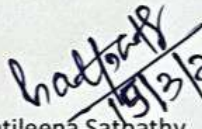


### LESSON PLAN: ENGINEERING CHEMISTRY

Discipline: <b>MECHANICAL ENGG.</b>	Semester: <b>2<sup>nd</sup></b>	Name of the Teaching Faculty: <b>Swatileena Satpathy</b>
Subject: <b>ENGG. CHEMISTRY</b>	No. of days/per week class allotted: <b>02</b>	Semester From date : 14/03/2022 To date: 18/06/2022 No. of Weeks: 15
<b>Week</b>	<b>Class Day</b>	<b>Theory</b>
1 <sup>st</sup>	1 <sup>st</sup>	Introduction, Fundamental particles : Electron, Proton & Neutron (mass and charge )
	2 <sup>nd</sup>	Rutherford's Atomic model ( Experiment, postulates), Failures of Rutherford's Atomic model
2 <sup>nd</sup>	1 <sup>st</sup>	Atomic mass and mass number, Definition, examples and properties of Isotopes, isobars and isotones, Bohr's atomic model (Postulates only)
	2 <sup>nd</sup>	Bohr-Bury scheme, Aufbau's principle
3 <sup>rd</sup>	1 <sup>st</sup>	Hund's rule, Electronic configuration (up to atomic no. 30)
	2 <sup>nd</sup>	Concept of Arrhenius, Bronsted Lowry Theory with examples (Postulates and limitations only).
4 <sup>th</sup>	1 <sup>st</sup>	Lewis theory for acid and base with examples (Postulates and limitations only). Neutralization of acid & base.
	2 <sup>nd</sup>	Types of salts ( Normal, acidic, basic, double, complex and mixed Salts, definitions with 2 examples from each).
5 <sup>th</sup>	1 <sup>st</sup>	Definitions of atomic weight, molecular weight, Equivalent weight
	2 <sup>nd</sup>	Determination of equivalent weight of Acid, Base and Salt.
6 <sup>th</sup>	1 <sup>st</sup>	Modes of expression of the concentrations ( Molarity) with Simple Problems
	2 <sup>nd</sup>	Modes of expression of the concentrations (Normality & Molality) with Simple Problems
7 <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)
8 <sup>th</sup>	1 <sup>st</sup>	Definition of Mineral, ores , gangue with example. Distinction between Ores And Minerals
	2 <sup>nd</sup>	Steps of Metallurgy : Ore Dressing, Concentration of Ore (Gravity Separation, magnetic separation)
9 <sup>th</sup>	1 <sup>st</sup>	Concentration of Ore (Froth floatation & leaching)
	2 <sup>nd</sup>	Oxidation (Calcinations, Roasting )
10 <sup>th</sup>	1 <sup>st</sup>	Reduction (Smelting, Definition & examples of flux, slag)
	2 <sup>nd</sup>	Refining of the metal ( Electro refining, & Distillation only)



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

  
 19/3/2022  
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