

PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH



LESSON PLAN Session-2022-2023

Discipline: Metallurgical Engineering Engg. Semester: 5th

Name of the Teaching Faculty: Anadi Charan Jena

Subject: NFMNo. of Days/per week class allotted 04Semester From Date: 15-9-22 To Date: 22-12-22 No. of Weeks: 15

Week	Class Day	Theory / Practical Topics
1st	1st Topic-1	Non ferrous Minerals and ores
	2nd	Mineral resources of India
	3rd	Non-ferrous Industries in India
	4th Topic-2	Introduction to Metal extraction from oxides
2nd	1st	Extraction of Aluminium
	2nd	Bayer's Process (Alumina Production)
	3rd	Flow sheet of Bayer's process.
	4th	Factors affecting Bayer's process
3rd	1st Topic-2	Hall-Heroult Process
	2nd	Synthesis of Cryolite
	3rd	Electrolytic reduction cell
	4th	Anode effect.

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Signature of the Faculty

Subject: NFM No. of Days/per week class allotted 04

Semester From Date: 15.9.22 To Date: 22.12.22 No. of Weeks: 15

Week	Class Day	Theory /Practical Topics
4th	1st	Refining of Aluminium
	2nd Topic-2	concentration of Tin ore
	3rd	Smelting of tin concentrate
	4th	Refining of Tin.
5th	1st	Refining of Tin (Cont.)
	2nd	Uses and applications of tin
	3rd Topic-3	Roasting of Copper ore
	4th	Smelting of Copper ore.
6th	1st	Conversion of Copper Matte.
	2nd	Refining of Copper
	3rd	Refining (contd.) and uses
	4th	Roasting and Sintering of Lead.

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Subject: NFM No. of Days/per week class allotted 4

Semester From Date: 15.9.22 To Date: 22.12.22 No. of Weeks: 15

Week	Class Day	Theory/Practical Topics
7th	1st	Blast furnace Smelting of Lead ore
	2nd	contd.
	3rd	Refining of Base Bullion
	4th	Uses and applications of Lead.
8th	1st	Roasting of Zinc ore
	2nd	Hydrometallurgy of Zinc
	3rd	Zinc extraction by Vertical Retort Process.
	4th	Refining of Zinc
9th	1st	Process of Leaching, Electrolysis, uses
	2nd	Smelting of Nickel concentrate
	3rd	Nickel ore roasting
	4th	Refining of Nickel and uses.


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Subject: NFM No. of Days/per week class allotted 04

Semester From Date: 15.9.22 To Date: 22-12-22 No. of Weeks: 15

Week	Class Day	Theory /Practical Topics
10 th	1st Topic-4	Extraction of metals from halides
	2nd	Extraction of Titanium
	3rd	Treatment of Titanium ores
	4th	Chlorination and reduction of titanium
11 th	1st	Distillation process
	2nd	Distillation (contd.)
	3rd	various process of Refining
	4th	Production of titanium sponge
12 th	1st	Hunter and Kroll process
	2nd	uses and applications of titanium
	3rd	Introduction to Precious metals
	4th	Properties and uses of Precious metals


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Week	Class Day	Theory /Practical Topics
13 th	1 st	Extraction of Gold.
	2 nd	Flow sheet of Gold extraction, uses.
	3 rd	Extraction of platinum group metals.
	4 th Topic-6 Topic-6	Extraction of Silver, uses (Production of Secondary metals).
14 th	1 st Topic-6	Production of Secondary metals (Contd.)
	2 nd	Recovery of Copper from Scrap.
	3 rd	Recovery of Lead from Scrap.
	4 th	Flow sheet of Cathode Copper production.
15 th	1 st	Lead recovery from battery Scrap.
	2 nd	Secondary Zinc production.
	3 rd	Recovery of Aluminium from Redmud.
	4 th	Secondary steel production.



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