


SYNERGY POLYTECHNIC, BBSR

The Lesson Plan		
Discipline:	Semester: 2 nd	Name of the Teaching Faculty: Dr. J. Rout , Mr. Aditya Kumar Nanda
Subject: <i>Engg. Chemistry</i>	No of Days/per week class allotted:	Semester from Date: 20.3.23 to Date: 27.6.23 No of Weeks: 15
Week	Class Day	Theory/Practical Topics
1st	1st	Fundamental particles (electron, proton & neutron Definition, mass and charge) Rutherford's Atomic model (postulates and failure),
	2nd	Atomic mass and mass number, Definition, examples and properties of Isotopes, isobars and isotones.
	3rd	Bohr's Atomic model (Postulates only), Bohr-Bury scheme
	4th	Aufbau's principle, Hund's rule, Electronic configuration (up to atomic no 30).
	5th	Definition , types (Electrovalent, Covalent and Coordinate bond with examples (formation of NaCl, MgCl ₂ , H ₂ Cl ₂ , O ₂ , N ₂ , H ₂ O,
2nd	1st	Concept of Arrhenius, Lowry Bronsted
	2nd	Lewis theory for acid and base with examples (Postulates and limitations only).
	3rd	Neutralization of acid & base.
	4th	Definition of Salt, Types of salts (Normal, acidic, basic,
	5th	double, complex and mixed salts, definitions with examples
3rd	1st	Definitions of atomic weight, molecular weight, Equivalent weight
	2nd	. Determination of equivalent weight of Acid, Base and Salt.
	3rd	Modes of expression of the concentrations (Molarity , Normality & Molality) with Problems.
	4th	pH of solution (definition with simple numericals)
	5th	Importance of pH in industry (sugar, textile, paper industries only)
4th	1st	Definition and types (Strong & weak) of Electrolytes with example.
	2nd	Faraday's 1 st and 2 nd law of Electrolysis (Statement, mathematical expression and Simple numerical)
	3rd	Industrial application of Electrolysis- Electroplating (Zinc only).
	4th	Definition of Corrosion, Types of Corrosion
	5th	Atmospheric Corrosion, Waterline corrosion.
5th	1st	Concentration (Gravity separation, magnetic separation,
	2nd	Froth floatation & leaching)
	3rd	Oxidation (Calcinations, Roasting
	4th	Reduction (Smelting, Definition & examples of flux, slag)
	5th	Refining of the metal (Electro refining, & Distillation only)
	1st	Alloys: Definition of alloy. Types of alloys (Ferro, Non Ferro & Amalgam) with example.
	2nd	Composition and uses of Brass, Bronze, Alnico, Duralumin

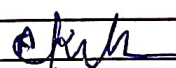
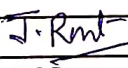
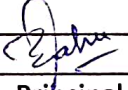
6th	3rd	Hydrocarbons Saturated and unsaturated Hydrocarbons (Definition with example)
	4th	Aliphatic and Aromatic Hydrocarbons (Huckle's rule only).
	5th	Difference between Aliphatic and aromatic hydrocarbons
7th	1st	IUPAC system of nomenclature of Alkane, Alkene
	2nd	IUPAC system of nomenclature Alkyne,
	3rd	alkyl halide and alcohol (up to 6 carbons) with bond line notation
	4th	Uses of some common aromatic compounds (Benzene, Toluene
	5th	Uses of, BHC, Phenol, Naphthalene,
8th	1st	Uses of Anthracene and Benzoic acid) in daily life.
	2nd	Water Treatment : Sources of water, Soft water, Hard water, hardness
	3rd	types of Hardness (temporary or carbonate and permanent or non-carbonate),
	4th	Removal of hardness by lime soda method (hot lime & cold lime—Principle, process & advantages)
	5th	Advantages of Hot lime over cold lime process.
9th	1st	Organic Ion exchange method
	2nd	principle, process, and regeneration of exhausted resins
	3rd	Lubricants : Definition of lubricant, Types (solid, liquid and semisolid with examples only)
	4th	specific uses of lubricants (Graphite, Oils, Grease), Purpose of lubrication
	5th	Fuel : Definition and classification of fuel,
10th	1st	Definition of calorific value of fuel, Choice of good fuel.
	2nd	Liquid: Diesel, Petrol, and Kerosene --- Composition and uses.
	3rd	Gaseous: Producer gas and Water gas (Composition and uses).
	4th	Elementary idea about LPG, CNG and coal gas (Composition and uses only).
	5th	Polymer : Definition of Monomer, Polymer, Homo-polymer, Co-polymer and Degree of polymerization.
11th	1st	Difference between Thermosetting and Thermoplastic,
	2nd	Composition and uses of Polythene, & Poly-Vinyl Chloride and Bakelite.
	3rd	Definition of Elastomer (Rubber). Natural Rubber (it's draw backs).
	4th	Vulcanisation of Rubber. Advantages of Vulcanised rubber over raw rubber.
	5th	Chemicals in Agriculture: Pesticides: Insecticides, herbicides, fungicides- Examples and uses.
12 th	1st	Bio Fertilizers: Definition, examples and uses.
	2nd	
	3rd	
	4th	
	5th	


Sign of Faculty


HOD


Principal

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Discipline:	Semester: 2 nd	Name of the Teaching Faculty: Dr. J. Rout , Mr. Aditya Kumar Nanda
Subject:Chem. Lab	No of Days/per week class allotted:	Semester from Date: to Date: No of Weeks:
Week	Class Day	Theory/Practical Topics
1st	1st	Preparation and study of physical and chemical properties CO ₂ gas.
	2nd	Preparation and study of physical and chemical properties NH ₃ gas.
	3rd	Crystallization of Copper sulphate from copper carbonate.
	4th	Simple acid-base titrations
	5th	(i) Acidimetry
2nd	1st	(ii) Alkalimetry
	2nd	Tests for acid radicals and Basic radicals (Known):
	3rd	
	4th	(i) Carbonate,
	5th	
3rd	1st	(i) Sulphide,
	2nd	Chloride
	3rd	(i) Nitrate and
	4th	Sulphate
	5th	(i) Ammonium,
4th	1st	(ii) Zinc,
	2nd	(iii) Magnesium,
	3rd	(i) Aluminium,
	4th	Calcium
	5th	(i) Sodium and potassium.
5th	1st	
	2nd	Test for unknown Acid radicals
	3rd	Test for unknown basic radicals
	4th	Test for unknown salt (composed of one basic radical and one acid radical)
	5th	
		
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