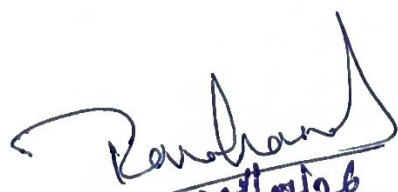


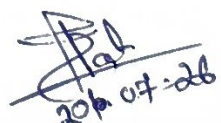
LESSON PLAN FOR ACADEMIC SESSION: 2026-27 (WINTER)

Discipline: Metallurgical Engineering	Semester : 3rd	Name of the Teaching Faculty : Amarjit Mohanta
Subject : Mineral Processing	No. of days / week class allotted : 03	Semester From : 01/07/2026 to 05/11/2026
		Nos. of Weeks per semester : 15
Week	Class Day	Theory Topics
1 ST	1 st	Definition and importance , Role in the metallurgy industry , Various mineral resources of India
	2 nd	Mineral and Ore
	3 rd	Types of Ores Metallic ores (e.g., iron, copper, gold) , Non-metallic ores (e.g., limestone, phosphate)
2 ND	1 st	Scope and objective of Ore dressing
	2 nd	Different physical and chemical property of ore with their application to mineral dressing
	3 rd	Importance of Comminution in mineral processing
3 RD	1 st	Importance of Comminution in mineral processing
	2 nd	Mechanisms of size reduction
	3 rd	Mechanisms of size reduction
4 TH	1 st	Blake jaw Crusher
	2 nd	Blake jaw Crusher
	3 rd	Dodge jaw Crusher
5 TH	1 st	Dodge jaw Crusher
	2 nd	Roll crusher
	3 rd	Angle of Nip , capacity and reduction ratio of crusher
6 TH	1 st	Angle of Nip , capacity and reduction ratio of crusher
	2 nd	Laws of Crushing
	3 rd	Ball mill operation
7 TH	1 st	Open circuit grinding
	2 nd	Close circuit grinding
	3 rd	Sizing & Concentration Methods
8 TH	1 st	Ro-tap Sieve Shaker Particle size analysis
	2 nd	Basic fundamentals & principle of jigging
	3 rd	Operations and application of wilfley table
9 TH	1 st	Principle of heavy media separations
	2 nd	Industrial process using heavy liquid

	3 rd	Du - Pont process
10 TH	1 st	Chance process
	2 nd	Principle of froth flotation
	3 rd	Practical utility of frother
11 TH	1 st	Collector
	2 nd	Modifier
	3 rd	Activators
12 th	1 st	Depressant without physic – chemical Principle
	2 nd	Magnetic Separator
	3 rd	Electrostatic Separator
13 th	1 st	Two Drum Ball-Norton Wet magnetic separator
	2 nd	High Tension or Huff's Electrostatic separation
	3 rd	Class Test
14 th	1 st	Revision
	2 nd	Advanced Comminution Techniques: High-Pressure Grinding Rolls (HPGR), Ultra-Fine Grinding (UFG)
	3 rd	Microwave-Assisted Comminution, Advanced Gravity Separation Techniques: Multi-Gravity Separator (MGS)
15 th	1 st	Advanced Flotation Techniques: Microbubble & Nanobubble Flotation, Magnetic & Electrostatic Separation
	2 nd	High-Intensity Magnetic Separation (HIMS) Sustainable & Eco-Friendly Mineral Processing: Dry Beneficiation Technique, Zero-Waste Processing
	3 rd	Revision


Prepared by
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28/07/26
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20/07/26
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