



GOVERNMENT POLYTECHNIC DARLIPALI, SUNDARGARH

ସରକାରୀ ବହୁବୃତ୍ତି ଅନୁଷ୍ଠାନ ଦଲିପାଲି, ସୁନ୍ଦରଗଡ଼

GOVERNMENT OF ODISHA | ଓଡ଼ିଶା ସରକାର

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LESSON PLAN

Discipline: MINING ENGINEERING			Semester: 3rd		Name of the Teaching faculty: Ghanshyam Dhurua
Subject: Surface Mining Technology Subject Code: MIEPC201 (TH:1)			No of Days/Week class allotted: 3		Semester from Date: 14/7/2025 to 15/11/2025 No of weeks: 18 No. of Period Available: 47
Month	Week	No of periods available	Class Day	Unit	Theory topics to be covered
JULY	1st	3P	1	I. Choice of Opencast Mining	Introduction to syllabus & Subject
			2		Define Mine, Mining, Mineral, Ore, tenor, and mining engineering. Classify Surface Mining. State
			3		factors affecting choice of Open casting Mining method, Define stripping ratio and classify various stripping ratio, factor affecting stripping ratio.
	2nd	3P	1	II. Benching & Slope stability	Define quarriable limit, State favorable conditions for mechanized Opencast Mines, State advantages and disadvantages surface mining, Define Box cut and its type. Determine the location of Box cut.
			2		Benching: Determine bench parameters. Objective of benching in opencast mining. Factor affecting height, width of bench
			3		Slope Stability: Define slope stability. Factors affecting slope stability. Types of slope failure. Causes and prevention of slope failure.
3rd	3P	1	III. Explosive and blasting accessories	Class test-1	
		2		Define explosive, state constituents of explosives, properties and characteristics of explosives.	
		3		Classify explosives, state composition and uses of explosives.	
AUGUST	4th	3P	1		Explain PMS and SMS Define permitted explosive.
			2		classify permitted explosive. Explain sheathed, equivalent sheathed and ultra-safe explosive.
			3		Explain sheathed, equivalent sheathed and ultra-safe explosive.

	5th	2P	1		State properties of permitted explosives
			2		State composition and constructional features of safety fuse, detonating fuse.
	6th	3P	1		Detonating relay, igniter cord, nonel and raydet.
			2		Describe different types of detonators and uses, state advantages of delay detonators.
			3		State different types of exploder, its construction
	7th		1		State different types of exploder, its construction and safety features.
			2		Class test-2
SEPTEMBER	8th	2P	1	IV. Drilling & blasting practices in mines	Describe circuit tester stemming rod, crack detector knife, crimper.
			2		Describe circuit tester stemming rod, crack detector knife, crimper.
	9th	3P	1		Different types of drilling used in surface mining.
			2		Explain different principles and methods of exploratory drilling in surface mining,.
			3		State different types of drill machine used in Opencast mining.
	10th	3P	1		State different types of drill machine used in Opencast mining.
			2		Describe simple constructional features of churn drill.
			3		Describe simple constructional features of drills master
	11th	3P	1		Describe simple constructional features of drills master wagon drill.
			2		1st Internal assesment
			3		Describe simple constructional features of drills master wagon drill. jack hammer.
	12th	1P	1		State D.T.H, Describe different types of drill bits in drilling.
OCTOBER	13th	2P	1	Define Conventional Blasting.	
			2	Describe preparation of charge. State procedure of firing shots.	
	14th	3P	1	Direct and inverse initiation,	
			2	Stemming materials, water ampoules,	
			3	Wiring and firing of explosive. Define blasting efficiency.	
	15TH	2P	1	State and describe plaster shooting and pop shooting, toe blasting	
			2	State and describe pre-splitting.	
16TH	3P	1	State and describe cushion blasting.		
		2	State and describe muffle blasting, coyote hole blasting,		
		3	2nd Internal assesment		
NOVEMBER	17TH	3P	1	V. Controlled Blasting Techniques as per statutory provision	State and describ chambered hole blasting, directional blasting, Electronics Blasting System (EBS).

		2	& Magazines	Magazines: Describe layout and arrangement of different types of magazines, state their safety features.
		3		VST-1
18TH	3P	1		VST-2
		2		Revision & Previous year question & answer discussion
		3		Revision & Previous year question & answer discussion


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