

GOVERNMENT POLYTECHNIC JAJPUR
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DEPARTMENT OF METALLURGY

Discipline: Metallurgy	Semester: 3rd	Name of the Teaching faculty: P ARADHANA
Subject: mineral processing	No of Days/Week class allotted: 3	Semester from Date: 14/7/25 To Date: 15/11/25 No of weeks: 17
Week	Class Day	Topics
1st	1 st	Role in the metallurgy industry
	2 nd	Various mineral resources of India
	3 rd	Mineral and Ore , Types of Ores
2nd	1 st	Metallic ores & Non-metallic ores
	2 nd	scope and objective of Ore dressing
	3 rd	Different physical and chemical property of ore with their application to mineral dressing
3rd	1 st	Importance of Comminution in mineral processing
	2 nd	Mechanisms of size reduction,
	3 rd	Blake jaw Crusher
4th	1 st	Blake jaw Crusher
	2 nd	Dodge jaw Crusher
	3 rd	Dodge jaw Crusher
5th	1 st	Roll crusher & angle of Nip
	2 nd	Roll crusher & angle of Nip
	3 rd	capacity and reduction ratio of crusher
6th	1 st	capacity and reduction ratio of crusher
	2 nd	Laws of Crushing
	3 rd	Laws of Crushing
7th	1 st	Ball mill operation
	2 nd	Ball mill operation
	3 rd	open circuit grinding
8th	1 st	open circuit grinding
	2 nd	close circuit grinding
	3 rd	close circuit grinding
9th	1 st	Ro-tap Sieve Shaker Particle size analysis
	2 nd	Particle size analysis
	3 rd	Basic fundamentals & principle of jigging
10th	1 st	Basic fundamentals & principle of jigging
	2 nd	operations and application of wilfley table
	3 rd	operations and application of wilfley table
11th	1 st	principle of heavy media separation
	2 nd	heavy media separation
	3 rd	industrial process using heavy liquid and heavy suspensions
12th	1 st	Du - Pont process

	2 nd	Chance process
	3 rd	Principle of froth flotation practical utility of frother, collector, modifier, activators, depressant
13th	1 st	practical utility of frother, collector, modifier, activators, depressant
	2 nd	Magnetic separator
	3 rd	Magnetic separator
14th	1 st	Electrostatic separator
	2 nd	Electrostatic separator
	3 rd	High-Pressure Grinding Rolls (HPGR)
15th	1 st	Ultra-Fine Grinding (UFG)
	2 nd	Microwave-Assisted Comminution
	3 rd	Multi-Gravity Separator (MGS)
16th	1 st	Microbubble & Nanobubble Flotation
	2 nd	High Intensity Magnetic Separation (HIMS)
	3 rd	Sustainable & Eco-Friendly Mineral Processing
17th	1 st	Zero-Waste Processing
	2 nd	Revision
	3 rd	Revision


 14/7/25
 Lect. Metallurgy