

LESSON PLAN : ENGINEERING CHEMISTRY

Discipline: ELECTRICAL ENGG.	Semester : 1st	Name of the Teaching Faculty: TUSHAR RANJAN MOHANTA
Subject: ENGINEERING CHEMISTRY	No. of days/per week class allotted: 04	Semester From date : 25/10/2022 To Date: 31/01/2023 No. of Weeks: 15
Week	Class Day	Theory
1 ST	1 ST	Introduction ,Fundamental particles : Electron, Proton & Neutron (mass and charge) Rutherford's Atomic model (Experiment, postulates)
	2 ND	Failures of Rutherford's Atomic model, Atomic mass and mass number, Definition, examples and properties of Isotopes, isobars and isotones
	3 RD	Bohr's Atomic model (Postulates & drawbacks only), Bohr-Bury scheme
	4 TH	Aufbau's principle, Pauli's Exclusion Principle, Hund's rule, Quantum Numbers
2 ND	1 ST	Electronic configuration (up to atomic no. 30)
	2 ND	Chemical Bonding: Definition, Types, Electrovalent bond: NaCl , MgCl ₂ , Covalent Bond with examples H ₂ ,Cl ₂ .
	3 RD	Covalent Bond (contd.): O ₂ , N ₂ , H ₂ O, CH ₄ , NH ₃ ,Coordinate bond : NH ₄ ⁺ , SO ₂
	4 TH	Concept of Arrhenius, Bronsted Lowry Theory with examples (Postulates and limitations only).
3 RD	1 ST	Concept of Lewis theory for acidand base with examples (Postulates and limitations only). Neutralization of acid & base.
	2 ND	Types of salts (Normal, acidic, basic, double, complex and mixed salts, definitions with 2 examples from each).
	3 RD	Definitions of atomic weight, molecular weight, Equivalentweight
	4 TH	Determination of equivalent weight of Acid, Base ,Salt & Ion.
4 TH	1 ST	Modes of expression of the concentrations (Molarity , Normality) with Simple Problems
	2 ND	Modes of expression of the concentrations (Molality), pH of solution (definition with simple numerical)
	3 RD	Importance of pH in industry (sugar, textile, paper industriesonly), Definition and types of Electrolytes (Strong & weak) withexample.
	4 TH	CLASS TEST
5 TH	1 ST	Electrolysis (Principle & process) with example of NaCl (fused and aqueous solution).
	2 ND	Faraday's 1st law of Electrolysis (Statement, mathematical expression, numerical) Faraday's 2nd law of Electrolysis (Statement, Mathematical expression)
	3 RD	Industrial application of Electrolysis- Electroplating (Zinc only) Corrosion : Defination & Types, Atmospheric Corrosion
	4 TH	Waterline corrosion. Mechanism of rusting of Iron only.Protection from Corrosior by (i) Alloying and (ii) Galvanization

