

GOVERNMENT POLYTECHNIC JAJPUR

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DEPARTMENT OF MINING ENGINEERING

LESSON PLAN

Discipline: MINING	Semester: 3rd	Name of the Teaching faculty: Sarat Chandra Biswal
Subject: Surface Mining Technology	No of Days/Week class allotted: 4	Semester from Date: 1/9/20 To Date: 1/3/21 No of weeks: 16
Week	Class Day	Topics
1st	1st	State factors affecting choice of Open casting Mining method.
	2nd	Define stripping ratio.
	3rd	Determine overburden/ore ratio.
	4th	Find out cut off stripping ratio.
2nd	1st	Determine quarriable limit.
	2nd	State favorable conditions for mechanized Opencast Mines.
	3rd	State limitations of large open pits.
	4th	Define Box cut
3rd	1st	Determine the location of Box cut.
	2nd	Determine bench parameters- height, width & slope.
	3rd	Determine bench parameters- height, width & slope.
	4th	Determine length of bench for overburden and ore
4th	1st	Define slope stability.
	2nd	Factors affecting slope stability.
	3rd	Types of slope stability.
	4th	Types of slope stability.
5th	1st	Causes and prevention of slope stability.
	2nd	Define explosive, state constituents of explosives.
	3rd	Properties & characteristics of explosives.
	4th	Explain PMS and SMS.
6th	1st	Explain PMS and SMS.
	2nd	Define permitted explosive
	3rd	classify permitted explosive.
	4th	CLASS TEST 1, Previous year questions, quiz test
7th	1st	Explain sheathed, equivalent sheathed
	2nd	ultra safe explosive.
	3rd	State properties of permitted explosives.
	4th	State composition & constructional features of safety fuse,
8th	1st	detonating fuse, detonating relay, igniter cord, nonel and raydet.
	2nd	Describe different types of detonators
	3rd	uses & advantages of delay detonators.
	4th	State different types of exploder.
	1st	construction and safety features, circuit tester.

9th	2nd	Describe stemming rod, crack detector knife, crimper.
	3rd	Describe stemming rod, crack detector knife, crimper.
	4th	Explain different principles and methods of exploratory drilling in surface mining.
10th	1st	principles and methods of exploratory drilling in surface mining.
	2nd	State different types of drill used in Opencast mining.
	3rd	State different types of drill used in Opencast mining.
	4th	Describe simple constructional features of churn drill.
11th	1st	drills master
	2nd	wagon drill
	3rd	jack hammer.
	4th	State D.T.H..
12th	1st	Describe different types of drill bits in drilling
	2nd	Describe different types of drill bits in drilling
	3rd	Describe preparation of charge.
	4th	CLASS TEST 2, Previous year questions, quiz
13th	1st	State procedure of firing shots.
	2nd	direct and inverse initiation.
	3rd	stemming materials.
	4th	water ampoules, cushion firing.
14th	1st	Define blasting efficiency.
	2nd	State and describe plaster shooting and pop shooting, toe blasting.
	3rd	State and describe plaster shooting and pop shooting, toe blasting.
	4th	State and describe pre-splitting,
15th	1st	cushion blasting,
	2nd	muffle blasting, coyote hole blasting,
	3rd	chambered hole blasting, directional blasting,
	4th	Electronics Blasting System (EBS) .
16th	1st	Describe layout and arrangement of different types of magazines
	2nd	state their safety features.
	3rd	previous year question discussion
	4th	Previuos year questions, quiz

Learning Resources:		
Sl. No.	Title of the Book	Name of Authors
1	Surface Mining Technology	S.K. DAS
2	Blasting Manuals	Sandhu & Pradhan
3	Blasting Practices in Mines	S.K. DAS
4	EMT VOL I	D.J. DESHMUKH
5	Surface Mining	G.B. Mishra
6	SME Handbook	

Sardar. Mr. Biswal.

Signature of Faculty