

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

**LESSON PLAN**

**Name: - Renu**

**Subject Name: - Chemistry**

**Branch/Semester: -2<sup>nd</sup> Sem. (Session 2022-23)**

**Subject Code:- BS-101A**

<b>Sr. No.</b>	<b>Lecture No.</b>	<b>Description of Topic</b>	<b>Tentative date</b>	<b>Executed on</b>	<b>Methodology</b>	<b>CO</b>
1	L1	Syllabus, Cos, exam pattern discussion Unit 4: Stereochemistry Introduction	14/02/23	14/02/23	Discussion with students	CO-5
2	L2	introduction 3 dimensional structures,	15/02/23	15/02/23	Lecture with 3D model representation	
3	L3	Representations of 3 dimensional structures	16/02/23	16/02/23	Lecture with 3D model representation	
4	L4	structural isomers	17/02/23	20/02/23	Lecture	
5	L5	stereoisomers : geometrical and optical isomerism	20/02/23	28/02/23	Lecture	
6	L6	Enantiomers and its properties	28/02/23	1/03/23	Power point presentation with 3D animated videos	
7	L7	Diastereomers and practice	1/03/23	02/03/23	Lecture	
8	L8	Meso compounds	02/03/23	02/03/23	Lecture	
9	L9	Relative configuration & absolute configurations	03/03/23	03/03/23	Lecture	
10	L10	conformational analysis of	04/03/23	04/03/23	Lecture	

		ethane and butane			
11	L11	<b>Organic reactions and synthesis of Drug: Basics of organic reactions</b>	09/03/23	09/03/23	Lecture
12	L12	<b>Electrophilic, free radical substitution reaction</b>	10/03/23	10/03/23	Discussion
13	L13 Content beyond syllabus	addition reaction and mechanism <b>Markonikov's rule, Anti-Markonikov rule</b>	13/03/23	13/03/23	Problem discussion
14	L14 Content beyond syllabus	Elimination reaction and mechanism, <b>Saytzeff rule</b>	14/03/23	14/03/23	lecture
15	L15	Oxidation and reduction reactions	15/03/23	15/02/23	Lecture
16	L16	cyclization and ring openings.	16/03/23	16/03/23	Lecture and discussion
17	L17	Paracetamol and aspirin	17/03/23	17/03/23	Flip learning, group presentation
18	L18	Revision of substitution reaction	20/03/23	20/03/23	Lecture
19	L19	Revision of addition and elimination reaction	21/03/23	21/03/23	Lecture
20	L20	Revision of oxidation and reduction reaction	22/03/23	22/03/23	Lecture
21	L21	Revision of stereochemistry	23/03/23	23/03/23	Lecture

23	L22	Revision of isomers	24/03/23	24/04/23		
24	L23	Problems on R/S configuration(EXTRA CLASS)	24/03/23	25/03/23	Discussion	
25		<b>SESSIONAL--1</b>	27/03/23	29/03/23		
26	L24	<b>Unit: I Atomic and Molecular Structure: MOT</b> Equations for atomic and molecular orbitals.	31/03/23		Flip Learning	
27	L25	Energy level diagrams of diatomic molecules	03/04/23		Lecture then presentation by students	
28	L26	Molecular orbitals of diatomic molecules of N <sub>2</sub> ,O <sub>2</sub>	04/04/23			
29	L27	Molecular orbitals of diatomic molecules of CO	05/04/23		lecture	
30	L28	Molecular orbitals of diatomic molecules of CO, N <sub>2</sub> ,O <sub>2</sub>	06/04/23		Presentation by students	
31	L29	Pi-molecular orbitals of butadiene	07/04/23		lecture	CO 1
32	L30	Pi-molecular orbitals of benzene and aromaticity	10/04/23		Lecture	
33	L31	Crystal field theory	11/04/23		Lecture	
34	L32	Crystal field splitting in Octahedral complex	12/04/23		Lecture	
35	L 33	Crystal field splitting in tetrahedral and square planar complex	13/04/23		Lecture	
36	L 34		14/04/23		Lecture	
	Content Beyond	<b>Crystal Field Stabilization energy of Octahedral Complex</b>				

	syllabus					
37	L35 Content Beyond syllabus	<b>Crystal Field Stabilization energy of Tetrahedral</b>	17/04/23		Lecture	
38	L36	Energy level diagrams of [Co(NH <sub>3</sub> ) <sub>6</sub> ], [Ni(CO) <sub>4</sub> ], [PtCl <sub>2</sub> (NH <sub>3</sub> ) <sub>2</sub> ] and magnetic properties of metal complexes	18/04/23		Lecture	CO-1
39	L37	Band structure of solids and the role of doping on band structures.	19/04/23		Lecture	
40	L38	<b>REVISION</b>	20/04/23			
41	L39	<b>CLASS TEST</b>	21/04/23			
42	L40 Content beyond syllabus	<b>Unit III: Use of Free Energy in Chemical Equilibria ; Basics of Thermodynamics,</b>	24/04/23		Lecture	CO-4
43	L41	Thermodynamic functions: energy, entropy and free energy	24/04/23		Lecture	
44	L42	Estimations of entropy	25/04/23		Lecture	
45	L43	Estimations of free energies, <b>Helmholtz Energy or Work function</b>	26/04/23		Lecture	
46	L44	Free energy and emf	27/04/23		Lecture	
47	L45	Cell potentials, the Nernst equation and applications	28/04/23		Lecture	
48		<b>SESSIONAL EXAM</b>	1-3/05/23			
49	L46	<b>DISSCUSSION OF PAPER</b>	4/05/23			
50	L47	Effective nuclear charge, penetration of orbitals,	05/05/23		Lecture	

51	L48	variations of s, p, d and f orbital energies of atoms in the periodic table, electronic configurations	08/05/23		Lecture	
52	L49	atomic and ionic sizes, ionization energies	09/05/23		Group presentation by students	
53	L50	Problems on periodic properties and ENC	10/05/23		Group presentation by students	CO-3
54	L51	electron affinity and electronegativity,	11/05/23		Group presentation by students	
55	L 52	Polarizability and Fajan's Rule, oxidation states, coordination numbers	12/05/23		Group presentation by students	
56	L 53	hard soft acids and bases and geometries	15/05/23		Group presentation by students	
57	L54	REVISION	16/05/23			
58	L55	CLASS TEST	17/05/23			
59	L56	<b>Unit II: Spectroscopic Techniques and applications</b> : Principles of spectroscopy and selection rules	18/05/23		Lecture	CO-2
60	L57	Electronic spectroscopy(basic concept, Instrumentation).	19/05/23		Lecture	
61	L58 Content Beyond Syllabus	Frank-Condon Principle	22/05/23		Lecture	
62	L59	Nuclear magnetic resonance, (Principle, instrumentation, application), Chemical shift,	24/05/23		Lecture	

		Shielding, deshielding				
63	L60	magnetic resonance imaging, Diffraction and scattering.	25/05/23		Lecture	
64	L61	Vibrational and rotational spectroscopy of diatomic molecules.	26/05/23		Lecture	
65	L62	Vibrational and rotational spectroscopy of diatomic molecules	29/05/23		Lecture	
66	L-63	Fluorescence and its applications in medicine. Applications	30/05/23		Lecture	
67	L-64	REVISION	31/05/23			
68	L65	CLASS TEST	01/06/23		Lecture	
69	L66	REVISION OF UNIT 3	02/06/23			
70	L67	REVISION CONTINUED	05/06/23		Group presentation by students	
71	L68	REVISION OF UNIT 1 and 4	06/06/23- 09/06/23		Group presentation by students	
72		SESSIONAL -3rd	11/06/23- 13/06/23			

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

**\* Quizzes on Saturdays**

Subject In charge