

Lesson Plan
Session: 2025-26

Name of the Assistant Professor: Kusum

Class: B.Sc. 2nd semester

Subject: Chemistry

Paper : DSC Chemistry

Credit: 4

Dates	Week	Topic
06.01.2026 to 10.01.26	1	Covalent Bond Valence bond theory and its limitations,
12.01.2026 to 17.01.26	2	Types of bonds like covalent, ionic bond and dative bonds with examples
19.01.2026 to 24.01.26	3	Various types of hybridization and shapes of simple inorganic molecules and ions
27.01.2026 to 31.01.26	4	$BeF_2, BF_3, CH_4, PF_5, SF_6, IF_7, SO_4^{2-}, ClO_4^-$. Valence Shell Electron Pair Repulsion theory to $NH_3, H_3O^+, SF_4, ClF_3, ICl_2^-, H_2O$ MO theory of homonuclear
02.02.2026 to 07.02.26	5	(H_2, N_2, O_2) and heteronuclear molecules $(NO, NO^+, NO^-, CO, CO^+)$, and calculate their bond order, magnetic character. Concept of dipole moment and % ionic character in covalent bond.
09.02.2026 to 14.02.26	6	Ionic structures (NaCl, CsCl, ZnS (Zinc blende), CaF_2). Radius ratio rule and its limitations, coordination number
16.02.2026 to 21.02.26	7	Concept of lattice energy (mathematical derivation excluded) and Born Haber cycle
23.02.2026 to 28.02.26	8	Concept of lattice energy (mathematical derivation excluded) and Born Haber cycle

Dates	Week	Topic
09.03.2026 to 14.03.26.	9	Solvation energy and its relation with solubility of ionic solids, polarizing power and polarizability of ions, Fajan's rule
16.03.2026 to 21.03.26	10	Hydrogen Bonding - Definition, types, effects of hydrogen bonding on properties of substances, applications
23.03.2026 to 28.03.26	11	Discussion of various types of van der Waals interactions MID TERM EXAM, Cycloalkanes Baeyer's ring strain theory and its limitations, theory of strainless rings.
30.03.2026 to 04.04.26	12	Definition of pH and pK_a , Buffer solution, Buffer action, Handerson-Hazel equation, Buffer mechanism of buffer action, Rate of Reaction, rate equation, factors affecting the rate of reaction - concentration, temperature, light, catalyst. Order and molecularity of a reaction,
06.04.2026 to 11.04.26	13	Integrated rate expressions for zero, first order, second order, half-life period of reactions, their graphical representations also, Methods of determination of order of reaction
13.04.26 To 18.04.26	14	Effect of temperature on the rate of a reaction - Arrhenius equation. Theories of reaction rate - Simple collision theory for unimolecular and bimolecular collision, transition state theory for bimolecular reactions
20.04.2026 to 25.04.26	15	Curved arrow notation, drawing electron movements with arrows, homolytic and heterolytic bond fissions, types of reagents - electrophiles and nucleophiles,
27.04.2026 to 05.05.26	16	Alkanes Classification of carbon atoms in alkanes, isomerism in alkanes, methods of preparation (with special reference to Wurtz reaction, Kolbe's electrolytic method,


Signature

Lesson Plan
Session: 2025-26

Name of the Assistant Professor: Kusum

Class: B.Sc^{3rd} Year

Subject: Chemistry

Paper: Inorganic Chemistry, Physical Chemistry.

	Week	Topics
06.01.2026 to 10.01.26	1	Organometallic Chemistry Definition, nomenclature and classification of organometallic compounds.
12.01.2026 to	2	Acids and Bases, HSAB Concept, Arrhenius, Bronsted Lowry Lux - Flood,
19.01.2026 to 24.01.26	3	SESSIONAL TEST - Unit first -Bioinorganic Chemistry Essential and trace elements in biological processes,
27.01.2026 to 31.01.26	4	Metallo porphyrins with special reference to haemoglobin and myoglobin
02.02.2026 to	5	Preparation, properties, and bonding of alkyls of Li, Al, Hg, and Sn

	Week	Topics
09.02.2026 to 14.02.26	6	Silicones and Phosphazenes, Silicones and phosphazenes
16.02.2026 to 21.02.26	7	examples of inorganic polymers, nature of bonding in triphosphazenes.
23.02.2026 to 28.02.26	8	Solvent system and Lewis concepts of acid and base,
09.03.2026 to 14.03.26	9	Biological role of alkali and alkaline earth metal ions with special referenceto Ca ²⁺ .
16.03.2026 to 21.03.26	10	Nitrogen fixation. REVISION of inorganic chemistry

23.03.2026 to 28.03.26	11	Dilute solution, Colligative properties, Raoult's law
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	Week	Topics
30.03.2026 to 04.04.26	12	SESSIONAL TEST Solutions Dilute Solutions and Colligative Properti
06.04.2026 to 11.04.26	13	Ideal and non-ideal solutions, methods of expressing concentrations of solutions, activity and activity coefficient.
13.04.26 To 18.04.26	14	Organic Synthesis via Enolates Acidity of α -hydrogens, alkylation of diethyl malonate and ethyl acetoacetate. Synthesis of ethyl acetoacetate:
20.04.2026 to 25.04.26	15	thermodynamic derivation of Gibbs phase rule, phase equilibria of one component
27.04.2026 to 05.05.26	16	Phase equilibria of two component systems solid-liquid equilibria, simple eutectic Example Pb-Ag system, desilverisation of lead salts.
		REVISION

Johnson