

PANIPAT INSTITUTE OF ENGINEERING AND TECHNOLOGY
PANIPAT
DEPARTMENT OF APPLIED SCIENCES & HUMANITIES

LESSON PLAN

Name: - Dr. Poonam Verma

Subject Name: - Chemistry

Branch/Semester: -1st Sem. (Session 2023-24)

Subject Code:- BS-101A

Sr. No.	Lecture No.	Description of Topic	Lecture Plan Date	Methodology	CO
1	L1	Syllabus, Cos, exam pattern discussion Unit 4: Stereochemistry- Introduction, 3 dimensional structures,	22/8/23	Discussion with students	CO-5
2	L2	Representations of 3 dimensional structures	23/8/23	Lecture with 3D model representation	
3	L3	structural isomers and classification	24/8/23	Lecture with 3D model representation	
4	L4	stereoisomers: geometrical and optical isomerism	25/8/23	Lecture	
5	L5	configurations and symmetry	28/8/23	Lecture	
6	L6	chirality, enantiomers,	29/8/23	Power point presentation with 3D animated videos	
7	L7	diastereomers, optical activity	31/8/23	Lecture	
8	L8	Relative configuration & absolute configurations	1/9/23	Lecture	
9	L9	conformational analysis of ethane and butane	4/9/23	Lecture	
10	L10	Problem on Isomerism	5/9/23	Lecture	

11	L11	Revision	6/9/23	Discussion
12	L12	Class Test - 1	8/9/23	
13	L13	Organic reactions and synthesis of Drug: Basics of organic reactions	11/9/23	Lecture
14	L14	substitution reaction and mechanism & Difference between SN1 and SN2	12/9/23	Lecture
15	L15	Electrophilic and Free Radical Nucleophilic Substitution Reaction	13/9/23	Lecture
16	L16 Content beyond syllabus	addition reaction and mechanism Markonikov's rule, Anti-Markonikov rule	14/9/23	Lecture and discussion
17	L17 Content beyond syllabus	Elimination reaction and mechanism, Saytzeff rule and Hoffman elimination reaction	15/9/23	Flip learning & presentation
18	L 18	Oxidation reaction and Reduction	19/9/23	Lecture
19	L19	cyclization and ring openings.	20/9/23	Lecture
20	L20	Synthesis of a commonly used drug molecule (paracetamol and Aspirin)	21/9/23	Lecture
21	L 21	Problems on organic reactions	25/9/23	Lecture
22	L 22	TEST - 2	26/9/23	

23	L23	Unit: I Atomic and Molecular Structure: MOT Equations for atomic and molecular orbitals.	27/9/23	Lecture	CO 1
24	L24	Energy level diagrams of diatomic molecules	28/9/23	Lecture	
25	L25	Molecular orbitals of diatomic molecules of N ₂ , O ₂ , CO	3/10/23	Lecture then presentation by students	
26	L26	Molecular orbitals of diatomic molecules of CO	4/10/23	Lecture	
27	L27	Pi-molecular orbitals of butadiene	5/10/23	Lecture	
28	L28	Pi-molecular orbitals of benzene and aromaticity	6/10/23	Lecture	
29	L29	Crystal field theory	9/10/23	Lecture with Power point presentation	
30	L30	Crystal field splitting in Octahedral complex	10/10/23	Lecture with Power point presentation	
31	L 31	Crystal field splitting in tetrahedral and square planar complex	11/10/23	Lecture with Power point presentation	
32	L 32 Content Beyond syllabus	Crystal Field Stabilization energy of Octahedral Complex	12/10/23	Lecture with Power point presentation	
33	L33 Content Beyond syllabus	Crystal Field Stabilization energy of Tetrahedral and square planar Complex	13/10/23	Lecture with Power point presentation	
34	L34	Energy level diagrams of [Co(NH ₃) ₆], [Ni(CO) ₄],	17/10/23	Lecture	

		[PtCl ₂ (NH ₃) ₂] and magnetic properties of metal complexes			
35	L35	Band structure of solids and the role of doping on band structures.	18/10/23	Lecture	CO-1
36	L36	Effective nuclear charge, penetration of orbitals,	19/10/23	Lecture	CO 4
37	L37	variations of s, p, d and f orbital energies of atoms in the periodic table, electronic configurations	20/10/23	Lecture	CO-4
38	L38	Revision of 1 st sessional	25/10/23	Flip Learning	
39		1 st Sessional	26/10/23 to 28/10/23		
40	L39	atomic and ionic sizes, ionization energies	30/10/23	Group presentation by students	
41	L40	Problems on periodic properties and ENC	31/10/23	Group presentation by students	
42	L 41	electron affinity and electronegativity,	2/11/23	Group presentation by students	
43	L 42	Polarizability and Fajan's Rule, oxidation states, coordination numbers	3/11/23	Group presentation by students	
44	L 43	hard soft acids and bases and geometries	6/11/23	Group presentation by students	
45	L44	molecular geometries (H ₂ O, NH ₃) PCl ₅ , SF ₆ , CCl ₄ , Pt(NH ₃) ₂ Cl ₂	7/11/23	Group presentation by students	
46	L 45	TEST - 3	8/11/23	Written Test	
47	L 46	Unit III: Use of Free Energy in Chemical	16/11/23	Lecture	CO 3

	Content Beyond Syllabus	Equilibria : Basics of Thermodynamics,			
48	L 47	Thermodynamic functions: energy, entropy and free energy	17/11/23	Lecture	CO3
49	L 48	Estimations of entropy	20/11/23	Flip learning	CO-3
50	L 49 Content Beyond Syllabus	Estimations of free energies, Helmholtz Energy or Work function, Gibbs Helmholtz Equation	21/11/23	Lecture	
51	L50	Free energy and emf, Cell potentials, the Nernst equation and applications	23/11/23	Lecture	
52	L 51	Revision of 2 nd Sessional	24/11/23	Discussion	
53	L 52	TEST-4	27/11/23	Written Test	
54		2 nd Sessional	28/11/23 to 30/11/23		
55	L 53	Unit II: Spectroscopic Techniques and applications : Principles of spectroscopy and selection rules	1/12/23	Lecture with 3d animated Videos	CO-2
56	L 54	Electronic spectroscopy(basic concept, Instrumentation).	4/12/23	Lecture with 3d animated Videos	
57	L 55	UV – Vis Spectroscopy	5/12/23	Lecture	
58	L 56 Content Beyond Syllabus	Frank-Condon Principle	6/12/23	Flip learning	

59	L 57	Nuclear magnetic resonance, (Principle, instrumentation)	6/12/23	Lecture with Power point Presentation	
60	L 58	Chemical shift, Shielding, deshielding, Application of NMR	7/12/23	Lecture	
61	L 59	magnetic resonance imaging, Diffraction and scattering.	11/12/23	Lecture with Power point Presentation	
62	L 60	Vibrational and rotational spectroscopy of diatomic molecules.	12/12/23	Lecture with Power point Presentation	
63	L 61	Vibrational and rotational spectroscopy of diatomic molecules	13/12/23	Lecture with Power point Presentation	
64	L 62 Content Beyond Syllabus	Fluorescence and its applications in medicine. Applications & Phosphorescence	14/12/23	Lecture with Power point Presentation	
65	L 63	Revision	15/12/23	Discussion	
66	L 64	Revision	18/12/23	Discussion	
67	L 65	Revision	19/12/23	Discussion	
68	L 66	Revision	20/12/23	Discussion	
69	L 67	Revision	21/12/23	Discussion	
70		TEST	22/12/23		
71		3 rd sessional			

***Highlighted part represents Content beyond Syllabus topics**

*** Quizzes on Saturdays**

Subject In charge