Lesson Plan

MCM DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (Odd Semester)
Session – (2024-25)

Name of the Teacher: Dr. Yesbinder, Dr. Shilpa

Department: Chemistry

Class: B.Sc III **Subject:** Physical Chemistry

S.No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1	15.07.2024	05.08.2024	Elementary Quantum Mechanics-I: Black-body radiation, Planck's radiation law, photoelectric effect, heat capacity of solids, Bohr's model of hydrogen atom (no derivation) and its defects, Compton effect. De Broglie hypothesis, the Heisenberg's uncertainty principle, Sinusoidal wave equation, Hamiltonian operator, Schrodinger wave equation and its importance.	Lecture Method and Group Discussion
2	06.08.2024	20.08.2024	Physical interpretation of the wave function, postulates of quantum mechanics, particle in a one-dimensional box. Schrodinger wave equation for H-atom, separation into three equations (without derivation), quantum numbers and their importance, hydrogen like wave functions, radial wave functions, angular wave functions.	Lecture Method and Group Discussion
3	21.08.2024	31.08.2024	Elementary Quantum Mechanics-II: Molecular	Lecture Method and Group Discussion

			orbital theory, basic ideas – criteria for forming M.O. from A.O., construction of M.O.'s by LCAO–H^{2+} ion. Calculation of energy levels from wave functions, physical picture of bonding and antibonding wave functions, concept of σ, σ∗, π, π* orbitals and their characteristics. Hybrid orbitals – sp, sp^2, sp^3; calculation of coefficients of A.O.'s used in these hybrid orbitals. Introduction to valence bond model of H2, comparison of M.O. and V.B. models.	
4	02.09.2024	16.09.2024	Photochemistry-I: Interaction of radiation with matter, difference between thermal and photochemical processes. Laws of Photochemistry: Grothus – Drapper law, Stark – Einstein law, Jablonski diagram depicting various processes occurring in the excited state.	Lecture Method and Group Discussion
5	17.09.2024	28.09.2024	Photochemistry-II: Qualitative description of fluorescence, phosphorescence.	Lecture Method and Group Discussion
6	30.09.2024	05.10.2024	Non-radiative processes (internal conversion, intersystem crossing), quantum yield,	Lecture Method and Group Discussion
7	07.10.2024	21.10.2024	Photosensitized reactions – energy transfer processes (simple examples)	Lecture Method and Group Discussion
8	22.10.2024	16.11.2024	Photochemistry of carbonyl compounds and alkenes Revision and Solution of previous years' question papers	Lecture Method and Group Discussion

Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans	
31.08.2024	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	
30.09.2024	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	
26.10.2024	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	
14.11.2024	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

Lesson Plan

MCM DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (Even Semester)
Session – (2024-25)

Name of the Teacher: Dr. Yesbinder, Dr. Shilpa

Department: Chemistry

Class: B.Sc III **Subject:** Physical Chemistry

S.No.	Date (Monthly)		Topics to be Covered	Academic Activity Undertaken*
	From	To		
1	10.01.2025	31.01.2025	Spectroscopy: Introduction: Electromagnetic radiation, regions of the spectrum, basic features of different spectrometers, statement of the Born-Oppenheimer approximation, degrees of freedom.	Lecture, group discussion
2	01.02.2025	28.02.2025	Rotational Spectrum: Diatomic molecules. Energy levels of a rigid rotor (semi – classical principles), selection rules, spectral intensity, determination of bond length, qualitative description of non-rigid rotor, isotope effect.	Lecture, group discussion
3	01.03.2025	29.03.202	Solid State-I: Definition of space lattice, unit cell and Miller Indices Laws of Crystallography – (i) Law of Constancy of Interfacial Angles, (ii) Law of Rationality of Indices, (iii) Law of Symmetry. Symmetry elements in crystals.	Lecture, group discussion
4	01.04.2025	Till exam	Solid State-II: X-ray diffraction by crystals. Derivation of Bragg equation. Determination of crystal structure of NaCl, KCl and CsCl (Laue's method and powder method). Applications of Powder	Lecture, group discussion

			diffraction for structure determination, Thermal and photochemical reaction in solid state	

Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans	
31-01-2025	The teachers have completed the scheduled chapters and topics as shown in the lesso plan
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans	
28-02-2025	The teachers have completed the scheduled chapters and topics as shown in the lesso plan
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans	
29-03-2025	The teachers have completed the scheduled chapters and topics as shown in the lesso plan
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans	
19-04-2025	The teachers have completed the scheduled chapters and topics as shown in the lesso 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