

NETAJI SUBHASH ENGINEERING COLLEGE
Technocity ,Garia , Kolkata 700152
LESSON PLAN : Chemistry-I (BS-CH 201) for CSE, IT, ME, CE

Sl.No.	Module	Lecture No	Topic Covered	Bloom Taxonomical Activity	Use of Special Resources
1.	1	1	Particle in a box problem and its solution to find out wave function and its energy	Perceive, Analyse, Calculate	Blackboard and chalk
2.	1	2	Schrodinger wave equation for hydrogen atom, its solution to find out the wave function and energy	Perceive, Analyse, Calculate	Blackboard and chalk
3	1	3-4	Applications of wave function for Molecular orbitals concept of diatomic molecules (e.g.H ₂). Energy level diagrams of diatomic.	Perceive, Apply, Model	Blackboard and chalk
4	1	5-6	Drawing of Pi-molecular orbitals of butadiene and benzene from wave function energy concept	Perceive, Apply	Blackboard and chalk
5	1	7	Concept of Aromaticity, solving related problems	Apply, Interpret	Blackboard and chalk
6	1	8-9	Crystal field theory and the energy level diagrams for transition metal ions and their magnetic properties.	Perceive, Apply, Analyze	Blackboard and chalk
7	1	10	Band structure of solids and the role of doping on band structures.	Perceive, Apply, Analyze	Blackboard and chalk
8	2	11	Principles of spectroscopy: Interaction of matter and electromagnetic wave, selection rules.	Perceive	Blackboard and chalk
9	2	12-13	Electronic spectroscopy. Energy states within molecule.	Perceive	Blackboard and chalk
10	2	14	The Jablonski Diagram, Fluorescence and its applications in medicine	Perceive, Apply	Blackboard and chalk
11	2	15	Diffraction and scattering , Rayleigh scattering, Raman effect and its application	Perceive, Apply	Blackboard and chalk
12	2	16	Vibrational and rotational spectroscopy of diatomic molecules and their Applications to identify a material sample	Perceive, Apply, Identify	Blackboard and chalk
13	2	17	Nuclear magnetic resonance: basic concepts of chemical shift	Perceive	Blackboard and chalk
14	2	18	Identification of sample by nuclear magnetic resonance, and magnetic resonance imaging of material, surface characterisation techniques	Apply, Identify	Blackboard and chalk

NETAJI SUBHASH ENGINEERING COLLEGE
Technocity ,Garia , Kolkata 700152
LESSON PLAN : Chemistry-I (BS-CH 201) for CSE, IT, ME, CE

15	3	19	Introduction to the manifestation of Intermolecular forces	Perceive	Blackboard and chalk
16	3	20	Qualitative expression of Ionic, dipolar and van Der Waals interactions and their application to Perceive material properties	Perceive, Express	Blackboard and chalk
17	3	21	Equations of state of real gases: van Der Waals equation, Virial equation	Express	Blackboard and chalk
18	3	22	Critical phenomena: Expression of Critical temperature, pressure and volume	Express	Blackboard and chalk
19	4	23-24	First law of thermodynamics: Internal energy, Work, Heat, Enthalpy	Perceive	Blackboard and chalk
20	4	25-26	Second laws of thermodynamics: Entropy, Free energy, and emf. Cell potentials, the Nernst equation and applications. Numerical problems	Perceive, Estimate	Blackboard and chalk
21	4	27-28	Description of Acid base, Interpretation of oxidation reduction and solubility equilibria.	Discuss, Interpret	Blackboard and chalk
22	4	29	Water chemistry. Corrosion. Use of free energy	Discuss, Interpret	Blackboard and chalk
23	4	30	Considerations in metallurgy through Ellingham diagrams.	Interpret	Blackboard and chalk
24	5	31	Effective nuclear charge, Comparative study of penetration of orbitals, variations of s, p, d and f orbital	Compare	Blackboard and chalk
25	5	32	Energies of atoms in the periodic table and categorical arrangements, General study of electronic configuration	Categorize, Generalize	Blackboard and chalk
26	5	33	Atomic and ionic sizes, ionization energies, electron affinity and electronegativity, polarizability, oxidation states and their comparison based problems	Compare	Blackboard and chalk
27	5	34	Coordination numbers and geometries, comparative studies of hard soft acids and bases, molecular geometries	Compare	Blackboard and chalk
28	6	35	Representations of three dimensional structures, structural isomers and stereoisomers, configurations and conformational isomer	Distinguish, Corelate	Blackboard and chalk, Molecular models
29	6	36	R/S nomenclature of chiral centres and interconversion of molecular projection	Corelate	Blackboard and chalk, Molecular

NETAJI SUBHASH ENGINEERING COLLEGE
Technocity ,Garia , Kolkata 700152
LESSON PLAN : Chemistry-I (BS-CH 201) for CSE, IT, ME, CE

					models
30	6	37	Symmetry and chirality, Identification of enantiomers, diastereomers, optical activity, absolute configurations and conformational analysis.	Distinguish, Identify	Blackboard and chalk, Molecular models
31	6	38	Isomerism in transitional metal compounds.	Corelate	Blackboard and chalk, Molecular models
32	7	39	Introduction to reaction mechanism involving substitution, elimination,	Explain, Predict, Propose	Blackboard and chalk
33	7	40	Addition, oxidation, reduction reaction	Explain, Predict, Propose	Blackboard and chalk
34	7	41	Cyclization and ring opening reactions	Explain, Predict, Propose	Blackboard and chalk
35	7	42	Synthesis of a commonly used drug molecule.	Design	Blackboard and chalk