

Discipline <b>ELECTRICAL ENGG</b>	Semester : <b>2ND</b>	Name of the Teaching Faculty: <b>SUBHASHREE PRIYADARSHINI</b>
Subject: <b>ENGG CHEMISTRY</b>	No. of days/per week class allotted: <b>04</b>	Semester From date : 02/01/2019 To Date: 30/04/2019  No. of Weeks: 15
Week	Class Day	Theory
1 <sup>ST</sup>	1 <sup>ST</sup>	Introduction
	2 <sup>ND</sup>	Rutherford's atomic model (limitations), Atomic mass, mass number, isotopes, isobar
	3 <sup>RD</sup>	Isotones, Bohr's atomic model, Bohr Bury scheme,
	4 <sup>TH</sup>	Aufbau's principle, Hund's rule, Electronic configuration
2 <sup>ND</sup>	1 <sup>ST</sup>	CH-2: Chemical Bonding- DEfination, types of bonding
	2 <sup>ND</sup>	Ionic bonding, examples
	3 <sup>RD</sup>	Covalent bonding , Examples
	4 <sup>TH</sup>	Coordinate bonding, examples
3 <sup>RD</sup>	1 <sup>ST</sup>	Ch-3: Acid base theory-Arrhenius concept of acid & base
	2 <sup>ND</sup>	Bronsted lowry & Lewis concept of acid & base
	3 <sup>RD</sup>	Neutralization of acid & base, salts- definition & types.
	4 <sup>TH</sup>	Definition of Atomic weight, molecular weight, equivalent weight,
4 <sup>TH</sup>	1 <sup>ST</sup>	Determination of equivalent weight of Acid, Base
	2 <sup>ND</sup>	Determination of equivalent weight of salt
	3 <sup>RD</sup>	Modes of expression of the concentrations ( Molarity , Normality) with Simple Problems
	4 <sup>TH</sup>	Molality with Simple Problems
5 <sup>TH</sup>	1 <sup>ST</sup>	pH of solution ( definition with simple numerical )
	2 <sup>ND</sup>	Importance of pH in industry ( sugar, textile, paper industries only)
	3 <sup>RD</sup>	Chapter 5 : Electrochemistry : Definition and types ( Strong & weak) of Electrolytes with example.
	4 <sup>TH</sup>	Electrolysis ( Principle & process) with example of NaCl (fused and aqueous solution).
6 <sup>TH</sup>	1 <sup>ST</sup>	Faraday's 1st and 2nd law of Electrolysis ( Statement, mathematical expression and Simple numerical)
	2 <sup>ND</sup>	Industrial application of Electrolysis- Electroplating ( Zinc only).
	3 <sup>RD</sup>	Chapter 6 : Corrosion: Definition of Corrosion, Types of Corrosion- Atmospheric Corrosion,
	4 <sup>TH</sup>	Waterline corrosion. Mechanism of rusting of Iron only. Protection from Corrosion by (i) Alloying and (ii) Galvanization.
7 <sup>TH</sup>	1 <sup>ST</sup>	Chapter 7 : Metallurgy: Definition of Mineral, ores , gangue with example. Distinction between Ores And Minerals.

	2 <sup>ND</sup>	General methods of extraction of metals, i) Ore Dressing ii) Concentration ( Gravity separation, magnetic separation, Froth floatation & leaching)
	3 <sup>RD</sup>	iii) Oxidation (Calcinations, Roasting ) iv) Reduction (Smelting, Definition & examples of flux, slag)
	4 <sup>TH</sup>	v) Refining of the metal ( Electro refining, & Distillation only)
8 <sup>TH</sup>	1 <sup>ST</sup>	Chapter 8 : Alloys: Definition of alloy. Types of alloys ( Ferro, Non Ferro & Amalgam) with example. Composition and uses of Brass, Bronze, Alnico, Duralumin
	2 <sup>ND</sup>	Doubt clear
	3 <sup>RD</sup>	Chapter 9 : Hydrocarbons : Saturated and Unsaturated Hydrocarbons ( Definition with example) Aliphatic and Aromatic Hydrocarbons ( Huckle's rule only). Difference between Aliphatic and aromatic hydrocarbons
	4 <sup>TH</sup>	IUPAC system of nomenclature of Alkane,
9 <sup>TH</sup>	1 <sup>ST</sup>	IUPAC system of nomenclature of Alkene,
	2 <sup>ND</sup>	IUPAC system of nomenclature of Alkyne,
	3 <sup>RD</sup>	IUPAC system of nomenclature of alkyl halide and alcohol
	4 <sup>TH</sup>	Uses of some common aromatic compounds ( Benzene, Toluene, BHC, Phenol, Naphthalene, Anthracene and Benzoic acid) in daily life.
10 <sup>TH</sup>	1 <sup>ST</sup>	Doubt clear
	2 <sup>ND</sup>	Chapter 10 : Water Treatment : Sources of water, Soft water, Hard water, hardness, types of Hardness (temporary or carbonate and permanent or non-carbonate),
	3 <sup>RD</sup>	Removal of hardness by lime soda method ( hot lime & cold lime—Principle, process & advantages ) , Advantages of Hot lime over cold lime process.
	4 <sup>TH</sup>	Organic Ion exchange method ( principle, process, and regeneration of exhausted resins)
11 <sup>TH</sup>	1 <sup>ST</sup>	Doubt clear
	2 <sup>ND</sup>	Chapter 11 : Lubricants: Definition of lubricant, Types ( solid, liquid and semisolid with examples only )
	3 <sup>RD</sup>	specific uses of lubricants ( Graphite, Oils, Grease), Purpose of lubrication
	4 <sup>TH</sup>	specific uses of lubricants ( Graphite, Oils, Grease), Purpose of lubrication
12 <sup>TH</sup>	1 <sup>ST</sup>	Doubt clear
	2 <sup>ND</sup>	Chapter 12 : Fuel: Definition and classification of fuel,

		Definition of calorific value of fuel, Choice of good fuel.
	3 <sup>RD</sup>	Liquid: Diesel, Petrol, and Kerosene --- Composition and uses.
	4 <sup>TH</sup>	Gaseous: Producer gas and Water gas (Composition and uses).
13 <sup>TH</sup>	1 <sup>ST</sup>	Elementary idea about LPG, CNG and coal gas (Composition and uses only).
	2 <sup>ND</sup>	Doubt clear
	3 <sup>RD</sup>	Chapter 13 : Polymer: Definition of Monomer, Polymer, Homo-polymer, Co-polymer and Degree of polymerization
	4 <sup>TH</sup>	Difference between Thermosetting and Thermoplastic, Composition and uses of Polythene
14 <sup>TH</sup>	1 <sup>ST</sup>	& Poly-Vinyl Chloride and Bakelite.
	2 <sup>ND</sup>	Definition of Elastomer ( Rubber). Natural Rubber (it's draw backs ).
	3 <sup>RD</sup>	Vulcanisation of Rubber. Advantages of Vulcanised rubber over raw rubber.
	4 <sup>TH</sup>	Doubt clear
15 <sup>TH</sup>	1 <sup>ST</sup>	Chapter 14: Chemicals in Agriculture: Pesticides: Insecticides,
	2 <sup>ND</sup>	herbicides, fungicides- Examples and uses.
	3 <sup>RD</sup>	Bio Fertilizers: Definition, examples and uses.
	4 <sup>TH</sup>	Doubt clear

### **Learning Resources:**

1. Text Book of Intermediate Chemistry Part-1 and Part-2 by Nanda, Das, Sharma,
2. Engineering Chemistry by Y.R. Sharma and P. Mitra, Kalyani Publishers
3. Engineering Chemistry for Diploma – Dr. R K Mohapatra, PHI Publication, New Delhi.

Signature of the concerned Lecturer

Signature of the H.O.D

Signature of Academic Coordinator

Signature of the Principal