

KIIT POLYTECHNIC, BHUBANESWAR

LESSON PLAN

Session2022-23

Discipline : Metallurgical Engineering	Semester:5th, Winter/2022	Name of the Faculty:Manas Ranjan Behera Lecturer E-mail Id:mrbeherafmt@kp.kiit.ac.in
Subject:Non Ferrous Metallurgy(Th.5)	No. Days/Week:4	Start date:14/09/2022 End date :21/01/2023
Week	Class Day	Theory Topics
1st	1st	Introduction to the non ferrous ore reserves&industries in India
	2nd	Discussion on non ferrous ore reserves in India
	3rd	Discussion on non ferrous industries in India
	4th	Discussion on possible questionnaire
2nd	1st	Extraction of metals from Oxide ores
	2nd	Extraction of aluminium.
	3rd	Bayer's process of alumina production.
	4th	Fused salt electrolysis of alumina by Hall Heroult process.
3rd	1st	Discussion about anode effect.
	2nd	Method of refining of aluminium.
	3rd	Uses of aluminium.
	4th	Discussion on possible questionnaire
4th	1st	Extraction of Tin
	2nd	Explanation of the process of tin ore concentration.
	3rd	Explanation of the process of concentrate smelting for tin extraction.
	4th	Process of refining of tin
5th	1st	Uses of tin
	2nd	Quiz test
	3rd	Extraction of metals from sulphide Ores.
	4th	Pyrometallurgical extraction of Copper
6th	1st	Process of roasting of copper ore.
	2nd	Process of matte smelting of copper ore.
	3rd	Process of converting of copper matte.
	4th	Refining of copper.

7th	1st	Uses of copper.
	2nd	Pyrometallurgical extraction of Lead
	3rd	Rosting and sintering of lead ore.
	4th	Extraction of lead by blast furnace smelter
8th	1st	Refining of base bullion
	2nd	Pyrometallurgical and Hydrometallurgical extraction of zinc
	3rd	Roasting of zinc ore concentrate.
	4th	Extraction of zinc by vertical retort process.
9th	1st	Refining of zinc
	2nd	Process of leaching and preparation of zinc base solution.
	3rd	Electrolysis of zinc solution
	4th	Uses of zinc.
10th	1st	Pyrometallurgical method of Nickel extraction.
	2nd	Roasting of nickel ore
	3rd	Smelting of nickel concentrate.
	4th	Refining of nickel
11th	1st	Uses of nickel
	2nd	Quiz test
	3rd	Extraction of metals from Halides.
	4th	Extraction of Titanium
12th	1st	Concentration of titanium ore
	2nd	Treatment given to titanium ore
	3rd	Process of chlorination and magnesium reduction for titanium extraction.
	4th	Process of refining of titanium.
13th	1st	Uses of titanium.
	2nd	Discussion on possible questionnaire
	3rd	Introduction to extraction of precious metals.
	4th	Extraction of gold
14th	1st	Process of cyanidation for gold extraction.
	2nd	Uses of gold
	3rd	Production of Secondary metals
	4th	Process of production of copper and lead from scraps
15th	1st	Process of production of zinc and aluminium from scraps
	2nd	Discussion on previous year's questions

	3rd	Practice test
	4th	Practice test

Recommended books: 1.Extraction of non ferrous metals by Ray,Sridhar&Abraham

2. Non ferrous production metallurgy by Bray J.L