## LESSON PLAN: ENGINEERING CHEMISTRY

| Discipline: MECHANICAL ENGG. | Semester: 2nd | NameoftheTeachingFaculty:**SWATILEENA SATPATHY** |
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| Subject: ENGINEERING CHEMISTRY | No. of days/per week class allotted:**02** | Semester From date : 20/03/2023 To date:27/06/2023<br>No.ofWeeks: 15 |
| **Week** | **ClassDay** | **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) |

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| 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

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