

Lesson plan 2023-24

Discipline: MINING ENGG	Semester: 3rd	Name of the Teaching Faculty: Mr. Binay Mohapatra
Subject: SURFACE MINING TECHNOLOGY	No. of Days/per week class allotted: 4	Semester From Date: 1-9-23 To Date: 9-12-23 No. of Weeks: 15
Week	Class Day	Theory/Practical Topics
1 st	01	State factors affecting choice of open casting mining methods.
	02	Briefly explain stripping ratio.
	03	Determination of over burden
	04	Cutoff stripping ratio
2 nd	01	Determination of quarriable limits.
	02	Favorable condition for mechanized open cast mines.
	03	Limitation of large open pits
	04	Define box cut and determine the location of box cut
3 rd	01	Basic planning process
	02	Revision and class test
	03	Formation of benches.
	04	Determine bench parameters- height, width and slope.
4 th	01	Advantages and limitations with larger height benches.
	02	Determine length of bench for overburden and ore.
	03	Revision and doubt clearing class.

Lesson plan 2023-24

	04	Explain slope stability.
5 th	01	Factors affecting slope stability.
	02	Types of slope stability.
	03	Causes and prevention of slope stability.
	04	Spoil dump slope stability.
6 th	01	Define explosive and state constituents of explosives.
	02	Properties and characteristics of explosives.
	03	Classify explosives, state composition and uses of explosives.
	04	Explain PMS and SMS.
7 th	01	Define permitted explosive and classify permitted explosive.
	02	Explain sheathed, equivalent sheathed and ultra safe explosive.
	03	State properties of permitted explosives.
	04	State composition and constructional features of safety use, detonating fuse, detonating relay, igniter code and nonel.
8 th	01	Describe different types of detonators and uses, state advantages of delay detonators.
	02	State different types of exploders, its construction and safety features, circuit tester.
	03	Describe stemming rod, crack detector knife, crimper.
	04	Explain different principles and methods of exploratory drilling in surface mining.
9 th	01	State different types of drill used in opencast mining.
	02	Describe constructional features of churn drill, drill master, wagon drill and jack hammer.
	03	State down the hole drills: advantages and disadvantages and its uses.
	04	Describe Hydraulic feed arrangement.

Lesson plan 2023-24

10 th	01	Describe different types of drill bits in drilling.
	02	Improvement of life of drill bits and drill rods.
	03	Revision and doubt clearing class.
	04	Describe preparation of charge.
11 th	01	State procedure of firing shots, direct and inverse initiation, stemming materials.
	02	State procedure of water ampoules and cushion firing.
	03	Explain blasting efficiency.
	04	State and describe plaster shooting and pop shooting.
12 th	01	Describe toe blasting.
	02	Priming: making of primer.
	03	Loading, guarding, checking, stemming, blasting, etc.
	04	Explain controllable and uncontrollable variables.
13 th	01	Explain air decking with gas bag.
	02	Revision class.
	03	Explain controlled blasting techniques.
	04	State and describe pre-splitting, cushion blasting.
14 th	01	Describe muffle blasting, coyote hole blasting.
	02	Describe chambered hole blasting, directional blasting.
	03	State and describe electronics blasting system (EBS).
	04	Explain multideck in-hole delay blasting.
15 th	01	Describe layout and arrangement of different types of magazines.
	02	State safety features of magazines.
	03	Magazine Storage and Use Permit
	04	Revision and class test.