Discipline: ALL	Semester : **1ST**	Name of the Teaching Faculty: **SIBA PRASAD ACHARY**
Subject: **ENGG CHEMISTRY**	No. of days/per week class allotted: **04**	Semester From : July to December No. of Weeks: 15
Week	Class Day	Theory
1ST	1ST	Introduction
	2ND	Rutherford's atomic model (limitations), Atomic mass, mass number, isotopes, isobar
	3RD	Isotones, Bohr's atomic model, Bohr Bury scheme,
	4TH	Aufbau's principle, Hund's rule, Electronic configuration
2ND	1ST	CH-2: Chemical Bonding- Definition, types of bonding
	2ND	Ionic bonding, examples
	3RD	Covalent bonding , Examples
	4TH	Coordinate bonding, examples
3RD	1ST	Ch-3: Acid base theory-Arrhenius concept of acid & base
	2ND	Bronsted lowry & Lewis concept of acid & base
	3RD	Neutralization of acid & base, salts- definition & types.
	4TH	Definition of Atomic weight, molecular weight, equivalent weight,
4TH	1ST	Determination of equivalent weight of Acid, Base
	2ND	Determination of equivalent weight of salt
	3RD	Modes of expression of the concentrations (Molarity , Normality) with Simple Problems
	4TH	Molality with Simple Problems
5TH	1ST	pH of solution (definition with simple numerical)
	2ND	Importance of pH in industry (sugar, textile, paper industries only)
	3RD	Chapter 5 : Electrochemistry : Definition and types (Strong & weak) of Electrolytes with example.
	4TH	Electrolysis (Principle & process) with example of NaCl (fused and aqueous solution).
6TH	1ST	Faraday's 1st and 2nd law of Electrolysis (Statement, mathematical expression and Simple numerical)
	2ND	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. Protection from Corrosion by (i) Alloying and (ii) Galvanization.
7TH	1ST	Chapter 7 : Metallurgy: Definition of Mineral, ores , gangue with example. Distinction between Ores And Minerals.
	2ND	General methods of extraction of metals, i) Ore Dressing ii) Concentration (Gravity separation, magnetic separation, Froth floatation & leaching)
	3RD	iii) Oxidation (Calcinations, Roasting) iv) Reduction (Smelting, Definition & examples of flux, slag)
	4TH	v) Refining of the metal (Electrorefining, & Distillation only)
8TH	1ST	Chapter 8 : Alloys: Definition of alloy. Types of alloys (Ferro, Non Ferro & Amalgam) with example. Composition and uses of Brass, Bronze, Alnico, Duralumin
	2ND	Doubt clear
	3RD	Chapter 9 : Hydrocarbons : Saturated and Unsaturated Hydrocarbons (Definition with example) Aliphatic and Aromatic Hydrocarbons (Huckle's rule only). Difference between Aliphatic and aromatic hydrocarbons
	4TH	IUPAC system of nomenclature of Alkane,
9TH	1ST	IUPAC system of nomenclature of Alkene,
	2ND	IUPAC system of nomenclature of Alkyne,
	3RD	IUPAC system of nomenclature of alkyl halide and alcohol
	4TH	Uses of some common aromatic compounds (Benzene, Toluene, BHC, Phenol, Naphthalene, Anthracene and Benzoic acid) in daily life.
10TH	1ST	Doubt clear
	2ND	Chapter 10 : Water Treatment : Sources of water, Soft water, Hard water, hardness, types of Hardness (temporary or carbonate and permanent or non-carbonate),
	3RD	Removal of hardness by lime soda method (hot lime & cold lime—Principle, process & advantages) , Advantages of Hot lime over cold lime process.
	4TH	Organic Ion exchange method (principle, process, and regeneration of exhausted resins)
11TH	1ST	Doubt clear
	2ND	Chapter 11 : Lubricants: Definition of lubricant,

		Types (solid, liquid and semisolid with examples only)
	3RD	specific uses of lubricants (Graphite, Oils, Grease), Purpose of lubrication
	4TH	specific uses of lubricants (Graphite, Oils, Grease), Purpose of lubrication
12TH	1ST	Doubt clear
	2ND	Chapter 12 : Fuel: Definition and classification of fuel, Definition of calorific value of fuel, Choice of good fuel.
	3RD	Liquid: Diesel, Petrol, and Kerosene --- Composition and uses.
	4TH	Gaseous: Producer gas and Water gas (Composition and uses).
13TH	1ST	Elementary idea about LPG, CNG and coal gas (Composition and uses only).
	2ND	Doubt clear
	3RD	Chapter 13 : Polymer: Definition of Monomer, Polymer, Homo-polymer, Co-polymer and Degree of polymerization
	4TH	Difference between Thermosetting and Thermoplastic, Composition and uses of Polythene
14TH	1ST	& Poly-Vinyl Chloride and Bakelite.
	2ND	Definition of Elastomer (Rubber). Natural Rubber (it's draw backs).
	3RD	Vulcanisation of Rubber. Advantages of Vulcanised rubber over raw rubber.
	4TH	Doubt clear
15TH	1ST	Chapter 14: Chemicals in Agriculture: Pesticides: Insecticides,
	2ND	herbicides, fungicides- Examples and uses.
	3RD	Bio Fertilizers: Definition, examples and uses.
	4TH	Doubt clear

Learning Resources:

1. Textbook 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.