Lesson Plan

MCM DAV College for Women, Sector – 36 A, Chandigarh

Monthly Teaching Plans (Odd Semester)

Session: 2025-26

Name of the Teacher: Dr. Shefali Dhiman, Dr. Sagarika Dev, Dr. Qudrat Hundal

Department: Chemistry

Class: B.Sc (1st Semester) **Subject:** Chemistry

S.No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1.	24-07-2025	30-08-2025	**INORGANIC CHEMISTRY** **Atomic Structure:** Idea of de-Broglie matter waves, Heisenberg uncertainty principle, atomic orbitals, Schrodinger wave equation, the significance of ψ and ψ2, quantum numbers, radial and angular wave functions (excluding mathematical relations), probability distribution curves, shapes of *s*, *p*, and *d* orbitals. **ORGANIC CHEMISTRY** **Structure and Bonding:** Hybridisation, Bond	Lecture

			lengths and bond Angles, Bond Energy, Localised and Delocalized chemical bond, Van der Waal's interaction, Resonance and Resonance effect, Hyperconjugation, Inductive and Field effect, Electromeric effect, Hydrogen Bonding. **<u>PHYSICAL CHEMISTRY</u>** **Basic Concepts of Mathematics :** Logarithmic relations, differentiation and integration of functions like e^x, x^n, sin x, and log x. Terms of mean and median, precision and accuracy in chemical analysis. **Chemical Kinetics-I:** Chemical kinetics and its scope, rate of a reaction, factors influencing the rate of a reaction-concentration,temperature, pressure, solvent, light, and catalyst. Concentration dependence of rates	
2.	01-09-2025	30-09-2025	**<u>INORGANIC CHEMISTRY</u>** **Atomic Structure:** Aufbau and Pauli exclusion principles, Hund's multiplicity rule, Electronic configurations of the elements and ions. **Periodic Properties:** Position of elements in the	Lecture and discussion

			periodic table, effective nuclear charge and its calculations, Atomic and ionic radii, ionisation energy **<u>ORGANIC CHEMISTRY</u>** **Reactive Intermediates:** Curved arrow notation, Drawing electron movements with arrows, half-headed and double-headed arrows, homolytic and heterolytic bond breaking, Types of Reagents – Electrophiles and nucleophiles, Types of Organic Reactions. Reactive intermediates- Carbocations, Carbanions, Free Radicals, Carbenes, Arynes and Nitrenes (with examples). Assigning Formal charges on intermediates and other ionic species **<u>PHYSICAL CHEMISTRY</u>** **Chemical Kinetics-I** mathematical characteristics of simple chemical reactions – zero order, first order, second order, pseudo order, half-life, and mean life. Determination of the order of reaction – differential method, method of integration, method of half-life period and isolation method,	

			Radioactive decay as a first-order phenomenon. **Chemical Kinetics-II:** Theories of Chemical Kinetics: Effect of temperature on rate of reaction, Arrhenius equation, concept of activation energy, Simple collision theory based on hard sphere model, transition state theory (equilibrium hypothesis), Expression for the rate constant based on equilibrium constant and thermodynamic aspects.	
3.	01-10-2025	31-10-2025	**INORGANIC CHEMISTRY** **Periodic Properties:** electron affinity and electronegativity– definition, methods of determination or evaluation. **ORGANIC CHEMISTRY** **Geometrical isomerism:** Cause and conditions for geometrical isomerism, Nomenclature of geometrical isomers- cis and trans, E and Z system, Determination of configuration of geometrical isomers. **Conformational Isomerism:** Representation of conformations - Sawhorse	Lecture

			and Newman formulae, Conformational analysis of ethane, propane, n-butane, cyclohexane, Equatorial and Axial bonds. Conformations of Mono and di-substituted derivatives of cyclohexanes. **PHYSICAL CHEMISTRY** **Chemical Kinetics-II:** Catalysis and general characteristics of catalytic reactions, Homogeneous catalysis, acid-base catalysis and enzyme catalysis, including their mechanisms. Michaelis-Menten equation for enzyme catalysis and its mechanism.	
4.	01-11-2025	10-11-2025	**INORGANIC CHEMISTRY** **Periodic Properties:** Trends in the periodic table and applications in predicting and explaining the chemical behaviour. **ORGANIC CHEMISTRY** Conformations of Mono and di-substituted derivatives of cyclohexanes. **PHYSICAL CHEMISTRY** **Chemical Kinetics-II:** Michaelis-Menten equation for enzyme	Lecture and group discussion

			catalysis and its mechanism.	

Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans	
27th August, 2025	The teachers have completed the scheduled chapters and topics as shown in the lesson plan
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24th Sept, 2025	The teachers have completed the scheduled chapters and topics as shown in the lesson plan
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans	
29th Oct, 2025	The teachers have completed the scheduled chapters and topics as shown in the lesson plan
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans	
10th Nov, 2025	The teachers have completed the scheduled chapters and topics as shown in the lesson plan

***Any of these** – (i) Lecture Method; (ii) PPT; (iii) Online Sources; (iv) Group Discussion; (v) Case Studies etc.Other Methods adopted by the teacher – Please write the specific teaching method