LESSON PLAN: ENGINEERING CHEMISTRY

Discipline: MECHANICAL ENGG.	Semester: 2nd	Name of the Teaching Faculty: SWATILEENA SATPATHY
Subject: ENGINEERING CHEMISTRY	No. of days/per week class allotted: 02	Semester From date : 20/03/2023 To date: 27/06/2023 No. of Weeks: 15
Week	Class Day	Theory
1st	1st	Chemical Bonding: Definition, Types, Electrovalent bond: NaCl , $MgCl_2$
	2nd	Covalent Bond wth examples H_2,Cl_2, O_2, N_2, H_2O, CH_4, NH_3
2nd	1st	Coordinatebond : NH_4^+,SO_2
	2nd	Definitions of atomic weight, molecular weight, Equivalentweight
3rd	1st	Determination of equivalent weight of Acid, Base and Salt.
	2nd	Modes of expression of the concentrations (Molarity) With Simple Problems
4th	1st	Modes of expression of the concentrations (Normality& Molality) With Simple Problems
	2nd	pH of solution (definition with simple numerical)
5th	1st	Importance of pH in industry (sugar, textile, paper industries only)
	2nd	Definition of Mineral, ores, gangue with example. Distinction between Ores And Minerals
6th	1st	Steps of Metallurgy : Ore Dressing, Concentration of Ore (Gravity Separation, magnetic separation)
	2nd	Concentration of Ore (Froth floatation & leaching)
7th	1st	Oxidation (Calcinations, Roasting)
	2nd	Reduction (Smelting, Definition & examples of flux, slag)
8th	1st	Refining of the metal (Electro refining, & Distillation only)
	2nd	Definition of alloy. Types of alloys (Ferro, Non Ferro & Amalgam) with example
9th	1st	Composition and uses of Brass, Bronze, Alnico, Duralumin
	2nd	Sources of water, Soft water, Hard water, hardness, types of Hardness (temporary or carbonate and permanent or non-carbonate)
10th	1st	Removal of hardness by lime soda method(hot lime—Principle, process & advantages)
	2nd	Removal of hardness by lime soda method (Cold lime— Principle, process & advantages)
11th	1st	Advantages of Hot lime over cold lime process.
	2nd	Organic Ion exchange method (principle, process, and regeneration of exhausted resins)

12th	1st	Definition of lubricant, Types (solid, liquid and semi solid with examples only)
	2nd	Specific uses of Lubricants (Graphite, Oils, Grease), Purpose of lubrication.
13th	1st	Definition and classification of fuel.
	2nd	Definition of calorific value of fuel, Choice of good fuel.
14th	1st	Liquid: Diesel, Petrol and Kerosene- Composition and uses.
	2nd	Gaseous: Producer gas and Water gas (Composition and uses)
15th	1st	Elementary idea about LPG, CNG and Coal gas (Composition and uses only)
	2nd	Bio Fertilizers: Definition, examples and uses.

20/3/2023

Swatileena Satpathy
Lect. In Chemistry
Govt. Polytechnic Angul

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Discipline: ECHANICAL ENGG.	Semester: 2nd	Name of the Teaching Faculty: TUSHAR RANJAN MOHANTA
ubject: GINEERING HEMISTRY	No.ofdays/Per Week class allotted:02	Semester From date : 20/03/2023 To date:27/06/2023 No.ofWeeks: 15
eek	ClassDay	Theory
1st	1st	Introduction ,Fundamental particles : Electron, Proton& Neutron (mass and charge)
	2nd	Rutherford's Atomic model(Experiment, postulates), Failures of Rutherford's Atomic model
2nd	1st	Atomic mass and mass number, Definition, examples and properties of Isotopes, isobars and isotones, Bohr's atomic model (Postulates only)
	2nd	Bohr-Bury scheme, Aufbau'sprinciple
3rd	1st	Hund'srule, Electronicconfiguration(upto atomic no. 30)
	2nd	Concept of Arrhenius, Bronsted Lowry Theory with examples (Postulates and limitations only).
4th	1st	Lewis theory for acid and base with examples (Postulates and limitations only). Neutralization of acid & base.
	2nd	Types of salts (Normal, acidic, basic, double, complex and mixed Salts, definitions with 2 examples from each).
5th	1st	Definition and types (Strong & weak) of Electrolytes with example. Electrolysis (Principle & process) with example of NaCl (fused and aqueous solution).
	2nd	Faraday's1st law of Electrolysis(Statement, mathematical expression, numerical)
6th	1st	Faraday's 2nd law of Electrolysis (Statement, Mathematical expression, numerical), Industrial application of Electrolysis-Electroplating(Zinc only)
	2nd	Corrosion : Definition & Types, Atmospheric Corrosion
7th	1st	Waterline corrosion. Mechanism of rusting of Iron only. Protection from Corrosion by (i) Alloying and (ii) Galvanization
	2nd	Saturated and Unsaturated Hydrocarbons (Definition with example)
8th	1st	Aliphatic and Aromatic Hydrocarbons (Huckle's rule only). Difference between Aliphatic and aromatic hydrocarbons
	2nd	IUPAC system of nomenclature of Alkane
9th	1st	IUPAC system of nomenclature of Alkane-examples
	2nd	IUPAC system of nomenclature of Alkene
10th	1st	IUPAC system of nomenclature of Alkene-examples
	2nd	IUPAC system of nomenclature of Alkyne
11th	1st	IUPAC system of nomenclature of Alkyne-examples
	2nd	IUPAC system of nomenclature of alkyl halide and alcohol

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	2nd	IUPAC system of nomenclature of alkyl halide and alcohol

12th	1st	Uses of some common aromatic compounds (Benzene, Toluene, BHC, Phenol, Naphthalene, Anthracene and Benzoic acid) in daily life.
	2nd	Definition of Monomer, Polymer, Homo-polymer, Co-polymer and Degree of polymerization.
13th	1st	Difference between Thermosetting and Thermoplastic
	2nd	Composition and uses of Polythene, & Poly-Vinyl Chloride
14th	1st	Composition and uses of Bakelite
	2nd	Definition of Elastomer (Rubber). Natural Rubber (it's draw backs)
15th	1st	Vulcanisation of Rubber. Advantages of Vulcanised rubber over raw rubber.
	2nd	Pesticides: Insecticides, herbicides, fungicides-Examples and uses

Tushar Ranjan Mohanta
Sr. Lect. In Math & Sc. (Chemistry)
Govt. Polytechnic Angul