

SYNERGY POLYTECHNIC, BHUBANESWAR
(DEPARTMENT OF MINING ENGINEERING)
(LESSON PLAN 3RD SEM, 2025-26)

Discipline: Mining Engr.	Semester: 3rd	Name of the Teaching Faculty: Amarnath Gond
Subject: S. M. T (Th-1)	No of days/per week class allotted: 3	Semester from Date: 14.7.25 to Date: 11.11.25 No of weeks:
Week	Class/ Day	Theory/ Practical Topics
1 st	1 st	Explain the concepts of choice of Opencast Mining.
	2 nd	Define Mine, Mining, Mineral, Ore, tenor, and mining engineering.
	3 rd	Explain Surface Mining & State factors affecting choice of Open casting Mining method.
2 nd	1 st	Define stripping ratio and classify various stripping ratio.
	2 nd	-do-
	3 rd	Explain basic concept affecting stripping ratio in Opencast mines.
3 rd	1 st	State favorable conditions for mechanized Opencast Mines
	2 nd	-do-
	3 rd	Define Box cut and its type. Determine the location of Box cut.
4 th	1 st	-do-
	2 nd	Define quarriable limit, State advantages and disadvantages surface mining
	3 rd	Determine bench parameters. Objective of benching in opencast mining. Factor affecting height, width of bench.
5 th	1 st	-do-
	2 nd	-do-
	3 rd	Define slope stability. Factors affecting slope stability.
6 th	1 st	-do-
	2 nd	Types of slope failure. Causes and prevention of slope failure.
	3 rd	-do-
7 th	1 st	Define explosive, state constituents of explosives, properties and characteristics of explosives,
	2 nd	-do-
	3 rd	Classify explosives, state composition and uses of explosives.

Ang 11/07/25
 Sign of Faculty

T. Beh
 11/07/25
 Head of Dept.

Johu
 11/7/25
 Principal

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Week	Class/ Day	Theory/ Practical Topics
8 th	1 st	Explain PMS and SMS Define permitted explosive and classify permitted explosive
	2 nd	Explain sheathed, equivalent sheathed and ultra-safe explosive.
	3 rd	State properties of permitted explosives, State composition and constructional features of safety fuse.
9 th	1 st	-do-
	2 nd	State properties of detonating fuse, detonating relay, igniter cord, nonel and raydet.
	3 rd	-do-
10 th	1 st	Describe different types of detonators and uses, state advantages of delay detonators.
	2 nd	State different types of exploders, its construction and safety features.
	3 rd	Describe circuit tester stemming rod, crack detector knife, crimper.
11 th	1 st	-do-
	2 nd	Explain different drilling methods and blasting practices in Mines
	3 rd	Different types of drilling used in surface mining.
12 th	1 st	Explain different principles and methods of exploratory drilling in surface mining.
	2 nd	State different types of drill machine used in Opencast mining
	3 rd	-do-
13 th	1 st	Describe simple constructional features of churn drill, drills master, wagon drill and jack hammer,
	2 nd	-do-
	3 rd	-do-
14 th	1 st	State D.T.H, Describe different types of drill bits in drilling.
	2 nd	Define Conventional Blasting. Describe preparation of charge.
	3 rd	State procedure of firing shots. Direct and inverse initiation, stemming materials, water ampoules, wiring and firing of explosive.

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B. J. S. 11/7/25
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15 th	1 st	State and describe pre-splitting, cushion blasting, muffle blasting
	2 nd	State and describe coyote hole blasting, chambered hole blasting,
	3 rd	State and describe directional blasting, Electronics Blasting System (EBS).
16 th	1 st	Describe layout and arrangement of different types of magazines, state their safety features
	2 nd	-do-
	3 rd	-do-

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H. B. S. H.
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S. P. S. H.
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