric experiments. |
| **CO2:** | Know the fundamental concepts of kinetics. |
| **CO3:** | Understand the theoretical of phase diagram and critical solution temperature. |

**Subject Name: OPTICS, SPECTROSCOPY & MODERN PHYSICS**
**Subject Code: U1PHA4X4/U1PHA6X4**
**In this Course, the students will**

| | |
|---|---|
| **CO1:** | Understand the basics of geometrical and physical optics. |
| **CO2:** | Study the different technique in spectroscopy and photoelectricity. |
| **CO3:** | Get basic knowledge about quantum physics |
| **CO4:** | Understand the concept of relativity |

Subject Name: **Medicinal Laboratory and Clinical biochemistry**

Subject Code: **U1CHS61**

In this course the students will

| | |
|---|---|
| **CO1:** | Learn basic knowledge in blood and urine analysis. |
| **CO2:** | Study the basics of lipids and their biological functions. |
| **CO3:** | Understand the concepts in various analytical techniques. |

Subject Name: **NME – Industrial Chemistry**

Subject Code: **U2CHN61**

In this course the students will

| | |
|---|---|
| **CO1:** | Learn the toxic effects of metals. |
| **CO2:** | Study the corrosion protection. |
| **CO3:** | Get knowledge about the estimation of water parameters. |

**Allied Papers**

Subject Name: **General Chemistry-I for Physical Science**

Subject Code: **U2CHA1X1**

In this course the students will

| | |
|---|---|
| **CO1:** | Know the basics ideas about organic chemistry. |
| **CO2:** | Know the details about periodic table and its periodic properties. |
| **CO3:** | Learn chemical equilibrium and its importance in industrial processes. |
| **CO4:** | Acquire knowledge about petroleum and petrochemical products. |

Subject Name: **General Chemistry-II for Physical Science**

Subject Code: **U2CHA1X2**

In this course the students will

| | |
|---|---|
| **CO1:** | Learn the basics gaseous state. |
| **CO2:** | Get idea about the polymer and its applications. |
| **CO3:** | Study adequate knowledge about nuclear chemistry. |

Subject Name: **General Chemistry-I for Biological Science**

Subject Code: **U2CHA1Y**

In this course the students will

| | |
|---|---|
| **CO1:** | Know the basics of colloids. |
| **CO2:** | Study the fundamental ideas about organic chemistry. |
| **CO3:** | Acquire a knowledge about petrochemical products and polymers. |

Subject Name: **General Chemistry –II for Biological science**

Subject Code: **U2CHA2Y**

In this course the students will

| | |
|---|---|
| **CO1:** | Learn the basics of chemical calculation. |
| **CO2:** | Gain adequate knowledge about dyes. |
| **CO3:** | Study the separation of chemical by chromatography techniques. |
| **CO4:** | Know the structure of protein and function of hormones. |

Subject Name: **Volumetric Analysis**

Subject Code: **U2CHA2PX1**

In this course the students will

| | |
|---|---|
| **CO1:** | Study the applications of volumetric analysis. |

Subject Name: **General Chemistry-III for Biological Sciences**

Subject Code: U3CHA3Y

In this course the students will

| | |
|---|---|
| **CO1:** | Gain the basic knowledge of photochemistry and nuclear chemistry. |
| **CO2:** | Understand the concept data analysis. |
| **CO3:** | Acquire basic knowledge in water quality parameters. |
| **CO4:** | Study the versatility of insecticides. |

Subject Name: **General Chemistry-IV for Biological Science**

Subject Code: U3CHA4Y

In this course the students will

| | |
|---|---|
| **CO1:** | Study the mode of action of drugs. |
| **CO2:** | Learn some chemicals in day- to- day life utility. |
| **CO3:** | Acquire basic idea about the alkaloids and Terpenoids. |
| **CO4:** | Gain knowledge about the soil chemistry. |
| **CO5:** | Study the role of catalyst in chemical reactions. |

Subject Name: **General Chemistry for Physical Science**

Subject Code: U2CHA3X3

In this course the students will

| | |
|---|---|
| **CO1:** | Learn the basic requirements of chemical calculations. |
| **CO2:** | Understand the fundamental of bonding. |
| **CO3:** | Know the fundamental concept about adsorption, catalysis and co-ordination compounds. |
| **CO4:** | Study the principles of water analysis. |

Subject Name: **General Chemistry for Physical Sciences**

Subject Code: U2CHA4X4

In this course the students will

| | |
|---|---|
| **CO1:** | Study the basics of chemical equilibrium. |
| **CO2:** | Acquire basic idea about drugs. |
| **CO3:** | Study the chromatographic techniques. |
| **CO4:** | Understand the role of bio-organic materials. |

Subject Name: **Organic Qualitative Analysis**

Subject Code: U2CHA4PX

In this course the students will

| | |
|---|---|
| **CO1:** | Gain the fundamental knowledge about organic analysis. |

**I M.Sc. Chemistry**

**Semester I**

Subject Name: **Organic Chemistry I**

Subject Code: **P2CHC11**

In this course the students will

| | |
|---|---|
| **CO1:** | Understand the mechanism of various types of organic reactions. |
| **CO2:** | Study advanced concept of stereochemistry and conformation with special reference to reactivity. |
| **CO3:** | Understand the basics of aromatic character in organic molecules. |

Subject Name: **Inorganic Chemistry- I**

Subject Code: **P2CHC12**

In this course the students will

| | |
|---|---|
| **CO1:** | Get in depth knowledge about VB, Mo and VSEPR theories. |
| **CO2:** | Know the various bond types and also Born Lande eqn and Born –Haber cycle. |
| **CO3:** | Learn the fundamentals of co-ordination chemistry. |
| **CO4:** | Study metallurgical process of some d-block and f-block elements. |

Subject Name: **Physical Chemistry - I**

Subject Code: **P2CHC13**

In this course the students will

| | |
|---|---|
| **CO1:** | Understand quantum mechanics and also applications in molecular level too. |
| **CO2:** | Study thermodynamics and its applications. |
| **CO3:** | Learn the applications of chemical kinetics. |

Subject Name: **Nano science and Nanotechnology**

Subject Code: **P3CHE11**

In this course the students will

| | |
|---|---|
| **CO1:** | Get synthetic idea of nanomaterials, characterization, properties and application of different nanomaterials. |

Subject Name: **Computer in Chemistry**

Subject Code: **P2CHE12**

In this course the students will

| | |
|---|---|
| **CO1:** | Understand the basic concepts of communication systems. |
| **CO2:** | Acquaint on the basics and applications of valence bond theory in chemistry. |

**Semester II**

Subject Name: **Organic Chemistry II**

Subject Code: **P2CHC21**

In this course the students will

| | |
|---|---|
| **CO1:** | Get mastery over UV, IR and NMR spectroscopies. |
| **CO2:** | Understand the basics of addition reactions. |
| **CO3:** | Understand the mechanism of aliphatic and aromatic substitution reactions. |
| **CO4:** | Study the mechanism of elimination reactions. |
| **CO5:** | Study the relationship between conformation and reactivity of organic molecules. |
| **CO6:** | Learn the spectral interpretation. |

Subject Name: **Inorganic Chemistry II**

Subject Code: **P2CHC22**

In this course the students will

| | |
|---|---|
| **CO1:** | Understand the structure and applications of metal carbonyls. |
| **CO2:** | Understand the reaction mechanism of coordination compounds. |
| **CO3:** | Study the molecular rearrangement reactions of coordination complexes. |
| **CO4:** | Know the fundamentals of organometallic catalysis. |

Subject Name: **Physical Chemistry - II**

Subject Code: **P2CHC23**

In this course the students will

| | |
|---|---|
| **CO1:** | Get mastery over group theory. |
| **CO2:** | Learn on the Overview about polymer chemistry, catalytic and fast reaction. |

Subject Name: **Organic Chemistry Practical I**

Subject Code: **P2CHC2P1**

In this course the students will

| | |
|---|---|
| **CO1:** | Prepare some organic compounds and to practice the separation of mixtures of organic compounds. |
| **CO2:** | Estimate some organic compounds with reference to their functional groups. |

Subject Name: **LAB: Inorganic Chemistry Practical I**

Subject Code: **P2CHC2P2**

In this course the students will

| | |
|---|---|
| **CO1:** | Study the basic idea behind the separation of cations. |
| **CO2:** | Understand the fundamentals of inorganic qualitative and quantitative analysis. |

Subject Name: **LAB: Physical Chemistry Practical I**

Subject Code: **P2CHC2P3**

In this course the students will

| | |
|---|---|
| **CO1:** | Learn the applications of conduct metric and potentiometric experiments. |
| **CO2:** | Know the fundamental concepts of reaction dynamics. |

Subject Name: **Industrial Chemistry**

Subject Code: **P1CHN21**

In this course the students will

| | |
|---|---|
| **CO1:** | Study the role of chemistry in industry. |
| **CO2:** | Study raw materials and energy for chemical industries, water conditioners. |
| **CO3:** | Small and large scale chemical process industries. |

Subject Name: **Food Chemistry**

Subject Code: P2CHN22

In this course the students will

| | |
|---|---|
| **CO1:** | Understand food additives. |
| **CO2:** | Study the energy values of various foods. |

**II M.Sc. Chemistry**

**Semester -III**

Subject Name: **Organic Chemistry-III**

Subject Code: **P1CHC31**

In this course the students will

| | |
|---|---|
| **CO1:** | Plan and execution of organic synthesis. |
| **CO2:** | Understand the photochemical, oxidation, reduction and rearrangement reactions. |
| **CO3:** | Study the reagents in organic synthesis. |

Subject Name: **Inorganic Chemistry- III**

Subject Code: **P2CHC32**

In this course the students will

| | |
|---|---|
| **CO1:** | Understand the importance of bio-inorganic compounds in biological system. |
| **CO2:** | Get mastery over electronic spectra, NMR, EPR and Mossbauer spectra. |
| **CO3:** | Understand the nuclear chemistry in details. |

Subject Name: **Physical Chemistry-III**

Subject Code: **P1CHC33**

In this course the students will

| | |
|---|---|
| **CO1:** | Understand the fundamentals & applications of electrochemistry and statistical thermodynamics. |
| **CO2:** | Learn microwave, infra-red and electronic spectral techniques. |

Subject Name: **Analytical Methods in Chemistry**

Subject Code: **P2CHC34**

In this course the students will

| | |
|---|---|
| **CO1:** | Understand the fundamental, and applications of electroanalytical and thermoanalytical techniques. |
| **CO2:** | Study the importance of various spectroanalytical techniques. |

Subject Name: **Medicinal and Pharmaceutical Chemistry**

Subject Code: **P1CHE31**

In this course the students will

| | |
|---|---|
| **CO1:** | Learn fundamentals of medicinal chemistry. |
| **CO2:** | Understand drug action. |
| **CO3:** | Study the preparation, mechanism, action and applications of various types of drugs. |

Subject Name: **Polymer chemistry**

Subject Code: **P1CHE32**

In this course the students will

| | |
|---|---|
| **CO1:** | Understand classifications & properties of different polymers. |
| **CO2:** | Learn uses of polymers. |
| **CO3:** | Study various polymerization techniques. |

**Self-Learning Course**

Subject Name: **Applied Chemistry**

Subject Code: P1CHSL3

In this course the students will

| | |
|---|---|
| **CO1:** | Study the adequate knowledge about the fuels. |
| **CO2:** | Learn the advantages of safety matches. |
| **CO3:** | Know the determination of acid value. |

**Semester -IV**

Subject Name: **Organic Chemistry - IV**

Subject Code: **P1CHC41**

In this course the students will

| | |
|---|---|
| **CO1:** | Learn retrosynthesis aspects. |
| **CO2:** | Understand the structural elucidation of heterocycles, alkaloids, terpenoids and steroids. |
| **CO3:** | Learn ORD, CD & chromatographic techniques. |
| **CO4:** | Acquire basic knowledge in green chemistry. |

Subject Name: **Inorganic Chemistry- IV**

Subject Code: **P2CHC42**

In this course the students will

| | |
|---|---|
| **CO1:** | Study lanthanides and actinides. |
| **CO2:** | Learn solid state chemistry in details. |
| **CO3:** | Study the role of photochemistry in inorganic chemistry. |

Subject Name: **Physical Chemistry –IV**

Subject Code: **P1CHC43**

In this course the students will

| | |
|---|---|
| **CO1:** | Learn the physical chemistry background for various spectral techniques. |
| **CO2:** | Understand fundamental concepts of colloids and surface chemistry. |
| **CO3:** | Get a detailed outlook of photochemistry. |
| **CO4:** | Study the role of physical aspects in some biological process. |

Subject Name: **LAB: Organic Chemistry Practical II**

Subject Code: **P1CHC4P1**

In this course the students will

| | |
|---|---|
| **CO1:** | Study the basics of separation and analysis of mixture of organic compounds. |
| **CO2:** | Learn the interpretation of the UV, IR and NMR spectra of organic compounds. |

Subject Name: **Inorganic Chemistry Practical II**

Subject Code: **P1CHC4P2**

In this course the students will

| | |
|---|---|
| **CO1:** | Practice the quantitative estimation of more than one cation opting volumetric and gravimetric estimations. |
| **CO2:** | Train the preparation of simple co-ordination compounds. |
| **CO3:** | Study the basics of photo colorimetric estimation of metals. |

Subject Name: **Project & Viva-voce**

Subject Code: **P1CH4PV**

In this course the students will

| | |
|---|---|
| **CO1:** | Deal a problem systematically by literature search and research methodology. |
| **CO2:** | Preparation of compounds and taking spectra and interpretation of spectral data. |
| **CO3:** | Experimental work and tabulate the data. |
| **CO4:** | Summarize research findings and writing thesis. |
| **CO5:** | Teach them skills such as problem solving and also to develop additional skills integral to their future such as critical thinking and time management. |

**M.Phil. Chemistry**

**Semester - I**

Subject Name: **RESEARCH METHODOLOGY**

Subject Code: **M2CHC11**

In this course the students will

| | |
|---|---|
| **CO1:** | Search literature from various sources. |
| **CO2:** | Instrumentation of NMR, Cyclic voltammetry, Chromatography, XRD. |
| **CO3:** | Learn supramolecular chemistry and its applications. |

Subject Name: **COURSE WORK**

Subject Code: **M2CHC12**

In this course the students will

| | |
|---|---|
| **CO1:** | Learn organic synthesis and retrosynthetic analytical aspects. |
| **CO2:** | Get mastery over group theory and its application to UV, IR and Raman spectroscopies. |
| **CO3:** | Study metal complexes binding with DNA and hence anticancer drug study. |
| **CO4:** | Learn magnetic properties and EPR spectral study of complexes and their applications. |
| **CO5:** | Understand nanochemistry and its applications. |

Subject Name: **ADVANCED ORGANIC CHEMISTRY**

Subject Code: **M1CHE11**

In this course the students will

| | |
|---|---|
| **CO1:** | Learn retrosynthetic analytical aspects. |
| **CO2:** | Understand various addition reactions and transition metal mediated reactions. |
| **CO3:** | Study about enolates and their applications. |

Subject Name: **ADVANCED INORGANIC CHEMISTRY**

Subject Code: **M1CHE12**

In this course the students will

| | |
|---|---|
| **CO1:** | Study organometallics and inorganic polymers. |
| **CO2:** | Understand the concepts of polyacids and their applications. |

Subject Name: **ADVANCED PHYSICAL CHEMISTRY**

Subject Code: **M1CHE13**

In this course the students will

| | |
|---|---|
| **CO1:** | Study advanced chemical kinetics and also photocatalytic reactions. |
| **CO2:** | Learn biophysical aspects. |
| **CO3:** | Study computational quantum mechanics. |
| **CO4:** | Nano particles applications. |

Subject Name: **DISSERTATION AND VIVA-VOCE**

Subject Code: **M1CH2PV**

In this course the students will

| | |
|---|---|
| **CO1:** | Know the systematic processing of research problem under supervisor and submitting dissertation (thesis) in support of candidature for M.Phil. degree. |
| **CO2:** | Have an idea on presenting research and its findings i.e dissertation / thesis to the examiners. |