LESSON PLAN: ENGINEERING CHEMISTRY

Discipline: **MECHANICAL ENGG.**	Semester: **2nd**	Name of theTeachingFaculty: **SwatileenaSatpathy**
Subject: **ENGG. CHEMISTRY**	No.of days/per week class allotted: **02**	Semester From date : 14/03/2022 To date: 18/06/2022 No.of Weeks: 15
Week	**Class Day**	**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's principle
3rd	1st	Hund's rule, Electronic configuration (up to 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	Definitions of atomic weight, molecular weight, Equivalent weight
	2nd	Determination of equivalent weight of Acid, Base and Salt.
6th	1st	Modes of expression of the concentrations (Molarity) with Simple Problems
	2nd	Modes of expression of the concentrations (Normality & Molality) with Simple Problems
7th	1st	pH of solution (definition with simple numerical)
	2nd	Importance of pH in industry (sugar, textile, paper industries only)
8th	1st	Definition of Mineral, ores , gangue with example. Distinction between Ores And Minerals
	2nd	Steps of Metallurgy : Ore Dressing, Concentration of Ore (Gravity Separation, magnetic separation)
9th	1st	Concentration of Ore (Froth floatation & leaching)
	2nd	Oxidation (Calcinations, Roasting)
10th	1st	Reduction (Smelting, Definition & examples of flux, slag)
	2nd	Refining of the metal (Electro refining, & Distillation only)

11th	1st	Definition of alloy. Types of alloys (Ferro, Non Ferro &Amalgam) with example
	2nd	Composition and uses of Brass, Bronze, Alnico, Duralumin
12th	1st	Sources of water, Soft water, Hard water, hardness, types of Hardness(temporary or carbonate and permanent or non-carbonate)
	2nd	Removal of hardness by lime soda method (hot lime—Principle, process &advantages)
13th	1st	Removal of hardness by lime soda method (Cold lime—Principle, process & advantages)
	2nd	Advantages of Hot lime over cold lime process.
14th	1st	Organic Ion exchange method (principle, process, and regeneration of exhausted resins)
	2nd	Definition of lubricants, Types (solid, liquid and semi solid with examples only)
15th	1st	Specific uses of Lubricants (Graphite, Oils Grease), Purpose of Lubrication.
	2nd	Definition of classification of fuel.

19/3/2022

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