

Academic Planner
Session--(2025-26)
Class- XI (Chemistry)

Date/ Day	Content	Learning Outcome	Modes of Assesment	Assignment/ Class Work	Teaching Pedagogy	Interdisci plinary Aspect/S DG	21st Century skills	Lab. Activity/Pr actical
April(1 6-30) 12 Days	Recapitulation of Basic concepts of X class- Laws of chemical combination, Classification of matter(physical and chemical), Mole concept(IX class), balancing of chemical equations, Ionic and covalent bond.	Bridge Course Program	Recapitulation of previous concepts in the form of MCQ test		Students will be divided in pairs and assign a particular topic to explain in the class using previous knowledge.	Self Learning.	Learning Enhancement in group.	

<p>May(1-15) 11 Days</p>	<p>Some Basic Concepts of Chemistry :- Importance and scope of chemistry, Nature of matter, laws of chemical combinations, Dalton's atomic theory. Mole concept, Atomic and Molecular mass.</p>	<p>1) Understand and appreciate the role of chemistry in different spheres of life. 2) Classify different substances into elements, compounds and Mixtures 3) Define SI base units. 4) Use scientific notations and perform simple mathematical operations. 5) Differentiate between precision and accuracy. 6) Conversion of units from one system to another. 7) Explain variuos laws of chemical combinations. 8) Desribe the terms- Mole and molar mass.</p>	<p>Class test based on Laws, conversion of units from one system to another.</p>	<p>Examples and Intext Questions discussion in the class.</p>	<p>Q/A Discussion</p>	<p>Physics Aspect(Conversion of units), SI system of units.</p>	<p>Scientific Communication</p>	
<p>May(16-25) 8 Days</p>	<p>Empirical and Molecular formula, Stoichiometry and calculations based on Stoichiometry.</p>	<p>1) Deteremine empirical and molecular formula of the compound from the data provided. 2) Perform stoichiometric calculations.</p>	<p>Class test from numericals based on Molecular formula.</p>	<p>Assignment based on Numericals (Stoichiometry, Limiting reagent and molecular formula)</p>	<p>Problem Based learning</p>	<p>Mathematical Learning.</p>	<p>Problem Solving</p>	

<p>July(1-15) 12 Days</p>	<p>Structure of Atom:- Brief Discovery of electron, proton and neutron. Thomson's model , Rutherford's model and limitations, Bohr's model, concept of shells and subshell.</p>	<p>1) Know about the contribution of scientists in the discovery of fundamental particles. 2) Describe Thomson, Rutherford and Bohr atomic models. 3) Understand nature of electromagnetic radiation and Planck's quantum theory.</p>	<p>Assessment from (Different models)Case Based Questions.</p>	<p>Examples and Intext Questions discussion in the class.</p>	<p>Flipped Classroom to optimize time in the class.</p>	<p>Meeting the special needs of every individual student.</p>	<p>Scientific Communication</p>	<p>Weighing on Physical Balance</p>
<p>July(16-31) 14 Days</p>	<p>Dual nature of matter and light, De Broglie relationship, shapes of s, p and d orbitals, Quantum Mechanics, Electronic configuration. Stability of half filled and completely filled orbitals.</p>	<p>1) Understand the important features of quantum mechanical model of an atom. 2) Define an atomic orbital in terms of quantum numbers. 3) State de Broglie relation and Heisenberg</p>	<p>Assessment in the form of Quiz</p>	<p>Assignment based on Conceptual questions , graphs and mathematical data.</p>	<p>Problem Based Learning</p>	<p>Mathematical Aspect</p>	<p>Creative thinking and critical skill</p>	<p>Weighing on Physical Balance</p>
<p>August (1-15) 11 Days</p>	<p>Classification of elements:- Significance of classification, brief history of development of periodic table.</p>	<p>1) Appreciate how the concept of grouping elements according to their properties led to the development of periodic table. 2) Understand the periodic law.</p>						

	Modern Periodic law, periodic trends in the properties of elements, Nomenclature of elements with atomic number greater than 100.	<p>3) Understand the significance of atomic number and electronic configuration as the basis of classification.</p> <p>4) Classify elements into s,p,d and f- block and learn their main properties.</p> <p>5) Recognise the periodic trends in the physical and chemical properties of elements.</p> <p>6) Explain the relationship between ionisation enthalpy and metallic character</p> <p>7) Use scientific</p>	Small worksheets of five-six questions(Knowledge and concept based) to assess the previous knowledge of students.	Assignment based on position of elements in the table	Assigning the position of elements in the periodic table knowing their atomic number (gaps will be there in the table)	Mathematical Learning (interpretation of data and numerical values)	Scientific Communication ..	Acid-Base titration
August (16-31) 12 Days	Chemical Bonding and Molecular structure:- Ionic bond, Covalent bond, Bond parameters, Lewis	<p>1) Explains the octet rule and its limitations.</p> <p>2) Explain the formation of different types of bonds.</p>	Class test from Ionic and covalent bond..	Assignment based on properties of ionic and covalent	Group Discussion Activity	Psychology Based Learning (Interpersonal	Cooperative Learning	Acid-Base titration
	Valence bond theory, VSEPR theory, Hybridisation, shapes of some simple molecules.	<p>3) Describe the VSEPR theory and predict the geometry of simple molecules.</p> <p>4) Explain the formation of covalent bond using VBT.</p> <p>5) Predict the directional properties of covalent bond.</p> <p>6) Explain different types</p>		NCERT Examples and Intext questions discussion.	Learning the geometry of molecules with the help of self made 3-D models (using clay and ball-sticks)	Psychomotor Skill.	Skill Based Learning	Acid-Base titration

September (1-15)	Molecular orbital theory, Hydrogen bond.	7) Describe the molecular orbital theory of homonuclear diatomic molecules. 8) Explain the concept of H-bond.	Q/A technique	Assignment based on hybridisation and configuration.	3-D models for hybridisation concept.		Skill Based Learning	
11 Days	Chemical Thermodynamics:- Concept of system, surroundings, work, heat, energy, Extensive, Intensive properties, state functions, First law of thermodynamics, Internal energy, enthalpy, heat capacity.	1) Explain various thermodynamic terms. 2) Distinguish between different types of systems. 3) Explain internal energy, work, heat and enthalpy. 4) Explain First law of thermodynamics and express it mathematically. 5) Explain state functions and correlate enthalpy change and internal energy change 6) Define standard states for enthalpy..	Class Test based on Derivations.	Discussion of NCERT examples and Intext Que.	Problem Based learning	Mathematical learning	Analytical thinking.	Acid-Base titration
September (16-30)	Half Yearly Examination							

October (1-15)	Enthalpy of phase transition, combustion, atomization, formation, enthalpy of solution.	7) Calculate enthalpy changes for various types of reactions. 8) State and apply Hess's law of constant heat summation. 9) Differentiate between extensive and intensive properties.	Class test from numericals	Assignment based on numericals from Enthalpy of formation	Tarsia Grid (Puzzle activity)	Mathematical learning	Critical Thinking	Acid-Base titration
8 Days	Second Law of thermodynamics, Entropy, Gibb's energy change, Criteria for equilibrium. Brief idea of third law of thermodynamics.	10) Define spontaneous and non spontaneous processes. 11) Explain entropy as a thermodynamic state function and apply it for spontaneity. 12) Explain gibbs energy change and relate it with equilibrium constant.	MCQ test(On Kahoot)	Assignment based on conceptual questions.			Critical Thinking	Preparation of Copper sulphate crystals

<p>October (16-31) 10 Days</p>	<p>Equilibrium:- In physical and chemical process, nature of dynamic equilibrium, law of mass action. Equilibrium constant, Le Chatelier's principle, Acid-Base concept, ionization of weak acid and base, degree of dissociation.</p>	<ol style="list-style-type: none"> 1) Identify dynamic nature of equilibrium involved in physical and chemical processes. 2) State the law of equilibrium . 3) Explain characteristics of equilibria involved in physical and chemical processes. 4) Write expressions for equilibrium constants. 5) Explain various factors that affect the equilibrium state of a reaction. 6) Classify substances as acids or bases according to Arrhenius, Bronsted-Lowry and Lewis concepts. 7) Classify acids and bases as weak or strong in terms of their ionization constants. 	<p>Class test(Chemical equilibrium)</p>	<p>Assignment based on Case based questions from Le Chatelier's principle and equilibrium constant.</p>	<p>Group Discussion Activity</p>	<p>Learning Enhancement in group.</p>	<p>Cooperative Learning</p>	<p>Preparation of Copper sulphate crystals</p>
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<p>November (1-15-11 Days)</p>	<p>Acid strength, polyprotic acids, concept of pH, Hydrolysis of salt, buffer solution, solubility product, common ion effect.</p>	<p>8) Explain the dependence of degree of ionization on concentration of the electrolyte. 9) Describe pH scale for representing hydrogen ion concentration. 10) Describe ionic product (K_w) and pK_w for water. 11) Appreciate use of buffer solutions. 12) Calculate solubility product constant.</p>	<p>Class test from numericals</p>	<p>Assignment based on Reasoning Based questions from sample papers.</p>				
	<p>Redox Reactions:- Concept of oxidation, reduction, Oxidation number concept, Types of Redox reactions.</p>	<p>in day to day life phenomena. 2) Define the terms oxidation, reduction, oxidising and reducing agent. 3) Explain the mechanism of redox reactions by electron transfer process. 4) Classify redox reactions into combination, decomposition, displacement and disproportionation.</p>	<p>Class test based on oxidation number.</p>		<p>Relevance of Redox reactions in day to day life.</p>	<p>Chemistry in everyday life.</p>	<p>Collaboration</p>	<p>Qualitative Analysis</p>

November (16-30) 12 Days	<p style="text-align: center;">Redox Reactions</p> Balancing of Redox reactions, Applications of Redox reactions in chemistry.	5) Balance chemical equations using oxidation number and half reaction method. 6) Understand application of redox reactions in chemistry.		Assignment based on Balancing of redox reaction.		Mathematical Learning	Critical Thinking	Qualitative Analysis
December (1-15) Days-12	<p style="text-align: center;">Organic Chemistry- Some Basic principles:-</p> Classification of organic compounds, IUPAC nomenclature, Isomerism,	1) Understand reasons for the tetravalency of carbon and shapes of organic molecules. 2) Write structures of organic molecules in various ways. 3) Classify the organic compounds. 4) Name the compounds according to IUPAC system of nomenclature.	Q/A to check previous knowledge of students	Assignment based on IUPAC nomenclature and isomerism.				Qualitative Analysis
	Electron displacement effects, Homolytic and heterolytic cleavage. Method of Purification of Organic compounds, Qualitative and Quantitative analysis of organic compounds.	5) Understand the concept of organic reaction mechanism. 6) Explain the effect of electron displacements on reactivity of organic compounds. 7) Learn the techniques of purification of organic compounds. 8) Understand the principles involved in	Class test from Numerical Problems based on Qualitative and Quantitative analysis.	Assignment based on Quantitative analysis.		Concept mapping	Problem solving	Qualitative Analysis

<p><u>Decem</u> <u>ber</u> <u>(16-</u> <u>31)</u> <u>13</u> <u>Days</u></p>	<p>Hydrocarbons:- Classification, Alkanes- Nomenclature, isomerism, preparation, physical and chemical properties of alkanes, alkenes, alkynes .</p>	<p>1) Recognise and write structures of isomers of alkanes, alkenes, alkynes and benzene. 2) Learn about various methods of preparation of hydrocarbons. 3) Distinguish between alkanes, alkenes, alkynes and aromatic hydrocarbons on the basis of physical and chemical properties. 4) Appreciate the role of hydrocarbons as sources of energy and for industrial applications.</p>	<p>Class test from Conversion reactions.</p>	<p>Assignment based on Conversion reactions and Reasoning based questions.</p>	<p>Problem Based Learning</p>		<p>Optimization of Chemical processes.</p>	<p>Qualitative Analysis</p>
<p>Januar y(16- 31)</p>	<p>Benzene :- Nomenclature, preparation, isomerism, physical and chemical properties.</p>	<p>5) Comprehend the structure of benzene, explain aromaticity and understand mechanism of electrophilic substitution</p>	<p>Class test from Isomerism and nomenclature.</p>	<p>Assignment based on structure based problems.</p>	<p>Learning by doing.</p>	<p>Self learning</p>	<p>Green Chemistry</p>	<p>Qualitative Analysis</p>

Examination Schedule

Unit Test-1 Some
Basic concepts of
chemistry

Term-1 Examination (

Half Yearly

Examination) Some
basic concepts of
chemistry, Structure
of atom, Classification
of elements

Unit Test-2

Chemical Bonding,
Thermodynamics

Term-2 Examination

Complete Syllabus

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