

TENTATIVE LESSON PLAN (SEMESTERS)

SESSION: 2024-25

Name of the Teacher: Ms Nisha Pruthi

Department: Chemistry

Subject/Course: Chemistry III

Programme: B.Sc 2nd year

Semester: 3rd

Unit	Name of Topic/Contents	Tentative Dates/ Days
1	s and p-Block Elements Salient features of hydrides, oxides, halides, hydroxides of s-block elements (methods of preparation excluded). Structure, preparation and properties of Diborane and Borazine. Catenation, carbides, fluorocarbons, silicates (structural aspects), structure of oxides of Nitrogen and Phosphorous, structure of white and red phosphorus. Structure of oxyacids of Nitrogen, phosphorous, sulphur and chlorine and comparison of acidic strength of oxyacids. low chemical reactivity of noble gases, chemistry of xenon, structure and bonding in fluorides, oxides and oxyfluorides of xenon.	22nd July - 31 August
2	Electrochemistry Electrolytic conduction, factors affecting electrolytic conduction, specific conductance, molar conductance, equivalent conductance and relation among them, their variation with concentration. Application of Kohirausch's Law in calculation of conductance of weak electrolytes at infinite dilution (Numericals) Concepts of pH and pK., Buffer solution, Buffer action, Henderson - Hazel equation, Buffer mechanism of buffer action. Reversible & irreversible cells, Calculation of thermodynamic quantities of cell reaction (AG, All&K), Types of reversible electrodes metal- metal ion, gas electrode, metal - insoluble salt- anion and redox electrodes. Nemst equation, Standard Hydrogen electrode, reference electrodes, Applications of EMF measurement in solubility product and potentiometric titrations using glass electrode.	1st September - 30th September
	Alkynes Nowvenclature and its structure. Methods of formation: using Calcium carbide dehydrohalogenation, Kolbe's electrolysis. Chemical reactions: Mechanism of electrophilic and nucleophilic addition reactions, formation addition of bromine and alkaline KMnO ₄ , ozonolysis. Acidity of alkynes. Stereochemistry of Organic Compounds Concept of isomerism: Structural and Stereoisomerism. Symmetry elements. enantiomers, optical activity, properties of enantiomers, chiral and achiral molecules (up- to 2 asymmetric centres), diastereomers, threo- and erythro- nomenclature, mese- compounds, Relative and absolute configuration, sequence rules, R and S system of nomenclature. Cis- Trans isomerism. E & Z system of nomenclature. Conformational analysis of ethane and n-butane, conformations of cyclohexane, axial and equatorial bonds. Newman and Sawhorse projection formulae	1st October - 30 October

4	<p>Benzene and its derivatives</p> <p>Nomenclature. Aromatic nucleus and side chain, Huckel's rule of aromaticity. Aromatic electrophilic substitution, mechanism of nitration, halogenation, sulphonation, and Friedel Crafts reaction. Energy profile diagrams. Activating, deactivating substituents and orientation.</p> <p>Alkylhalides: Nomenclature, methods of formation: from alkenes and alcohol, nucleophilic substitution reactions of alkylhalides, SN2 and SN1 reactions with energy profile diagrams.</p> <p>Arylhalides: Methods of formation: halogenation, Sandmeyer reaction. The addition-elimination, and the elimination-addition mechanisms of nucleophilic aromatic substitution reactions. Relative reactivities of alkylhalides vs allyl, vinyl, and arylhalides.</p>	<p><i>Ist November – 22 November</i></p>

TENTATIVE LESSON PLAN (SEMESTERS)

SESSION: 2024-25

Name of the Teacher: Ms Pushpa

Department: Chemistry

Subject/Course: Chemistry III

Programme: B.Sc 2nd year

Semester: 3rd

Unit	Name of Topic/Contents	Tentative Dates/ Days
1.	s and p-Block Elements Salient features of hydrides, oxides, halides, hydroxides of s-block elements (methods of preparation excluded). Structure, preparation and properties of Diborane and Borazine. Catenation, carbides, fluorocarbons, silicates (structural aspects), structure of oxides of Nitrogen and Phosphorous, structure of white and red phosphorus. Structure of oxyacids of Nitrogen, phosphorous, sulphur and chlorine and comparison of acidic strength of oxyacids. low chemical reactivity of noble gases, chemistry of xenon, structure and bonding in fluorides, oxides and oxyfluorides of xenon.	C
2.	Electrochemistry Electrolytic conduction, factors affecting electrolytic conduction, specific conductance, molar conductance, equivalent conductance and relation among them, their variation with concentration. Application of Kohirausch's Law in calculation of conductance of weak electrolytes at infinite dilution (Numericals) Concepts of pH and pK., Buffer solution, Buffer action, Henderson - Hazel equation, Buffer mechanism of buffer action. Reversible & irreversible cells, Calculation of thermodynamic quantities of cell reaction (AG, All&K), Types of reversible electrodes metal- metal ion, gas electrode, metal - insoluble salt- anion and redox electrodos. Nemst equation, Standard Hydrogen electrode, reference electrodes, Applications of EMF measurement in solubility product and potentiometric titrations using glass electrode.	1st Sept ember - 30th Sept ember
3.	Alkynes Nowvenclature and its structure. Methods of formation: using Calcium carbide dehydrohalogenation, Kolbe's electrolysis. Chemical reactions: Mechanism of electrophilic and nucleophilic addition reactions, formation addition of bromine and alkaline KMnO ₄ , ozonolysis. Acidity of alkynes. Stereochemistry of Organic Compounds Concept of isomerism: Structural and Stereoisomerism. Symmetry elements. enantiomers, optical activity, properties of enantiomers, chiral and achiral molecules (up- to 2 asymmetric centres), diastereomers, threo- and erythro- nomenclature, mese- compounds, Relative and absolute configuration, sequence rules, R and S system of nomenclature. Cis- Trans isomerism. E & Z system of nomenclature. Conformational analysis of ethane and n-butane, conformations of cyclohexane, axial and equatorial bonds. Newman and Sawhorse projection formulae.	1st Octobe r - 30Octo ber

4.	<p>Benzene and its derivatives</p> <p>Nomenclature. Aromatic nucleus and side chain, Huckel's rule of aromaticity. Aromatic electrophilic substitution, mechanism of nitration, halogenation, sulphonation, and Friedel Crafts reaction. Energy profile diagrams. Activating, deactivating substituents and orientation.</p> <p>Alkyl halides: Nomenclature, methods of formation: from alkenes and alcohol, nucleophilic substitution reactions of alkyl halides, SN2 and SN1 reactions with energy profile diagrams.</p> <p>Aryl halides: Methods of formation: halogenation, Sandmeyer reaction. The addition-elimination, and the elimination-addition mechanisms of nucleophilic aromatic substitution reactions. Relative reactivities of alkyl halides vs allyl, vinyl, and aryl halides.</p>	<p>1st November – 22 November</p>
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TENTATIVE LESSON PLAN (SEMESTERS)

SESSION: 2024-25

Name of the Teacher: Savita Rani

Department: chemistry

Subject/Course: Inorganic chemistry

Programme: Bsc 3rd Nm+ Med

Semester: 5th

Unit	Name of Topic/Contents	Tentative Dates/Days
1	Metal-Ligand Bonding in Transition Metal Complexes Limitations of valence bond theory, an elementary idea of crystal field theory, crystal field splitting in octahedral, tetrahedral and square planar complexes, factors affecting the crystal field parameters.	22nd July - 31 August
2	Thermodynamics and Kinetic Aspects of metal complexes A brief outline of the thermodynamic stability of metal complexes and factors affecting the stability, Irving-Williams Series, substitution reactions of square planar complexes of Pt(II), Trans effect Assignment-1 Class Test	1st September - 30th September
3	Magnetic properties of Transition metal complexes Types of magnetic materials, magnetic susceptibility, method of determining magnetic susceptibility, spin only formula, L-S coupling, correlation of μ_s and μ_{eff} values, orbital contribution to magnetic moments, application of magnetic moment data for 3d metal complexes. Assignment-2	1st October - 30 October
4	Electronic spectra of transition metal complexes Selection rule for d-d transition, spectroscopic ground states, spectrochemical series, Orgel energy level diagram for d1 and d9 states, discussion of electronic spectrum of $[Ti(H_2O)_6]^{3+}$ complex ion.	1st November - 22 November

TENTATIVE LESSON PLAN (SEMESTERS)

SESSION: 2024-25

Name of the Teacher: Suman Rani

Department: Chemistry

Subject/Course: organic chemistry

Programme: Bsc 3rd Nm and Med

Semester: 5th

Unit	Name of Topic/Contents	Tentative Dates/Days
1	Carbohydrates Classification and nomenclature. Monosaccharides, mechanism of osazone formation. Interconversion of glucose and fructose, chain lengthening and chain shortening of alcohols. Configuration of monosaccharides. Erythro and threo diastereomers. Conversion of glucose into mannose. Formation of glycosides. Determination of ring size of glucose and fructose. Open chain and cyclic structure of D(+)-glucose & D(-)-fructose. Mechanism of mutarotation. Structures of ribose and deoxyribose. An introduction to disaccharides (maltose, sucrose and lactose) and polysaccharides (starch and cellulose) without involving structure determination. Assignment-1 Class Test	22nd July – 10 September
2	NMR Spectroscopy Principle of nuclear magnetic resonance, the PMR spectrum, number of signals, peak areas, equivalent and non-equivalent protons, positions of signals and chemical shift. Shielding and deshielding of protons, proton counting, splitting of signals and coupling constants, magnetic equivalence of protons. Discussion of PMR spectra of the molecules: Ethyl bromide, n-propyl bromide, Isopropyl bromide, 1,1-dibromoethane, 1,1,2-tribromoethane, Ethanol, Acetaldehyde, Ethyl acetate, Toluene, Benzaldehyde and Acetophenone. Simple problems on PMR spectroscopy for structure determination of organic compounds. Assignment-2	11 September to 21 October

3	Organometallic Compounds Organo magnesium compounds:the Grignard reagents formation, structure and chemical reactions. Organo zinc compounds: formation and chemical reactions. Organo lithium compounds: formation and chemical reactions.	22 October to 22 November
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TENTATIVE LESSON PLAN (SEMESTERS)

SESSION: 2024-25

Name of the Teacher: Monika

Department: chemistry

Subject/Course: Physical chemistry

Programme: Bsc 3rd Nm and Med

Semester: 5th

Unit	Name of Topic/Contents	Tentative Dates/Days
1	Quantum Mechanics-I Blackbody radiation, Planck's radiation law, photoelectric effect, postulates of quantum mechanics, quantum mechanical operators, commutation relations, Hamiltonian operator, Hermitian operator average value of square of Hermitian as a positive quantity, Role of operators in quantum mechanics, To show quantum mechanically that position and momentum cannot be predicated simultaneously, Determination of wave function & energy of a particle in one dimensional box	22nd July - 31 August
2	Physical Properties and Molecular Structure Optical activity, polarization – (Clausius – Mossotti equation derivation excluded). Orientation of dipoles in an electric field, dipole moment, induced dipole moment, measurement of dipole moment – temperature method and refractivity method dipole moment and structure of molecules, Magnetic permeability, magnetic susceptibility and its determination. Application of magnetic susceptibility, magnetic properties – paramagnetism, diamagnetism and ferromagnetism. Assignment-1 Class Test	1st September - 30th September

3	<p>Spectroscopy</p> <p>Introduction: Electromagnetic radiation, regions of spectrum, basic features of spectroscopy, statement of Born-Oppenheimer approximation, Degrees of freedom.</p> <p>Rotational Spectrum</p> <p>Selection rules, Energy levels of rigid rotator (semi-classical principles), rotational spectra of diatomic molecules, spectral intensity distribution using population distribution (Maxwell-Boltzmann distribution), determination of bond length and isotopic effect.</p> <p>Assignment-2</p>	<p>1st October - 30 October</p>
	<p>Vibrational spectrum</p> <p>Selection rules, Energy levels of simple harmonic oscillator, pure vibrational spectrum of diatomic molecules, determination of force constant and qualitative relation of force constant and bond energy, idea of vibrational frequencies of different functional groups</p> <p>Raman Spectrum</p> <p>Concept of polarizability, pure rotational and pure vibrational Raman spectra of diatomic molecules, selection rules, Quantum theory of Raman spectra.</p>	<p>1st November – 22 November</p>

TENTATIVE LESSON PLAN (SEMESTERS)

SESSION: 2024-25

Name of the Teacher: Ms.Poonam

Department: Chemistry

Subject/Course: Chemistry-I(B-23-CHE-101)

Programme: B.Sc. I (Life Science)

Semester: First(Ist)

<i>Unit</i>	<i>Name of Topic/Contents</i>	<i>Tentative Dates/Days</i>
1.	Atomic Structure Dual behaviour of matter and radiation, de Broglie's relation, Heisenberg's uncertainty principle, concept of atomic orbitals, significance of quantum numbers, radial and angular wave functions, normal and orthogonal wave functions, significance of Ψ and Ψ^2 , shapes of s, p, d, f orbitals, Rules for filling electrons in various orbitals, effective nuclear charge, Slater's rules. Periodic table and atomic properties Classification of periodic table, definition of atomic and ionic radii, ionisation energy, electron affinity and electronegativity, trend in periodic table (in s and p-block elements), Pauling, Mulliken, Allred Rachow and Mulliken Jaffe's electronegativity scale, Sanderson's electron density ratio. Discussion and problemstaken	22/07/2024 to 21/08/2024
2.	Gaseous State Kinetic theory of gases, Maxwell's distribution of velocities and energies (derivation excluded) Calculation of root mean square velocity, average velocity, and most Probable velocity. Collision diameter, collision number, collision frequency and mean free path (Derivations excluded), Deviation of Real gases from ideal behaviour, Derivation of Van der Waal's Equation of State, its application in the calculation of Boyle's temperature (compression factor) Critical Phenomenon Concept of Critical temperature, critical pressure, critical volume, relationship between critical constants and Van der Waal's constants (Derivation excluded). Assignment Discussion and problems taken	22/08/2024 to 21/09/2024
3.	Structure and Bonding Localized and delocalized chemical bond, Van der Waals interactions. Concept of resonance and its applications, hyperconjugation, inductive effect, Electromeric effect and their comparison. Mid Term Exam Mechanism of Organic Reactions Curved arrow notation, homolytic and heterolytic bond fission. Types of reagents: electrophiles and nucleophiles. Types of organic reactions: Substitution, Addition, Condensation, Elimination, Rearrangement, Isomerization and Pericyclic reactions. Reactive intermediates: Carbocations, carbanions, free radicals, carbenes (structure & stability). Discussion and problems taken	22/09/2024 to 21/10/2024

4.	<p>Liquid State Structure of liquids, Properties of liquids – surface tension, refractive index, viscosity, vapour pressure and optical rotation.</p> <p>Solid State Classification of solids, Law of constancy of interfacial angles, law of rational indices, Miller indices, elementary ideas of symmetry and symmetry elements, seven crystal systems and fourteen Bravais lattices; X-ray diffraction, Bragg's law, a simple account of Laue method, rotating crystal method and powder pattern method.</p> <p>Discussion and problems taken</p> <p>Revision</p>	22/10/2024 to 22/11/2024
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TENTATIVE LESSON PLAN (SEMESTERS)

SESSION: 2024-25

Name of the Teacher: Sushma Rani

Department: Chemistry

Subject/Course: Introductory Chemistry - III (B-23-CHE-303)

Programme: MDC

Semester: Third (3rd)

<i>Unit</i>	<i>Name of Topic/Contents</i>	<i>Tentative Dates/Days</i>
1.	Pollution and their types Plastic and polyethene pollution, pollution sources, Recycling of plastic, greenhouse effect, ozone depletion. Discussion and problems taken	22/07/2024 to 21/08/2024
2.	Energy Energy sources, renewable and non-renewable sources, cells and batteries, fuel cell, solar cell, polymer cell. Assignment Discussion and problems taken	22/08/2024 to 21/09/2024
3.	Water Sources of drinking water and uses, water conservation, Permissible TDS, Techniques of purification of water, R.O. water purification process (Osmosis and Reverse Osmosis), wastewater management. Mid-Term Exam Discussion and problems taken	22/09/2024 to 21/10/2024
4.	Pesticides and Herbicides General introduction and definition, biological control and chemical control: natural and synthetic pesticides, benefits and adverse effects of DDT, BHC, malathion. Discussion and problems taken and revision	22/10/2024 to 22/11/2024

TENTATIVE LESSON PLAN (SEMESTERS)

SESSION: 2024-25

Name of the Teacher: Sushma Rani

Department: Chemistry

Subject/Course: SEC / Food flavor

Programme: B.A+ B.sc

Semester: 1st(First)

<i>Unit</i>	<i>Name of Topic/Contents</i>	<i>Tentative Dates/Days</i>
1.	Biological molecules in food processing Water: Physical properties: specific heat, latent heat, vapor pressure, boiling point, water as dispersing medium, states of water, Water in food preparation and preservation Starch: Structure, functional properties - Gelatinization, pasting, syneresis, retrogradation, dextrinization. Factors affecting gelatinization and gelation, c) Gums – Functions, sources, applications. d) Pectic substances, pectin gels Discussion and problem taken	22/07/2024 to 21/08/2024
2.	Enzymes: a) Biocatalysts, enzyme specificity b) Use of exogenous enzymes in foods – amylases, lipases, proteases c) Endogenous enzymes – phenol oxidases, peroxidases, oxidoreductases, lipoxygenases d) Factors affecting enzyme activity Assignment Discussion and problem taken	22/08/2024 to 21/09/2024
3.	Flavours & Pigments Flavours: a) Molecular mechanism of flavor perception (sweet, bitter, salty, sour, umami, kokumi, pungent, cooling and astringent) b) Flavours from vegetables, fruits, spices, fats and oils, milk and meat products Pigments: a) Pigments in Animal and Plant tissues (Haeme compounds, Chlorophyll, Carotenoids, Anthocyanins, Betalins) b) Synthetic Food Colors (toxicity and regulatory aspects) Mid-Term Exam Discussion and problem taken	22/09/2024 to 21/10/2024

4.	<p>Food Additives</p> <p>Additives: a) Buffer systems and salts, chelating agents b) Antioxidants c) Antimicrobials d) Fat replacers, sweeteners e) Masticatory substances f) Firming texturizers g) Clarifying reagents, bleaching agents h) Flour improvers, anti-caking agents, i) Gases and propellants. Color – Natural and synthetic food colors, their chemical structure, shades imparted, stability, permitted list of colors, usage levels and food application. Food colorants: sunset yellow, orange-B, citrus red No2, yellow No5, green No3.</p> <p>Discussion and problem taken</p> <p>Revision</p>	<p>22/10/2024 to 22/11/2024</p>
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TENTATIVE LESSON PLAN (SEMESTERS)

SESSION: 2024-25

Name of the Teacher: Sushma Rani

Department: Chemistry

Subject/Course: Food Adulteration Testing–(B23-SEC-308)

Programme: SEC

Semester: Third (3rd)

<i>Unit</i>	<i>Name of Topic/Contents</i>	<i>Tentative Dates/Days</i>
1.	Common Foods and \dulteration Comntnon Foods subjected to Adulteration - Adulteration Definition — Types: Poisonous sul%tancca. Foreign matter. Cheap substitutes. Spoiled parts. Adulteration through Food Additives — Intentional and incidental. General Impact on Human Health. Discussion and problems taken	22/07/2024 to 21/08/2024
2.	Adulteration of Common Foods and Methods of Detection Means of Adulteration, Methods of Detection Adulterants in the following Foods; Milk, Oil. Grain, Sugar, Spices, Processed food, Fruits and vegetables. Additives and Sweetening agents (at least three methods of detection for each food item). Assignment Discussion and problems taken	22/08/2024 to 21/09/2024
3.	PrscntLr,nvs and Procedures on Adulteration Highlights of Food Safety and Standards Act 2006 (FSSA) —Food Safety and Standards Authority of India—Rules and Procedures of Local Authorities. Mid-Term Exam Discussion and problems taken	22/09/2024 to 21/10/2024
4.	Role of voluntary agencies such as, Agmark, I.S.I. Quality control laboratories of companies. Private testing laboratories, Quality control laboratories of consumer cooperatives. Consumer education, Consumer's problems rights and responsibilities, COPRA 2019 - Offenses and Penalties — Procedures to Complain — Compensation to Victims. Discussion and problems taken Revision	22/10/2024 to 22/11/2024

TENTATIVE LESSON PLAN (SEMESTERS)

SESSION: 2024-25

Name of the Teacher: Renu Devi

Department: Chemistry

Subject/Course: Food Adulteration Testing –(B23-SEC-308)

Programme: SEC

Semester: Third (3rd)

<i>Unit</i>	<i>Name of Topic/Contents</i>	<i>Tentative Dates/Days</i>
1.	Common Foods and Adulteration Common Foods subjected to Adulteration - Adulteration Definition — Types: Poisonous substances. Foreign matter. Cheap substitutes. Spoiled parts. Adulteration through Food Additives — Intentional and incidental. General Impact on Human Health. Discussion and problems taken	22/07/2024 to 21/08/2024
2.	Adulteration of Common Foods and Methods of Detection Means of Adulteration, Methods of Detection Adulterants in the following Foods; Milk, Oil, Grain, Sugar, Spices, Processed food, Fruits and vegetables. Additives and Sweetening agents (at least three methods of detection for each food item). Assignment Discussion and problems taken	22/08/2024 to 21/09/2024
3.	Prevalence and Procedures on Adulteration Highlights of Food Safety and Standards Act 2006 (FSSAI) — Food Safety and Standards Authority of India—Rules and Procedures of Local Authorities. Mid-Term Exam Discussion and problems taken	22/09/2024 to 21/10/2024
4.	Role of voluntary agencies such as, Agmark, I.S.I. Quality control laboratories of companies. Private testing laboratories, Quality control laboratories of consumer cooperatives. Consumer education, Consumer's problems rights and responsibilities, COPRA 2019 - Offences and Penalties — Procedures to Complain — Compensation to Victims. Discussion and problems taken and revision	22/10/2024 to 22/11/2024

TENTATIVE LESSON PLAN (SEMESTERS)

SESSION: 2024-25

Name of the Teacher: Renu Devi

Department: Chemistry

Subject/Course: Chemistry-I(B-23-CHE-101)

Programme: B.Sc. I (Physical Science)

Semester: First(Ist)

<i>Unit</i>	<i>Name of Topic/Contents</i>	<i>Tentative Dates/Days</i>
1.	Atomic Structure Dual behaviour of matter and radiation, de Broglie's relation, Heisenberg's uncertainty principle, concept of atomic orbitals, significance of quantum numbers, radial and angular wave functions, normal and orthogonal wave functions, significance of Ψ and Ψ^2 , shapes of s, p, d, f orbitals, Rules for filling electrons in various orbitals, effective nuclear charge, Slater's rules. Periodic table and atomic properties Classification of periodic table, definition of atomic and ionic radii, ionisation energy, electron affinity and electronegativity, trend in periodic table (in s and p-block elements), Pauling, Mulliken, Allred Rachow and Mulliken Jaffe's electronegativity scale, Sanderson's electron density ratio. Discussion and problemstaken	22/07/2024 to 21/08/2024
2.	Gaseous State Kinetic theory of gases, Maxwell's distribution of velocities and energies (derivation excluded) Calculation of root mean square velocity, average velocity, and most Probable velocity. Collision diameter, collision number, collision frequency and mean free path (Derivations excluded), Deviation of Real gases from ideal behaviour, Derivation of Van der Waal's Equation of State, its application in the calculation of Boyle's temperature (compression factor) Critical Phenomenon Concept of Critical temperature, critical pressure, critical volume, relationship between critical constants and Van der Waal's constants (Derivation excluded). Assignment Discussion and problems taken	22/08/2024 to 21/09/2024
3.	Structure and Bonding Localized and delocalized chemical bond, Van der Waals interactions. Concept of resonance and its applications, hyperconjugation, inductive effect, Electromeric effect and their comparison. Mid Term Exam Mechanism of Organic Reactions	22/09/2024 to 21/10/2024

	<p>Curved arrow notation, homolytic and heterolytic bond fission. Types of reagents: electrophiles and nucleophiles. Types of organic reactions: Substitution, Addition, Condensation, Elimination, Rearrangement, Isomerization and Pericyclic reactions. Reactive intermediates: Carbocations, carbanions, free radicals, carbenes (structure & stability).</p> <p>Discussion and problems taken</p>	
4.	<p>Liquid State Structure of liquids, Properties of liquids – surface tension, refractive index, viscosity, vapour pressure and optical rotation.</p> <p>Solid State Classification of solids, Law of constancy of interfacial angles, law of rational indices, Miller indices, elementary ideas of symmetry and symmetry elements, seven crystal systems and fourteen Bravais lattices; X-ray diffraction, Bragg's law, a simple account of Laue method, rotating crystal method and powder pattern method.</p> <p>Discussion and problems taken</p> <p>Revision</p>	<p>22/10/2024 to 22/11/2024</p>

TENTATIVE LESSON PLAN (SEMESTERS)

SESSION: 2024-25

Name of the Teacher: Renu Devi

Department: Chemistry

Subject/Course: Minor Chemistry - I (B-23-CHE-102)

Programme: B.Sc. I (Physical Science)

Semester: First (1st)

<i>Unit</i>	<i>Name of Topic/Contents</i>	<i>Tentative Dates/Days</i>
1.	Covalent Bond Shapes of simple inorganic molecules and ions based on valence shell electron pair repulsion (VSEPR) theory and hybridization with suitable examples of linear, trigonal planar, square planar, tetrahedral arrangements. Discussion and problems taken	22/07/2024 to 21/08/2024
2.	Chemical Kinetics Concept of reaction rates, factors influencing the rate of reaction, Order and molecularity of a reaction, integrated rate expression for zero and first order reactions. Assignment Discussion and problems taken	22/08/2024 to 21/09/2024
3.	Alkanes (upto 5 carbon atoms) Alkanes, nomenclature, classification of carbon atoms in alkanes. Isomerism in alkanes, methods of formation: Wurtz reaction, Kolbe reaction, Corey-House reaction and decarboxylation of carboxylic acids. Mid-Term Exam Discussion and problems taken	22/09/2024 to 21/10/2024
4.	Metallic Bond and semiconductors Metallic bond Qualitative idea of Band theory of metallic bond (conductors, semiconductors, insulators). Discussion and problems taken and revision Revision	22/10/2024 to 22/11/2024

TENTATIVE LESSON PLAN (SEMESTERS)

SESSION: 2024-25

Name of the Teacher: Ankit

Department: Chemistry

Subject/Course: Introductory Chemistry - I (B-23-CHE-103) Programme: MDC

Semester: First (1st)

<i>Unit</i>	<i>Name of Topic/Contents</i>	<i>Tentative Dates/Days</i>
1	Atomic Structure and Bonding Introduction, elementary introduction of atomic structure and chemical bonding, Representation of elements/ atoms, Lewis structure, Electronic configurations (1-30) Discussion and problems taken	22/07/2024 to 21/08/2024
2	Carbon and It's Compounds Introduction, Tetravalency of Carbon, Allotropes of carbon and their properties, Hydrocarbons (1-5), Nomenclature (linear compounds), Applications of hydrocarbons. Assignment Discussion and problems taken	22/08/2024 to 21/09/2024
3	Polymers Introduction, elementary idea of synthetic and natural polymers, Homo polymers and Copolymers, uses and properties (Natural rubber, Vulcanized rubber, Polythene, PVC, Styrene, Teflon, PAN, Nylon-66). Mid-Term Exam Discussion and problems taken	22/09/2024 to 21/10/2024
4	Food Preservatives Elementary idea of natural and synthetic food preservatives, rancidity, uses and properties, different food preservation processes (pickle, Jam), Artificial sweeteners, uses and properties. Discussion and problems taken and revision Revision	22/10/2024 to 22/11/2024

TENTATIVE LESSON PLAN (SEMESTERS)

SESSION: 2024-25

Name of the Teacher: Ankit

Department: Chemistry

Subject/Course: Introductory Chemistry - III (B-23-CHE-303 Programme: MDC

Semester: Third (3rd)

<i>Unit</i>	<i>Name of Topic/Contents</i>	<i>Tentative Dates/Days</i>
1.	Pollution and their types Plastic and polyethene pollution, pollution sources, Recycling of plastic, greenhouse effect, ozone depletion. Discussion and problems taken	22/07/2024 to 21/08/2024
2.	Energy Energy sources, renewable and non-renewable sources, cells and batteries, fuel cell, solar cell, polymer cell. Assignment Discussion and problems taken	22/08/2024 to 21/09/2024
3.	Water Sources of drinking water and uses, water conservation, Permissible TDS, Techniques of purification of water, R.O. water purification process (Osmosis and Reverse Osmosis), wastewater management. Mid-Term Exam Discussion and problems taken	22/09/2024 to 21/10/2024
4.	Pesticides and Herbicides General introduction and definition, biological control and chemical control: natural and synthetic pesticides, benefits and adverse effects of DDT, BHC, malathion. Discussion and problems taken and revision	22/10/2024 to 22/11/2024

TENTATIVE LESSON PLAN (SEMESTERS)*sss*

SESSION: 2024-25

Name of the Teacher: Ankit

Department: Chemistry

Subject/Course: Minor Chemistry - I (B-23-CHE-102)

Programme: B.Sc. I (Life Science)

Semester: First (1st)

<i>Unit</i>	<i>Name of Topic/Contents</i>	<i>Tentative Dates/Days</i>
1.	Covalent Bond Shapes of simple inorganic molecules and ions based on valence shell electron pair repulsion (VSEPR) theory and hybridization with suitable examples of linear, trigonal planar, square planar, tetrahedral arrangements. Discussion and problems taken	22/07/2024 to 21/08/2024
2.	Chemical Kinetics Concept of reaction rates, factors influencing the rate of reaction, Order and molecularity of a reaction, integrated rate expression for zero and first order reactions. Assignment Discussion and problems taken	22/08/2024 to 21/09/2024
3.	Alkanes (upto 5 carbon atoms) Alkanes, nomenclature, classification of carbon atoms in alkanes. Isomerism in alkanes, methods of formation: Wurtz reaction, Kolbe reaction, Corey-House reaction and decarboxylation of carboxylic acids. Mid-Term Exam Discussion and problems taken	22/09/2024 to 21/10/2024
4.	Metallic Bond and semiconductors Metallic bond Qualitative idea of Band theory of metallic bond (conductors, semiconductors, insulators). Discussion and problems taken Revision	22/10/2024 to 22/11/2024