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

LESSON PLAN

Name: - Dr. PoonamVerma **Subject Name: - Chemistry**
Branch/Semester: -1th Sem. (Session 2022-23) **Subject Code:- BS-101A**

Sr. No.	Lecture No.	Description of Topic	Tentetive date	Executed on	Methodology	CO
1	L1	Syllabus, Cos, exam pattern discussion Unit 4: Stereochemistry Introduction	7/10/22	7/10/22	Discussion with students	CO-5
2	L2	introduction 3 dimensional structures, Representations of 3 dimensional structures	11/10/22	11/10/22	Lecture with 3D model representation	
3	L3	structural isomers	12/10/22	12/10/22	Lecture	
4	L4	stereoisomers : geometrical and optical isomerism	13/10/22	13/10/22	Lecture	
5	L5	configurations and symmetry	14/10/22	14/10/22	Lecture	
6	L6	chirality, enantiomers, diastereomers, optical activity	17/10/22	17/10/22	Power point presentation with 3D animated videos	
7	L7	Relative configuration &absolute configurations	20/10/22	20/10/22	Lecture	
8	L8	conformational analysis of ethane/butane	21/10/22	21/10/22	Lecture	
9	L9	Problem on Isomerism	28/10/22	28/10/22	Lecture	
10	L10	**Revision**	31/10/22	31/10/22	Lecture	
11	L11	**Organic reactions and synthesis of Drug:Basics of organic reactions**	1/11/22	1/11/22	Discussion	

12	L12	substitution reaction and mechanism&Difference between SN1 and SN2	2/11/22	2/11/22	lecture	
13	L13	addition reaction and mechanism **Markonikov's rule, Anti-Markonikov rule**	3/11/22	3/11/22	Lecture and problem discussion	
14	L14	Elimination reaction and mechanism, **Saytzeff rule and Hoffman elimination reaction**	4/11/22	4/11/22	Lecture and problem discussion	
15	L15	oxidation reaction and reduction	7/11/22	7/11/22	Lecture and discussion	
16	L16	cyclization and ring openings.	8/11/22	8/11/22	Lecture	
17	L17 Content beyond syllabus	Synthesis of a commonly used drug molecule(paracetamol and Aspirin)	9/11/22	9/11/22	Lecture	
18	L18 Content beyond syllabus	Problems or revision on organic reactions	11/11/22	11/11/22	Lecture	
19	L19	**Unit: I Atomic and Molecular Structure: MOT**Equations for atomic and molecular orbitals. Energy level diagrams of diatomic molecules	14/11/22	14/11/22	Lecture	
20	L20	Molecular orbitals of diatomic molecules of N_2,O_2, CO	15-16/11/22	15-16/11/22	Discussion	
21	L21	Pi-molecular orbitals of butadiene / benzene and aromaticity	18/11/22	18/11/22	Lecture	
22	L22	Previous topics	21/11/22	21/11/22	Presentation and Flip Learning	

23	L23	Crystal field splitting in Octahedral complex, tetrahedraland square planar complex	22/11/22	22/11/22	Lecture	
24	L24	1st Sessional	23-25/11/22	23-25/11/22		CO 2
25	L25	Crystal Field Stabilization energy of Octahedral Complex, Energy level diagrams of $[Co(NH_3)_6]$, $[Ni(CO)_4]$, [PtCl2(NH3)2] and magnetic properties of metal complexes	28/11/22	28/11/22	Lecture	
26	L26	Band structure of solids and the role of doping on band structures.	29/11/22	29/11/22	lecture	
27	L27	Effective nuclear charge, penetration of orbitals	30/11/22	30/11/22	Lecture and flip learning	
28	L28	variations of s, p, d and f orbital energies of atoms in the periodic table, electronic configurations	1/12/22	1/12/22	lecture	
29	L29	atomic and ionic sizes, ionization energies,	2/12/22	2/12/22	Lecture with Power point presentation	
30	L30	electron affinity and electronegativity	5-6/12/22	5-6/12/22	Lecture with Power point presentation	
31	L 31	Problems on periodic properties and ENC	7/12/22	7/12/22	Lecture with Power point presentation	
32	L 32	Polarizability and Fajan's Rule, oxidation states, coordination numbers	8/12/22	8/12/22	Lecture	
33	L33	hard soft acids and bases and geometries, molecular geometries (H2O, NH3) PCl5, SF6, CCl4,	12/12/22	12/12/22	Lecture	

		Pt(NH3)2Cl2				
34	L34	**Unit III: Use of Free Energy in Chemical Equilibria**: Basics of Thermodynamics,	13/12/22	13/12/22	Flip Learning	
35	L35	Thermodynamic functions: energy, entropy and free energy, Estimations of entropy	14/12/22	14/12/22	Lecture	
36	L36	Estimations of free energies, Helmholtz Energy or Work function	15/12/22	15/12/22	Lecture	
37	L37	Free energy and emf,Cell potentials, the Nernst equation and applications	19/12/22-	19/12/22-	Lecture	
38	L38	**Unit II: Spectroscopic Techniques and applications** : Principles of spectroscopy and selection rules	20/12/22	20/12/22	Group presentation by students	CO-1
39	L39	Electronic spectroscopy(basic concept, Instrumentation).	21/12/22	21/12/22	Lecture	
40	L40	Frank-Condon Principle	22/12/22	22/12/22	Flip learning	
41	L 41	Nuclear magnetic resonance, (Principle, instrumentation, application), Chemical shift, Shielding, deshilding	24/12/22	24/12/22	Lecture	
42	L 42	magnetic resonance imaging, Diffraction and scattering.	25/12/22	25/12/22	Lecture	CO-4
43	L43	2nd sessional	26-28/12/22	26-28/12/22		
44	L44	Vibrational and rotational spectroscopy of diatomic molecules.	29/12/22	29/12/22	Lecture	
45	L45 Content beyond syllabus	Vibrational and rotational spectroscopy of diatomic molecules	30/12/22	30/12/22	Lecture	

46	L46	Fluorescence and its applications in medicine. Applications	1/1/23	1/1/23	Lecture with 3d animated Videos	
47	L47	REVISION	3/1/23	3/1/23	Group presentation by students	CO-1
48	L48	CLASS TEST	04/01/23	04/01/23		
49	L49	REVISION OF UNIT 3	05/01/23	05/01/23	Lecture with discussion problem	
50	L50	REVISION CONTINUED	06/01/23	06/01/23	Group presentation by students	
51	L51	REVISION OF UNIT 1and 4	09/01/23-13/01/23	09/01/23-13/01/23	Lecture	

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

*** Quizzes on Saturdays**

Subject In charge