Core Course Outcome

Chemistry

Sl No	Name of the paper	Outcome
1	Quantum Chemistry and Group Theory	• To introduce the concept of Quantum mechanics among students • To learn the theory and application of Quantum Chemistry • Analyze the various possibilities of the concept in future research • To learn different Quantum mechanical models, co-ordinate systems, wavefunctionsetc • To learn the basic principles of group theory and molecular symmetry • To learn the method of representation of a point group and reduction formula • To analyse the relation between quantum mechanics and group Theory
2	Elementary Inorganic Chemistry	• To distinguish between different acid base concepts • To analyse the molecular structure and bonding in molecules • To learn the preparation,reactions and bonding in Boron hydrides • To understand the different allotropic forms of C,S,P,As,Sb,Bietc • To study the synthesis structure and uses of various compounds of main group elements • To familiarize with the structure of nucleus, fission, fusion reactions etc • To understands the interaction

		of radiation with matter
3	Structure and Reactivity of Organic Molecules	• To understand the basic principles of structure and bonding in organic molecules • To learn the importance of different substituent effects and their application in organic chemistry • To study the conformational analysis of various organic molecules an their application • To learn the effect of conformation on the course of reaction rate in different system of molecules • To understand the basic concepts of stereo chemisty • To introduce the concept of Asymmetric synthesis and its application in various fields especially in research.
4	Thermodynamics, Kinetics and Catalysis	• To learn the basic theories and equations in Thermodynamics. • To study the kinetic aspects of chemical reactions via molecular reaction dynamics • To study thermodynamics of ideal and non ideal solutions • To study homogeneous and heterogeneous catalysis
5	Applications of Quantum mechanics and Group theory	• To learn the different approximation methods in Quantum mechanics • To study the Quantum mechanics of many electrom atoms • To apply the theories of quantum mechanics in bonding of diatomic and

		polyatomic molecules • To learn molecular vibrations of molecules and apply group theory in noleculer spectroscopy • To apply group theory in chemical bonding
6	Co-ordination Chemistry	• To analyse the stability of coordination complexes • To learn theories of bonding in coordination • To familiarise with electronic and magnetic properties of complexes • To study characterisation techniques in coordination complexes • To study the mechanisms of reactions of met complexes in detail • To analyse the mechanisms of redox and photochemical reactions of complexes
7	Reaction mechanism in organic chemistry	• To gain knowledge of the mechanisms of aliphatic and aromatic nucleophillic and electrophillic substitution reactions. • To learn addition and elimination reactions and reactive intermediates • To understand the chemistry of carbonyl compounds • To study the pericyclic reactions in detail • To learn photochemistry of organic compounds • To understand the chemistry of natural products
8	Electrochemistry solid state chemistry and statistical thermodyanamics	• To study the dynamic electrochemistry

		• To learn ionic interactions and equilibrium electrochemistry • To study the crystal structure, imperfections and electronic structure of solids • To learn quantum statistics of statistic thermodynamics
9	Inorganic practicals I and II	• To study the seperation and identification of four met cations of which one is rare metal ion. • To learn to carry our the spot tests of elements effectively • To familiarisecerimetric and colourimetric estimation of metals
10	Organic chemistry practicals I and II	• To learn the methods of Separation and Purification of Organic Compounds • Analysis of binary mixtures, some of which containing compounds with more than one functional group • To carry out multiple stage organic preparations
11	Physical chemistry I and II	• To carry out different physical experiments with precision and accuracy • To plot graph efficiently and find out the unknown measurement from the graph • To familiarise with electronic analytical instruments like potentiometer and conductometer
12	Molecular spectroscopy	• To learn basic aspects of microwave, Infrared, NMR and Electronic spectroscopy • To study the applications of Electronic and vibrational

		spectroscopy in Organic chemistry • To familarise with the proton and C-13 NMR analysis in different organic molecules • To learn Mass spectroscopy and its application in structural elucidation of organic compounds
13	Organometallic and Bio-Inorganic chemistry	• To learn the historical background and Nomenclature of organometallic compounds • To study the organometallic compounds with linear and cyclic pi system • To get knowledge about different reactions of organometallic compounds and catalysis • To study about metal clusters and carbonyl clusters • To learn the importance of bio-inorganic chemistry in various phases of biological system
14	Reagents and Transformations in Organic chemistry	• To study in detail Oxidation and reduction reactions of organic compounds • To learn various synthetic reagents and their role in different reactions • To learn classification of polymers and importance of Bio polymers and chemistry of hetero cyclic compounds • To study various molecular rearrangements and transformations
15	Synthetic organic chemistry	• To learn the reagents used for oxidation and reduction reactions • To familiarize with various organometallic and organonon-metallic reagents • To introduce different coupling reactions in organic chemistry

		• To introduce the concept of Retro-synthetic analysis and multi-step synthesis
16	Instrumental methods of Analysis	• To learn about the errors in chemical analysis • To study in detail about the conventional analytical methods • To learn electro Analytical, optical, Thermal and Radio-chemical methods • To study the theory and applications of chromatography
17	Advanced topics in chemistry	• To introduce the topic of chemistry of Nano materials • To study the basic priciples and some reactions in Green chemistry • To introduce computational quantum chemistry • To introduce supramolecular chemistry, medicinal chemistry, and combinatorial chemistry • To learn introductory aspects of industrial catalysis
18	Industrial catalysis	• To get an introduction to adsorption process • To learn the preparative methods of a catalyst • To study the deactivation of catalyst • To introduce phase-transfer catalysis and Biocatalysis
19	Inorganic chemistry practical lll and lV	• To develop analytical skills in inorganic quantitative analysis • To understand ion exchange separation and estimation of binary mixture • To understand the principles

		behind the colourimetry and to apply it in quantitative analysis To prepare inorganic complexes
20	Organic chemistry practical	• To develop talent in organic preparations to ensure maximum yield • To apply the concept of melting or boiling pints to check the purity of compounds • To analyze and characterize symbol organic functional group • To analyze individual amino acids from a mixture using chromatography
21	Physical chemistry practical	• To develop analytical skills in determining the physical properties • To understand the principles of refractomery , potentiometry and conductometry
22	Project	• To develop scientific temper among students • To introduce the research methodology and lab manners • To develop skills in thesis writing and paper presentations • To familiarize with various analytical instruments