

GOVERNMENT POLYTECHNIC JAIPUR
DEPARTMENT OF MINING ENGINEERING
LESSON PLAN

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| Discipline: MINING | Semester: 3rd | Name of the Teaching faculty: Soumya Ranjan Samal |
| Subject: Surface Mining Technology | No of Days/Week class allotted: 4 | Semester from Date: 15/09/22 To Date: 22/12/22 No of weeks: 15 |
| 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 length of bench for overburden and ore |
| | 4th | Define slope stability. |
| 4th | 1st | Factors affecting slope stability. |
| | 2nd | Types of slope stability. |
| | 3rd | CLASS TEST-I |
| | 4th | Causes and prevention of slope stability. |
| 5th | 1st | Define explosive, state constituents of explosives. |
| | 2nd | Properties & characteristics of explosives. |
| | 3rd | Explain PMS and SMS. |
| | 4th | Define permitted explosive |
| 6th | 1st | Explain sheathed, equivalent sheathed |
| | 2nd | ultra safe explosive. |
| | 3rd | State properties of permitted explosives. |
| | 4th | State composition & constructional features of safety fuse, |
| 7th | 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. |
| 8th | 1st | construction and safety features, circuit tester. |
| | 2nd | INTERNAL-1 |
| | 3rd | Describe stemming rod, crack detector knife, crimper. |
| | 4th | Explain different principles and methods of exploratory drilling in surface mining. |
| 9th | 1st | principles and methods of exploratory drilling in surface mining. |
| | 2nd | State different types of drill used in Opencast mining. |

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| 9th | 3rd | Describe simple constructional features of churn drill. |
| | 4th | drills master |
| 10th | 1st | wagon drill |
| | 2nd | jack hammer. |
| | 3rd | State D.T.H.. |
| | 4th | Describe different types of drill bits in drilling |
| 11th | 1st | Describe preparation of charge. |
| | 2nd | State procedure of firing shots. |
| | 3rd | direct and inverse initiation. |
| | 4th | stemming materials. |
| 12th | 1st | CLASS TEST-II |
| | 2nd | water ampoules, cushion firing. |
| | 3rd | Define blasting efficiency. |
| | 4th | State and describe plaster shooting and pop shooting, toe blasting. |
| 13th | 1st | State and describe pre-splitting, |
| | 2nd | cushion blasting, |
| | 3rd | muffle blasting, coyote hole blasting, |
| | 4th | chambered hole blasting, directional blasting, |
| 14th | 1st | Electronics Blasting System (EBS) . |
| | 2nd | state their safety features. |
| | 3rd | INTERNAL-2 |
| | 4th | Describe layout and arrangement of different types of magazines |
| 15th | 1st | REVISION/DOUBT CLEARING CLASS |
| | 2nd | REVISION/DOUBT CLEARING CLASS |
| | 3rd | REVISION/DOUBT CLEARING CLASS |
| | 4th | REVISION/DOUBT CLEARING CLASS |

Signature of Faculty