



Satish Pradhan Dnyanasadhana College, Thane

(Arts, Science and Commerce)
Re-Accredited "B+" Grade (CGPA 2.69) by NAAC, ISO 21001:2018 (Certified)
Affiliated to University of Mumbai

B.Sc. Chemistry

Program Specific Outcome

PSO1	Understand the fundamental concepts, principles, and processes of Chemistry.
PSO2	Employ critical thinking and scientific knowledge to solve problems in Chemistry
PSO3	Design, carry out, record, and analyze the results of chemical experiments and develop research-oriented skills. Understand safety of chemicals, preparation of solution and find out the green route of chemical reaction for sustainable development.
PSO4	Appreciate the central role of Chemistry in our society, to opt for higher education, disciplinary & multi-disciplinary research and to be a life-long learner.



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Department	Semester	Course Name
CHEMISTRY	I	CHEMISTRY-I

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Define various thermodynamic terms and deduce thermodynamic equations and to solve numerical thermodynamics. Define various concentration terms and preparation of solutions of different concentration and to solve numerical	L1 L2 L3 L4	PO1 PSO1
CO2	Explain atomic structure using various theories and compare different theories of atomic model. analyze periodic trends in atomic properties such as atomic size, ionization energy, electron affinity, and electronegativity, and be able to explain these trends based on atomic structure and periodicity. Apply the principles of periodicity of properties of elements. Compare and predict the properties of main group	L1 L2 L3 L4	PO2 PO3 PSO2
CO3	Classify various organic compounds and apply IUPAC rules for writing and drawing structure of organic compounds, define various types of hybridisation in organic compounds and to apply this concept in predicting hybridisation, geometry, shape and bond angle of various organic molecules. Understanding the fundamentals of organic reactions and its application in predicting products of various reactions.	L1 L2 L3	PO2 PO3 PSO1



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Department	Semester	Course Name
CHEMISTRY	I	CHEMISTRY-II

CO.NO	Course Outcomes	Bloom's Level	PO PSO
CO1	Define, understand, and derive the equation for different rate law and be able to apply the concept for calculation of half-life period and apply the equation for solving numerical. Understand the concept and properties of the liquid state, derive their equations and solve numerical problems.	L1 L2 L3 L4	PO1 PO2 PSO1
CO2	Analyze and compare various properties of main group elements. Understand the periodic trends, chemical properties, and applications of these elements in various fields of chemistry. Know the environmental aspects which are the causes of pollution	L1 L2 L3 L4	PO1 PO6 PSO2
CO3	Explain various projection formulas and apply this concept to draw stereoisomers of a given compound. Differentiate isomers and predict optical activity of a given organic compound. Draw conformational isomers and predict its stability	L4 L3 L5	PO2 PO3 PSO1



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Department	Semester	Course Name
CHEMISTRY	I	CHEMISTRY PRACTICALS

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Standardize the solution and find the concentration of the solution. Determine viscosity of different liquids. Calculate the percentage composition of an inorganic mixture	L3 L4	PO4 PSO3
CO2	Understand and recrystallise organic compounds using suitable solvent. Characterize different organic compounds. Determine physical constant of different organic compound	L3 L4	PO1 PO4 PSO2



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Department	Semester	Course Name
CHEMISTRY	II	CHEMISTRY-I

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Define various terms used to explain electrochemistry, thermodynamics and in chemical equilibrium. and derive equations based on these concepts and solve numerical	L1 L2 L4	PO1 PO2 PSO1
CO2	Employ testing of Gaseous Evolutes, Role of Papers impregnated with Reagents in qualitative analysis.	L1 L2 L3	PO1 PO2 PSO4
CO3	Define various rules of elimination reactions and apply this rule to compare stability of various products. Know the Chemistry of unsaturated organic molecules, its preparation and reactions	L1 L2 L3	PO2 PSO1



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Department	Semester	Course Name
CHEMISTRY	II	CHEMISTRY-II

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Define, understand, and explain the concept of strong and weak electrolytes, ionization, derive equations and calculate dissociation constant. Apply the concept of pH scale and solve numerical and understand the concept of buffers.	L1 L2 L3 L4	PO1 PO2 PSO1 PSO2
CO2	Understand types of chemical bonds. Predict shapes of molecules based on VSEPR theory. Understand oxidation reduction chemistry And apply the concept in volumetric analysis	L1 L2 L3 L4	PO1 PO2 PSO2
CO3	Understand Huckel's Rule of Aromaticity and apply the rule to predict whether the given compound is aromatic/ non-aromatic/ anti-aromatic and design mechanism of electrophilic substitution reaction. Understand various types of strains and predict stability of conformations based on strain theory	L1 L3 L4	PO3 PO4 PSO3



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Department	Semester	Course Name
CHEMISTRY	II	CHEMISTRY PRACTICAL

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Determine the end point of reaction by instrumental method validate Beer's Lambert law, understand the concept of safety measures and applying in Laboratory, analyze a mixture using semi micro qualitative analysis method	L3 L5 L2	PO1 PO6 PSO3
CO2	Characterize organic compounds. Detects elements present in organic compounds. Detect the presence of different functional group in organic compound	L4 L5	PO4 PSO3



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Department	Semester	Course Name
CHEMISTRY	III	CHEMISTRY-I

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Enumerate and define the various thermodynamic parameters and explain their applications. Apply the principles of electrochemistry to ionic solutions. Numerical solving in Groups.	L1 L3 L4	PO1 PO2 PSO2 PO5
CO2	Describe and apply principles of theories of bonding to different systems, analyze the conditions for formation of bonds and understand the theory in the formation of molecules	L1 L3 L4 L5	PO1 PO2 PSO2
CO3	Differentiate between S_N^1 , S_N^2 , S_N^1 reactions and predict mechanism of a nucleophilic substitution reaction on the basis of various factors. Write IUPAC names of alcohols, phenols, ethers. Explain and predict reactions and reactivity of alcohols, phenols and ethers.	L1 L2 L5	PO3 PO2 PSO2



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Department	Semester	Course Name
CHEMISTRY	III	CHEMISTRY-II

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Remember and apply thermodynamic principles to solution chemistry. Apply the principles of chemical kinetics and predict the effect of various factors on reaction rates and derive the equation of energy of activation of different chemical reactions. Numerical solving in groups	L1 L2 L3	PO1 PO2 PO3 PSO1
CO2	Understand the trend in p-block elements as regard to their variation in size and configuration. Application of this variation to their physical and chemical properties. Analyze the electron deficient behavior of boron halides and outline their behavior as Lewis acids. Outline the silicon chemistry in electronics. Analyze trends in chemical reactivity - Formation of hydrides, halides, oxides with special reference to oxides of nitrogen.	L1 L2 L3 L4	PO1 PO2 PSO2
CO3	Apply IUPAC rules for writing names of different organic compounds. Predict general mechanism of nucleophilic addition, and acid catalyzed nucleophilic addition. Write the Reactions of carbonyl compound like aldehyde and ketone	L3 L4	PO3 PSO2



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Department	Semester	Course Name
CHEMISTRY	III	CHEMISTRY-III

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Define & describe the concept of classical and non classical methods of analysis and their types. Understand the concept of sampling, different sampling techniques. Identify and prepare a sample for analysis	L1 L2 L3 L4	PO1 PO2 PSO1
CO2	Skill to comprehend the theoretical aspects of classical analysis in titrimetric methods such as neutralization titration, apply these concepts practically, and analyze the procedures to accurately determine the endpoint.	L1 L2 L3 L4	PO2 PO4 PSO2
CO3	Understand different optical and electrochemical properties, Remember and apply different laws of optical methods. Sketch block diagrams for different spectroscopic methods, and understand the qualitative and quantitative analysis.	L2 L4	PO1 PO4 PSO1



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Department	Semester	Course Name
CHEMISTRY	III	CHEMISTRY PRACTICAL

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Verify Ostwald's dilution law for weak acid conductometrically. Determine dissociation constant of weak acid conductometrically, Energy of activation of acid-catalyzed hydrolysis of methyl acetate and Solubility of sparingly soluble salts conductometrically. Investigate the reaction between $K_2S_2O_8$ and KI with equal initial concentrations of the reactants.	L1 L2 L3	PO4 PSO3
CO2	Identify cations in each mixture and analytically separate them. Estimate total hardness.	L1 L2 L3	PO1 PSO3
CO3	Prepare organic compounds and Purify the product by recrystallization.	L4	PO2 PSO3



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Department	Semester	Course Name
CHEMISTRY	IV	CHEMISTRY-I

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Define the electrochemistry and thermodynamics terms and also to distinguish between reversible & irreversible cells and calculate $\Delta H, \Delta G, \Delta S$ for a reversible cell understand, draw and analyze phase diagram of water and other two component system and to calculate degree of freedom in each areas	L1 L2 L3 L4	PO1 PO3 PO2 PSO1
CO2	Remember transition elements and compare their properties, understand the principles of the extraction process. Understand the concept of coordination compounds, understand the theories involved, apply the concept in various fields	L1 L3 L4	PO2 PO1 PO4 PSO1
CO3	Write IUPAC names of carboxylic acids, their derivatives and sulphonic acids. Remember methods of preparation and chemical reactions of carboxylic acids and sulphonic acids and apply them to develop synthetic route of a given organic compound	L1 L3	PO1 PO2 PO4 PSO1



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Department	Semester	Course Name
CHEMISTRY	IV	CHEMISTRY-II

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Define law of crystallography and to understand the characteristics features of types of crystals. Define and explain X-rays and its working and how it is used in determining structure of different inorganic compounds. Understand the types of Catalysis, Michaelis-Menten equation, kinetics and mechanism, nanoparticles as catalysts.	L1 L2 L3 L4	PO1 PO2 PO3 PSO1
CO2	Understand the behavior of cations and anions in water. Explain and justify the behavior of cations and anions in water. Predict the behavior of species in aqueous medium. Create and apply the Predominance diagrams. Identify and classify sources of pollutants, analyze the man-made disasters from a chemistry point of view with respect to oxides of Nitrogen, Phosphorus and Sulphur.	L1 L2 L3 L4	PO1 PO2 PO3 PSO1
CO3	Understand reaction mechanism and its application to different organic compounds. Employ amines and diazonium salts in synthesis of commercially important molecules. Acquire and apply knowledge about the structures, syntheses, reactions, and properties of the major classes of heterocyclic compounds.	L1 L2 L3 L4	PO1 PSO1



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Department	Semester	Course Name
CHEMISTRY	IV	CHEMISTRY-III

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Know the types of analytical separations and its importance in analysis. Define, understand different terms involved in chromatography and application of it	L2 L3 L5	PO1 PO2 PO4 PSO1
CO2	Understand the principle, construction and working of the various instrumental methods. Apply the knowledge of different separation techniques and do qualitative and quantitative analysis with different separation techniques	L4 L2 L3 L5	PO2 PO1 PO3 PSO1
CO3	Apply statistical methods in chemical analysis. Explain different test used in analysis for rejection of doubtful data and to decide which data to be kept and to analyze it graphically	L2 L5 L4	PO2 PO1 PO4 PSO3



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CHEMISTRY	IV	CHEMISTRY PRACTICAL

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Determine standard EMF and the standard free energy change of Daniel cell potentiometrically. Determine the amount of HCl in the given sample potentiometrically. Compare the strengths of HCl and H ₂ SO ₄ by studying kinetics of acid hydrolysis of methyl acetate.	L3	PO2 PSO3
CO2	Prepare Nickel dimethylglyoxime and Tris (ethylene diamine) nickel (II) thiosulphate using microscale method. Analyze qualitatively bi-functional organic compounds	L4	PO2 PSO3
CO3	Separate cations like Fe (III), Ni (II) and Cu (II) in a sample by paper chromatography. Estimate Fe (II) in the given solution by titrating against K ₂ Cr ₂ O ₇ potentiometrically and calculate % error. Estimate gravimetrically Sulfate as BaSO ₄ and calculate % error.	L3	PO2 PSO3



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Department	Semester	Course Name
Chemistry	V	PHYSICAL CHEMISTRY

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Understand and apply principles of dipole moment for structure determination, Describe the fundamentals of rotational, Vibrational and Raman Spectra of molecules and derive the equations for energies for the same, elucidate Structure and solve numerical.	L1 L2 L3 L4 L6	PO1 PO2 PSO1 PSO3
CO2	Apply Raoult's Law and Clapeyron equation to study colligative properties, measure lowering of vapor pressure, understand reaction dynamics, derive equations for elevation in boiling point and depression in freezing point, understand osmotic pressure, study the methods to determine osmotic pressure.	L1 L2 L3 L4	PO2 PO1 PSO1
CO3	Define terms of nuclear chemistry, understand the methods of measurement of radioactivity, apply the use of radioisotopes, differentiate between nuclear fission and nuclear fusion processes.	L1 L2 L3 L4 L5	PO1 PO2 PSO2
CO4	Distinguish physical and chemical adsorption remember the principles of surface chemistry, derive the equation of Langmuir's adsorption isotherm, studying the definitions of colloidal terms, apply the concept of electrical double layer, learn to classify surfactants	L1 L2 L3 L4 L5	PO2 PO3 PSO2



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Department	Semester	Course Name
CHEMISTRY	V	INORGANIC CHEMISTRY

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Understand the concept of molecular symmetry, distinguish between homonuclear and heteronuclear molecules, apply this concept to construct MOT diagrams of CO, NO and HCl molecules	L2 L3 L4	PO1 PO2 PSO2
CO2	Understand theories of bonding, learn the concept of solid-state chemistry, describe superconductivity and its applications differentiate between Frenkel and Schottky defect, and apply Molecular orbital theory for different molecules	L1 L2 L3 L4	PO1 PO3 PSO1
CO3	Describe and explain the chemistry of inner transition elements and analyze the applications, explain the separation methods of lanthanides	L1 L2 L3 L4 L5	PO2 PSO2
CO4	Classify the different types of solvents, explain reactivity in metal complexes, compare the periodicity of group 16 and 17 elements.	L2 L3 L4	PO2 PSO2



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Department	Semester	Course Name
CHEMISTRY	V	PRACTICAL PHYSICAL CHEMISTRY AND INORGANIC CHEMISTRY

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Determine molecular weight of a compound and order of a reaction	L6	PO2 PSO3
CO2	Investigate the adsorption of acetic acid and test validity of Freundlich adsorption isotherm.	L3	PO3 PSO3
CO3	Perform instrumental methods of analysis	L4	PO2
CO4	Synthesize inorganic compounds by green methods, determine percentage purity of the given sample and detect qualitatively impurity cations and anions.	L5	PO4 PSO4



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Department	Semester	Course Name
CHEMISTRY	V	ORGANIC CHEMISTRY

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Understand terms and concepts in organic mechanism, predict mechanism of a given organic reaction. Define pericyclic reactions and differentiate between various pericyclic reactions. Understand various terms and processes in photochemistry. Write photochemical reactions of olefins and carbonyl compounds	L1 L4 L5	PO1 PO4 PSO2
CO2	Understand and define elements of symmetry and assess stereochemistry of a given organic compound. Classify agrochemicals on the basis of various factors and write synthesis of IAA and Endosulfan. Write the preparation and reactions of pyridine – N- oxide, quinoline and isoquinoline	L1 L2 L5	PO1 PO4 PSO2
CO3	Apply IUPAC rules for writing name and drawing structure of an organic compound. Classify organic synthesis into linear and convergent. Understand and write multicomponent synthesis. Remember and analyze 12 principles of green chemistry. Plan organic synthesis based on principles of green chemistry.	L1 L2 L4 L6	PO1 PO3 PSO2
CO4	Understand basic theory of UV-Vis and Mass spectroscopy, analyze effect of conjugation on absorption in UV-Vis region, predict fragmentation patterns of alkanes and carbonyl compounds. Apply spectroscopic data to elucidate structure of organic compounds. Define isoprene rule, understand structural determination of citral and Nicotine.	L1 L2 L4 L5	PO2 PO4 PSO1



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Department	Semester	Course Name
CHEMISTRY	V	ANALYTICAL CHEMISTRY

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Define, comprehend, and articulate the concept of sampling, various sampling methods, and evaluate the outcomes using different sampling strategies. Apply numerical formulas to determine concentration levels, analyze the calculations to ensure accuracy, and evaluate the data to express it in various concentration measures.	L1 L2 L3 L4 L5	PO1 PO2 PSO1
CO2	Recall the principles of various titrations, comprehend their methodologies, execute the procedures to create titration curves, and examine the resulting data for accurate interpretation	L1 L2 L3 L4	PO2 PO3 PSO1 PSO2
CO3	Identify various atomic and molecular spectroscopy methods and comprehend their unique characteristics, differentiate between molecular and spectroscopic techniques such as AAS, FAS, turbidimetry, nephelometry, fluorometry and phosphorimetry by analyzing their principles, and assess the applications and limitations of each technique.	L1 L2 L4 L5	PO1 PO2 PSO2
CO4	Interpret the schematic diagram of an HPLC, label its critical components, and analyze the functions of the various parts for comprehensive understanding.	L1 L2 L3 L4	PO1 PO2 PSO3



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Department	Semester	Course Name
CHEMISTRY	V	PRACTICAL - ORGANIC CHEMISTRY AND ANALYTICAL CHEMISTRY

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Determine the percentage amount of magnesium and calcium in talcum powder by complexometric titration,	L5	PO1 PO2 PSO3
CO2	Determine COD of water sample	L3	PO1, PO2, PSO3
CO3	Ability to understand the concept of turbidity and its application	L2 L3	PO2 PSO2
CO4	Determine the chemical type of the given solid organic mixture, separate the mixture into its components and identify one separated component using qualitative analysis.	L4 L3	PO1 PO4 PSO2 PSO3



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Department	Semester	Course Name
Chemistry	V	APPLIED CHEMISTRY

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Define, characterize, and classify drugs, understand Routes of Drug Administration and Dosage Forms, define pharmacodynamic agents. Write the chemical structure, chemical class, therapeutic uses, and side effects and classify CNS drugs.	L1 L2 L3 L4 L5	PO1 PO3 PSO1
CO2	Analyze drug administration and dosage forms, explain mechanism of inflammation, and know the action mechanism of Analgesics, Antipyretics and Anti-inflammatory drugs.	L4 L3 L2	PO1 PO4 PSO2
CO3	Define, Understand and explain dyes and dyestuff, classify natural and synthetic dyes, applications. Apply the knowledge of various types of dyes used in the dyeing industry.	L1 L2 L3 L4 L5	PO1 PO3 PSO1
CO4	Define, understand and explain the unit process and Dye Intermediates, theories of Colour and Chemical Constitution of Dyes.	L1 L2	PO1 PSO1



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Department	Semester	Course Name
CHEMISTRY	V	DRUGS AND DYES PRACTICAL

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Apply theoretical knowledge of organic reaction to prepare drug -Aspirin and know its applications.	L3	PO1 PO4 PSO1
CO2	Estimate the amount of drug in a given sample by non- instrumental techniques.	L5	PO2 PSO2
CO3	Understand the separation and its application in separation natural pigment by paper chromatography technique	L4	PO3 PO4 PSO3
CO4	Apply theoretical knowledge of organic reaction and its application in preparing Orange II dye and dye cotton fabric using the same.	L3	PO4 PSO4



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Department	Semester	Course Name
Chemistry	VI	PHYSICAL CHEMISTRY

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Apply principles of spectroscopy to describe properties of molecules, know the applications of galvanic cells, derive the equations for various cells, apply the concept of decomposition potential, determine overvoltage and decomposition potential, and solve related numericals.	L1 L2 L3 L4 L6	PO1 PO2 PSO4
CO2	Classify polymers based on various properties, understand the preparation of LEP, Use Colligative properties to determine parameters of molecules, learn the definition of various terms and solve numerical problems.	L1 L2 L3 L4 L6	PO1 PO2 PSO1
CO3	Understand the basic operations used in Quantum Chemistry, compare theories of classical and quantum mechanics, and apply equations for solving numerical problems.	L3 L4	PO2 PO3 PSO1
CO4	Understand the principles of NMR, study ESR spectroscopy and apply the same for the study of the spectrum of hydrogen and deuterium.	L2 L3	PO4 PSO1



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Department	Semester	Course Name
CHEMISTRY	VI	INORGANIC CHEMISTRY

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Explain crystal field theory, understand the metal ligand bonding in compounds, calculate crystal field stabilization energy and know the limitations of CFT.	L1 L2 L3	PO1 PO2 PO3 PSO1
CO2	Apply molecular orbital theory in coordination compounds. Understand the stability of metal complexes, reactivity of metal complexes, differentiate between thermodynamic stability, understand the electronic spectra of complexes	L3 L4 L2	PO1 PO4 PSO2
CO3	Understand organometallic chemistry, metallocenes and study its reactions. Develop an understanding of catalysis and applications	L2 L3 L4	PO1 PSO1
CO4	Know the general steps of metallurgy and its applications, learn chemistry of group 18 elements. Understand the concepts of bioinorganic chemistry and applications	L2 L3 L1	PO1 PSO4



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Department	Semester	Course Name
CHEMISTRY	VI	PRACTICAL PHYSICAL CHEMISTRY AND INORGANIC CHEMISTRY

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Find the molecular weight of a polymer solution	L1	PO2 PSO4
CO2	Understand the concept of conductometric titration	L2	PO1 PSO1
CO3	Determine the endpoint of titration using instrumental method	L3	PO3 PSO3
CO4	Learn the skills required in the preparation of complexes Ability to understand the principles of qualitative & quantitative analysis	L3 L4	PO3 PSO2



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Department	Semester	Course Name
CHEMISTRY	VI	ORGANIC CHEMISTRY

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Distinguish between stereoselectivity and stereospecificity and predict stereochemistry of various reactions based on their mechanism. Understand structure, configuration, classification, and properties of α – amino acids, polypeptides, and proteins	L1 L5	PO1 PO3 PSO2
CO2	Predict the stereochemistry and mechanism of molecular rearrangements. Classify carbohydrates. Derive Haworth projection formula from open chain structure. Predict products of reactions of carbohydrates.	L3 L5 L2	PO1 PO4 PSO2
CO3	Understand basic theory of IR and NMR spectroscopy. Predict the chemical shift based on the proton based on its chemical environment and magnetic anisotropy. Formulate the structure of an organic compound based on its spectral data. Understand the structure of nucleosides, nucleotides, DNA and RNA	L1 L4 L6	PO1 PO2 PSO1
CO4	Ability to understand various terms in polymers. Differentiate between addition and condensation polymerisation. Remember synthesis of some polymers. Predict the product for reactions using various catalysts and reagents.	L2 L4 L5	PO1 PO2 PSO2



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Department	Semester	Course Name
CHEMISTRY	VI	ANALYTICAL CHEMISTRY

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Understand the principles of electroanalytical techniques like polarography and amperometric titrations, analyze electrochemical reactions, evaluate the relevance of these methods across different analytical contexts and synthesize this knowledge to quantify substances accurately.	L2 L4 L5	PO1 PO2 PSO1
CO2	Understand the Principle and workings of Gas Chromatography and Ion Exchange Chromatography, examine the intricacies of GC and assess IEC for effective ion-based separations, integrate these techniques for adept analysis in varied chemical environments	L2 L4 L5	PO1 PO2 PSO1
CO3	Recall terminology specific to the food and cosmetic sectors, coupled with the skill to examine various samples from these industries through analytical methods.	L1 L4	PO1 PO2 PSO3
CO4	Understand various thermal methods of analysis like TGA and DTA, articulate the thermal stability and compositional changes in materials, develop skills to perform Thermometric titrations and evaluate its results. The capacity to recall the definition and apply the principles of analytical method validation, along with the ability to evaluate its significance in ensuring the accuracy and reliability of analytical results	L1 L2 L3 L4 L5	PO1 PO2 PO3 PSO4



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Department	Semester	Course Name
CHEMISTRY	VI	PRACTICAL ORGANIC CHEMISTRY AND ANALYTICAL CHEMISTRY

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Estimate the amount of reducing sugar from honey samples.	L2	PO2 PSO3
CO2	Determine amount of phosphoric acid in cola sample pH metrically.	L2 L5	PO2 PSO3
CO3	Understand the concept of ion exchange chromatography and to analyze the (Magnesium-Zinc) mixture for its separation using anion exchange chromatography	L2 L5	PO1 PO2 PSO3
CO4	Determine the chemical type of the given solid-liquid /liquid-liquid organic mixture, separate the mixture into its components and identify one separated component using qualitative analysis.	L4 L3	PO3 PO4 PSO2



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Department	Semester	Course Name
CHEMISTRY	VI	APPLIED CHEMISTRY DRUGS AND DYES

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Define and explain Drug Discovery, Design- Development. Understand the concepts of Drug Metabolism, Chemotherapeutic Agents and their applications in the medicinal field.	L1 L3	PO1 PSO1
CO2	Discuss design and develop -Drug Intermediates, Anti-HIV Drugs, Anti-Neoplastic Drugs, Antitubercular and Antileprotic Drugs and their uses as chemotherapeutic agents.	L3 L1 L2 L6	PO1 PO3 PSO1
CO3	Understand classification of dyes based on applications and dyeing methods. Know and apply Health -Environmental Hazards of Synthetic Dyes and their Remediation Processes.	L3 L1 L2 L6	PO1 PO6 PSO1
CO4	Recognise the given type of dye and its classification based on chemical constitution and synthesis of selected dyes. Explain the uses of Non-textile dyes, Pigments and Dyestuff Industry - Indian Perspective.	L3 L1 L2 L6	PO1 PO3 PSO4



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Department	Semester	Course Name
CHEMISTRY	VI	DRUGS AND DYES PRACTICAL

CO No.	Course Outcomes	Bloom's Level	PO PSO
CO1	Prepare a monograph of a drug.	L3 L6	PO3 PSO1
CO2	Apply theoretical knowledge of organic reaction and its application in preparing various types of drugs.	L2	PO3 PO4 PSO1
CO3	Understand the separation and its application in separation natural pigment by thin layer chromatography technique	L2 L3	PO1 PSO1