



NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE& affiliated to SCTE&VT, Odisha)



LESSON PLAN

SUBJECT: TH-2(B)(ENGINEERING CHEMISTRY)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of periods as per the syllabus	No. of periods actually needed
1	Physical Chemistry	22	27
2	Inorganic Chemistry	8	9
3	Organic Chemistry	10	11
4	Industrial Chemistry	20	21
5	Total Period:	60	68

Discipline: AUTO/CIVIL/ MECH. ENGINEERING	Semester: 2ND	NAME OF THE TEACHING FACULTY: MISS ALIVAJYOTI BARIK / MR.ADITYA PRASAD DAS	
		SESSION : 2023-24	EXAMINATION : 2024(S)
Week	Class Day	Topics to be Covered	
1ST		Chapter -1	
	1ST	Atomic structure : Fundamental particles (electron, proton & neutron Definition,mass and charge).	
	2ND	Atomic mass and mass number, Definition, examples and properties of Isotopes, isobars and isotones.	
	3RD	Rutherford's Atomic model (postulates and failure),	
	4TH	Bohr's Atomicmodel (Postulates only),	
2ND	1ST	Aufbau's principle, Hund's rule	
	2ND	Electronic configuration (up to atomic no 30).	
	3RD	Bohr-Bury scheme	
	4TH	Chapter -2 Chemical Bonding : Definition , types (Electrovalent, Covalent and Coordinate bond with examples	
3RD	1ST	(formation of NaCl, MgCl ₂ , H ₂ ,Cl ₂ , O ₂ , N ₂ , H ₂ O, CH ₄ , NH ₃ , NH ₄ +, SO ₂).	
	2ND	formation of N ₂ , H ₂ O, CH ₄ , NH ₃ , NH ₄ +, SO ₂	
	3RD	Chapter -3 Acid base theory : Concept of Arrhenius, Lowry Bronsted	
	4TH	Lewis theory for acid and base with examples (Postulates and limitations only). Neutralization of acid & base.	
4TH	1ST	Definition of Salt, Types of salts (Normal, acidic, basic, definitions with 2 examples	
	2ND	double, complex and mixed salts, definitions with 2 examples from each).	
	3RD	Chapter -4 Solutions : Definitions of atomic weight, molecular weight, Equivalent weight.	
	4TH	Determination of equivalent weight of Acid, Base and Salt.	
5TH	1ST	Modes of expression of the concentrations (Molarity , Normality & Molality) with Simple Problems.	
	2ND	pH of solution (definition with simple numericals)	
	3RD	importance of pH in industry (sugar, textile, paper industries only)	
	4TH	Chapter- 5 Electrochemistry : Definition and types (Strong & weak) of Electrolytes .	

6TH	1ST	Electrolysis (Principle & process) with example of NaCl (fused and aqueous solution).
	2ND	Faraday's 1st law of Electrolysis (Statement, mathematical expression and Simple numerical)
	3RD	Industrial application of Electrolysis- Electroplating (Zinc only).
	4TH	Faraday's 2nd law of Electrolysis (Statement, mathematical expression and Simple numerical)
7TH	1ST	Chapter- 6 Corrosion: Definition of Corrosion,
	2ND	Atmospheric Protection from Corrosion by (i) Alloying and (ii) Galvanization
	3RD	Types of Corrosion
	4TH	Chapter- 7 Metallurgy: Definition of Mineral, ores , gangue with example.
8TH	1ST	General methods of extraction of metals, i) Ore Dressing ii) Concentration (Gravity separation, magnetic separation,
	2ND	iii) Oxidation (Calcinations, Roasting) iv) Reduction (Smelting, Definition & examples of flux, slag)
	3RD	v) Refining of the metal (Electro refining, & Distillation)
	4TH	Froth floatation & leaching
9TH	1ST	Chapter -8 Alloys: Definition of alloy. Types of alloys
	2ND	Ferro, Non Ferro & Amalgam) with example
	3RD	Composition and uses of Brass, Bronze
	4TH	composition and uses of alnico , duralumin
10TH	1ST	Chapter -9 Hydrocarbons : Saturated and Unsaturated Hydrocarbons Definition .
	2ND	aliphatic hydrocarbons
	3RD	Aromatic Hydrocarbons (Huckle's rule only).
	4TH	IUPAC system of nomenclature
11TH	1ST	IUPAC system of nomenclature
	2ND	difference between aliphatic and aromatic hydrocarbons
	3RD	alkane , alkene
	4TH	Alkyne,
12TH	1ST	alkyl halide and alcohol .
	2ND	Uses of some common aromatic compounds (Benzene, Toluene, BHC, Phenol, in daily life.
	3RD	Naphthalene, Anthracene and Benzoic acid

	4TH	Chapter -10 Water Treatment : Sources of water, Soft water, Hard water,
13TH	1ST	hardness, types of hardness
	2ND	(temporary or carbonate permanent or non removal of hardness by lime soda method(hot lime & cold lime—Principle, process & advantages)
	3RD	Organic Ion exchange method (principle, process, and regeneration of exhausted resins)
	4TH	Advantages of Hot lime over cold lime process
14TH	1ST	Chapter -11 Lubricants: Definition of lubricant, Types (solid, liquid and semisolid)
	2ND	specific uses of lubricants (Graphite, Oils, Grease)
	3RD	Purpose of lubrication
	4TH	Chapter -12 Fuel: Definition and classification of fuel,
15TH	1ST	Definition of calorific value of fuel , choice of good fuel
	2ND	Gaseous: Producer gas and Water gas (Composition and uses)
	3RD	Elementary idea about LPG, CNG and coal gas (Composition and uses only).
	4TH	Liquid: Diesel, Petrol, and Kerosene --- Composition and uses.
16TH		Chapter -13 Polymer: Definition of Monomer, Polymer,
		Difference between Thermosetting and Thermoplastic,
		Definition of Elastomer (Rubber). Natural Rubber (it's draw backs).
		Homo-polymer, Co- polymer and Degree of polymerization.
17TH		Vulcanisation of Rubber. Advantages of Vulcanised rubber over raw rubber.
		Composition and uses of Polythene, & Poly-Vinyl Chloride and Bakelite
		Chapter -14 Chemicals in Agriculture: Pesticides: Insecticides, herbicides, fungicides- Examples and uses.
		Bio Fertilizers: Definition, examples and uses.

