PNS SCHOOL OF ENGINEERING & TECHNOLOGY

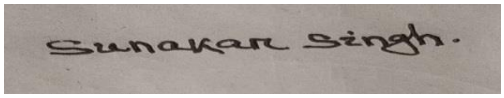
LESSON PLAN

Sub:ENGG. CHEMISTRY TH-2B TOTAL NO. OF CLASSES ALLOTTED AS PER SYLLABUS:60	**NO. OF DAYS PER WEEK CLASS ALLOTTED: 05**	**SEMESTEER FROM DATE: 17.03.2023** **Faculty Name : Itishree Jena**
WEEK	**CLASSES DAY**	**TOPIC THEORY**
1st	1st	**A. PHYSICAL CHEMISTRY** **Chapter 1: Atomic structure** : Fundamental particles (electron, proton & neutron Definition,mass and charge).Rutherford's Atomic model (postulates and failure)
	2nd	Atomic mass and massnumber, Definition, examples and properties of Isotopes, isobars and isotones
	3rd	Bohr's Atomic model (Postulates only), Bohr-Bury scheme,model
	4th	Aufbau's principle, Hund's rule, Electronic configuration (up to atomic no 30)
	5th	**Chapter 2 : Chemical Bonding** : Definition , types (Electrovalent, Covalent and Coordinate bond with examples
2nd	1st	(formation of NaCl, MgCl2, H2,Cl2, O2, N2, H2O, CH4, NH3, NH4, SO2)
	2nd	**Chapter 3 : Acid base theory** : Concept of Arrhenius, Lowry Bronsted and Lewis theory for acid and base with examples (Postulates and limitations only).
	3rd	Neutralization of acid & base.Definition of Salt
	4th	Types of salts (Normal, acidic, basic, double, complex and mixed salts,
	5th	Double, complex and mixed salts,definitions with 2 examples from each).
3rd	1st	**Chapter 4: Solutions** : Definitions of atomic weight, molecular weight, Equivalent weight. Determination of equivalent weight of Acid, Base and Salt.
	2nd	Modes of expression of the concentrations (Molarity , Normality & Molality) with Simple Problems

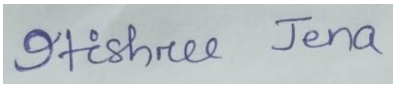
3rd	3rd	with Simple Problems. pH of solution (definition with simple numericals)
	4th	Importance of pH in industry (sugar, textile, paper industries only)
	5th	**Chapter 5 : Electrochemistry** : Definition and types (Strong & weak) of Electrolytes with example. Electrolysis (Principle & process)
4th	1st	with example of NaCl (fused and aqueous solution).Faraday's 1st law of Electrolysis
	2nd	Faraday's 2nd law of Electrolysis (Statement, mathematical expression and Simple numerical) Industrial application of Electrolysis- Electroplating (Zinc only).
	3rd	**Chapter 6 : Corrosion**: Definition of Corrosion, Types of Corrosion- Atmospheric Corrosion,
	4th	Waterline corrosion. Mechanism of rusting of Iron only.
	5th	Protection from Corrosion by (i) Alloying and (ii) Galvanization
5th	1st	Galvanization
	2nd	Doubt clearing class
	3rd	Unit test
	4th	**B. INORGANIC CHEMISTRY** **Chapter 7 : Metallurgy**: Definition of Mineral, ores , gangue with example. Distinction between
	5th	s. General methods of extraction of metals, nerals. **i**) Ore Dressing
6th	1st	**ii)** Concentration (Gravity separation, magnetic separation, Froth floatation & leaching)
	2nd	**iii)** Oxidation (Calcinations, Roasting)
	3rd	**iv)** Reduction (Smelting, Definition & examples of flux, slag)
	4th	**v)** Refining of the metal (Electro refining, & Distillation only)
	5th	**Chapter 8 : Alloys**: Definition of alloy. Types of alloys (Ferro, Non Ferro & Amalgam) with example
	1st	Composition and uses of Brass, Bronze, Alnico, Duralumin
	2nd	**Chapter 9 : Hydrocarbons** : Saturated and Unsaturated Hydrocarbons (Definition with example)

7th	3rd	Aliphatic and Aromatic Hydrocarbons (Huckle's rule only). Difference between Aliphatic and aromatic hydrocarbons
	4th	Uses of some common aromatic compounds (Benzene, Toluene, BHC, Phenol, Naphthalene, Anthracene and Benzoic acid) in daily life.
	5th	IUPAC system of nomenclature of Alkane, Alkene, Alkyne, alkyl halide and alcohol (up to 6 carbons) with bond line notation
8th	1st	IUPAC system
	2nd	IUPAC system
	3rd	IUPAC system
	4th	IUPAC system
	5th	Doubt clearing class
9th	1st	Unit test
	2nd	**D. INDUSTRIAL CHEMISTRY** **Chapter 10** : **Water Treatment** : Sources of water, Soft water, Hard water, hardness
	3rd	Types ofHardness (temporary or carbonate and permanent or non-carbonate)
	4th	Removal of hardness by lime soda method (hot lime-Principle , Process & advantages)
	5th	cold lime—Principle, process & advantages
10th	1st	Advantages of Hot lime over cold lime process
	2nd	Organic ion exchange method(principle ,process ,and regenerationof exhausted resins)
	3rd	**Chapter 11 : Lubricants**: Definition of lubricant, Types (solid, liquid and semisolid with examples only
	4th	specific uses of lubricants (Graphite, Oils, Grease), Purpose of lubrication
	5th	**Chapter 12 : Fuel**: Definition and classification of fuel, Definition of calorific value of fuel, Choice of good fuel.
	1st	Liquid: Diesel, Petrol, and Kerosene --- Composition and uses.

11th	2nd	**Gaseous**: Producer gas and Water gas (Composition and uses).
	3rd	Elementary idea about LPG,CNG and coal gas (Composition and uses only).
	4th	**Chapter 13 : Polymer**: Definition of Monomer, Polymer, Homo-polymer, Co-polymer and
	5th	Degree of polymerization. Difference between Thermosetting and Thermoplastic, Composition and uses of polythene.
12th	1st	Composition and uses of Poly-Vinyl Chloride and Bakelite.
	2nd	Definition of Elastomer (Rubber). Natural Rubber (it's draw backs). Vulcanisation of Rubber.
	3rd	Advantages of Vulcanised rubber over raw rubber.
	4th	**Chapter 14: Chemicals in Agriculture**: Pesticides: Insecticides, herbicides, fungicides ,examples and uses
	5th	Bio Fertilizers: Definition, examples and uses.



SIGNETURE OF HOD



SIGNETURE OF LECTURE