



DEPARTMENT OF MATHEMATICS AND SCIENCE
ORISSA SCHOOL OF MINING ENGINEERING, KEONJHAR
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LESSONPLAN

Discipline: Metallurgy/Civil/ Mechanical	Semester: 1st semester	Name of the Teaching Faculty: 1) Adyasha Pradhan		
Subject: Chemistry Sub code: TH2b	No of days /week class allotted: 04	Semester from Date: 25-10-21 to 31-01-22 No of weeks: 15		
Week	Class Day	Theory topics	Practical topics	Remarks
1 st	1 st	METALLURGY- Definition of Mineral ,Ore and Gangue particles with examples .	Preparation and study of physical and chemical properties of CO ₂ gas.	
	2 nd	Distinction between minerals and ores a).Ore Dressing	Preparation and study of physical and chemical properties of CO ₂ gas.	
	3 rd		Preparation and study of physical and chemical properties of CO ₂ gas	
	4 th		Preparation and study of physical and chemical properties of CO ₂ gas	
2 nd	1 st	b).Concentration(Gravity separation, magnetic separation)	Preparation and study of physical and chemical properties of NH ₃ gas	
	2 nd	Froth Floatation process and Leaching of ores	Preparation and study of physical and chemical properties of NH ₃ gas	
	3 rd		Preparation and study of physical and chemical study of properties of NH ₃ gas	
	4 th		Preparation and study of physical and chemical properties of NH ₃ gas	
3 rd	1 st	(c).Oxidation(Calcinations and Roasting. d).Reduction(smelting)	Test for carbonate CO ₃ ²⁻ acid radical .	
	2 nd	Definition and example of flux and slag) (e).Refining of the metals (Electro-refining &Distillation)	Test for carbonate CO ₃ ²⁻ acid radical.	
	3 rd		Test for carbonate CO ₃ ²⁻ acid radical.	
	4 th		Test for carbonate CO ₃ ²⁻ acid radical .	

4 th	1 st	ALLOY:- Definition of alloy ,Types of alloy(ferro ,Non-ferro and amalgam)with examples.	Test for Sulphide S^{2-} acid radical .	
	2 nd	Composition and uses of Brass,Bronze, alnico , Duralumin	Test for Sulphide S^{2-} acid radical.	
	3 rd		Test for Sulphide S^{2-} acid radical .	
	4 th		Test for Sulphide S^{2-} acid radical .	
5 th	1 st	.ORGANIC CHEMISTRY- What are Hydrocarbons? Saturated and Unsaturated Hydrocarbons(Definition with example)	Test for chloride Cl^- acid radical.	
	2 nd	Aliphatic and Aromatic Hydrocarbons .Huckel's rule of aromaticity.	Test for chloride Cl^- acid radical .	
	3 rd		Test for chloride Cl^- acid radical .	
	4 th		Test for chloride Cl^- acid radical .	
6 th	1 st	Difference between Aliphatic and Aromatic Hydrocarbons.	Test for nitrate NO_3^- acid radical .	
	2 nd	Brief idea about alkane,alkene and alkyne	Test for nitrate NO_3^- acid radical .	
	3 rd		Test for nitrate NO_3^- acid radical .	
	4 th		Test for nitrate NO_3^- acid radical .	
7 th	1 st	IUPAC system of nomenclature of Alkane , Alkene , Alkyne	Test for sulphate SO_4^{2-} acid radical .	
	2 nd	IUPAC system nomenclature of Alkyl Halide and Alcohol (upto 6 carbons)with bond notation.	Test for sulphate SO_4^{2-} acid radical .	
	3 rd		Test for sulphate SO_4^{2-} acid radical .	
	4 th		Test for sulphate SO_4^{2-} acid radical .	
8 th	1 st	Practice of IUPAC naming by bond line notation	Acidimetry Titration.	
	2 nd	Uses of some common aromatic compounds(Benzene ,Toluene ,BHC , Phenol , Naphthalene , Anthracene and Benzoic acid)	Acidimetry Titration .	
	3 rd		Acidimetry Titration .	
	4 th		Acidimetry Titration .	

	1 st	WATER TREATMENT :- Sources of water , Soft water and Hard water. Types of hardness (carbonate and non-carbonate)	Alkalimetry titration.	
	2 nd	Cold soda lime process –principle .process and advantages.	Alkalimetry titration.	
	3 rd		Alkalimetry titration .	
	4 th		Alkalimetry titration .	
10 th	1 st	Hot soda lime process. Advantages of Hot soda lime process over cold soda lime process.	Test for unknown acid radicals.	
	2 nd	Organic Ion exchange method - principle , process , and regeneration of exhausted resins	Test for unknown acid radicals.	
	3 rd		Test for unknown acid radicals .	
	4 th		Test for unknown acid radicals .	
11 th	1 st	LUBRICANTS:- Definition of Lubricants and types(solid , liquid and semi-solid)	Crystallization of copper sulphate from copper carbonate.	
	2 nd	Specific uses of Graphite , Grease and oils . Purpose of lubrication .	Crystallization of copper sulphate from copper carbonate .	
	3 rd		Crystallization of copper sulphate from copper carbonate .	
	4 th		Crystallization of copper sulphate from copper carbonate .	
12 TH	1 st	FUEL:- Definition of Fuel and its classification. Calorific value of fuel .	LAB PRACTICE.	
	2 nd	Choice of good Fuel. Composition and uses of Diesel, petrol ,kerosene .LPG ,CNG ,Coal gas ,producer gas and water gas.	LAB PRATICE.	
	3 rd		LAB PRACTICE.	
	4 th		LAB PRACTICE.	
13 TH	1 st	POLYMER:- Definition of monomer ,polymer , homo-polymer and co-polymer.Degree of polymerization.	LAB PRACTICE.	
	2 nd	Difference Between Thermosetting and Thermoplastic. Composition and uses of a polythene.	LAB PRACTICE.	
	3 rd		LAB PRACTICE .	
	4 th		LAB PRACTICE.	

14 TH	1 st	Composition and uses of PVC and Bakelite . Elastomer ,Drawbacks of Natural rubber	LAB PRACTICE.	
	2 nd	Vulcanization of rubber. Advantages of Vulcanized Rubber over raw rubber .	LAB PRACTICE .	
	3 rd			
	4 th		LAB PRACTICE .	
15 TH	1 st	Chemicals in agriculture:- Pesticides , Insecticides ,Herbicides ,fungicides .	LAB PRACTICE .	
	2 nd	Bio-fertilizers, uses and examples .	LAB PRACTICE .	
	3 rd		LAB PRACTICE .	
	4 th		LAB PRACTICE .	

Text Books:

- 1.Engg chemistry by Y.R.Sharma and P.Mitra ,Kalyani Publishers .
- 2.Engg chemistry by B.k.Sharma, Krishna Prakashan Media PVT Ltd .

Reference Books:

- 1.Text book of Intermediate chemistry part 1 and part 2 by Nanda, Das , Sharma .
- 2.Engg chemistry for diploma-Dr. R. k. Mohapatra .

PTGF in Chemistry
OSME, Keonjhar

Adyasha Pradhan
Signature of the Faculty

Date: