LESSON PLAN (ENGG. CHEMISTRY)

Discipline : ELECTRICAL ENGG.	Semester: 2nd Sem	Name of the Teaching Faculty :Kuni Majhi,Prasant Behera
Subject : TH 2B	No. of Days / per week class	Semester From date : 20.03.2023 To Date : 27.06.2023

MONTH	Week	Day	Topics
MARCH		3rd	**Chapter 1: Atomic structure** Fundamental particles (electron, proton & neutron Definition, mass and charge).Rutherford's Atomic model (postulates and failure), Atomic mass and mass number.
	4th	4th	**B. INORGANIC CHEMISTRY Chapter 7 : Metallurgy**: Definition of Mineral, ores , gangue with example. Distinction between Ores And Minerals.
		5th	General methods of extraction of metals, i) Ore Dressing ii) Concentration (Gravity separation, magnetic separation)
		5th	Definition, examples and properties of Isotopes, isobars and isotones. Bohr's Atomic model (Postulates only)
	5th	3rd	Bohr-Bury scheme, Aufbau's principle,
		4th	ii) Concentration (Froth floatation & leaching) iii) Oxidation (Calcinations, Roasting)
		5th	iv) Reduction (Smelting, Definition & examples of flux, slag) v) Refining of the metal (Electro refining, & Distillation only)
		5th	Hund's rule, Electronic configuration (up to atomic no 30)
	2nd	3rd	**Chapter 2 : Chemical Bonding** : Definition , types (Electrovalent, Covalent and Coordinate bond with examples
		4th	**Chapter 8 : Alloys:** Definition of alloy. Types of alloys (Ferro, Non Ferro & Amalgam) with example.
		5th	Composition and uses of Brass, Bronze, Alnico, Duralumin
		5th	Types of bond with examples (formation of NaCl, MgCl2, H2,Cl2, O2, N2, H2O, CH4, NH3, NH4 + , SO2).
		3rd	**Chapter 3 : Acid base theory** : Concept of Arrhenius, Lowry Bronsted and Lewis theory for acid and base with examples (Postulates and limitations only).

APRIL	3rd	4th	**C. ORGANIC CHEMISTRY Chapter 9 : Hydrocarbons :** Saturated and Unsaturated Hydrocarbons (Definition with example)
		5th	Aliphatic and Aromatic Hydrocarbons (Huckle's rule only). Difference between Aliphatic and aromatic hydrocarbons
		5th	**CLASS TEST-1**
	4th	3rd	Neutralization of acid & base. Definition of Salt, Types of salts (Normal, acidic, basic, double, complex and mixed salts, definitions with 2 examples).
		4th	IUPAC system of nomenclature of Alkane, Alkene
		5th	IUPAC system of nomenclature of Alkyne, alkyl halide and alcohol (up to 6 carbons) with bond line notation.
		5th	**Chapter 4: Solutions :** Definitions of atomic weight, molecular weight, Equivalent weight.
	5th	3rd	Determination of equivalent weight of Acid, Base and Salt.
		4th	Uses of some common aromatic compounds (Benzene, Toluene, BHC, Phenol, Naphthalene, Anthracene and Benzoic acid) in daily life.
		5th	**D. INDUSTRIAL CHEMISTRY Chapter 10 :** Water Treatment : Sources of water, Soft water, Hard water, hardness,
		5th	Modes of expression of the concentrations (Molarity , Normality & Molality) with Simple Problems
MAY	1st	3rd	pH of solution (definition with simple numericals),Importance of pH in industry (sugar, textile, paper industries only)
		4th	hardness, types of Hardness (temporary or carbonate and permanent or non-carbonate)
		5th	Removal of hardness by lime soda method (hot lime & cold lime—Principle, process & advantages)
		5th	Revision
	2nd	3rd	**Chapter 5 : Electrochemistry :** Definition and types (Strong & weak) of Electrolytes with example.
		4th	Advantages of Hot lime over cold lime process. Organic Ion exchange method (principle, process, and regeneration of exhausted resins)
		5th	**Chapter 11 : Lubricants:** Definition of lubricant, Types (solid, liquid and semisolid with examples only)
		5th	Electrolysis (Principle & process) with example of NaCl (fused and aqueous solution).
	3rd	3rd	Faraday's 1st and 2nd law of Electrolysis (Statement, mathematical expression and Simple numerical)
		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.
		5th	Industrial application of Electrolysis- Electroplating (Zinc only)

	4th	3rd	**Chapter 6 : Corrosion:** Definition of Corrosion, Types of Corrosion- Atmospheric Corrosion, Waterline corrosion.
		4th	Liquid: Diesel, Petrol, and Kerosene — Composition and uses. Gaseous: Producer gas and Water gas (Composition and uses).
		5th	Elementary idea about LPG, CNG and coal gas (Composition and uses only)
		5th	Mechanism of rusting of Iron only. Protection from Corrosion by (i) Alloying and (ii) Galvanization.
	5th	3rd	REVISION
		4th	**INTERNAL TEST**
		5th	**Chapter 13 : Polymer:** Definition of Monomer, Polymer, Homo-polymer, Co-polymer and Degree of polymerization.
		5th	REVISION
JUNE	1st	4th	Difference between Thermosetting and Thermoplastic,
		5th	Composition and uses of Polythene, & Poly-Vinyl Chloride and Bakelite.
		5th	Revision on Atomic structure , Chemical Bonding
		3rd	**Class Test**
	2nd	4th	Composition and uses of Polythene, & Poly-Vinyl Chloride and Bakelite.
		5th	Definition of Elastomer (Rubber). Natural Rubber (it's draw backs
	3rd	5th	Vulcanisation of Rubber. Advantages of Vulcanised rubber over raw rubber.
		5th	Revision on Polymer
	4th	3rd	surprise Test
		4th	**Chapter 14: Chemicals in Agriculture:** Pesticides: Insecticides, herbicides, fungicides┐Example
		5th	**Chapter 14: Chemicals in Agriculture:** Pesticides: Insecticides, herbicides, fungicides┐Example
		5th	Revision on acid base theory
	5th	3rd	Previuos yr. Semester Question practice
		4th	Bio Fertilizers: Definition, examples and uses
		5th	REVISION
		5th	REVISION