

AMMI-7 SURFACE MINING

UNIT-1 INTRODUCTION

- 1.1 General consideration for the applicability of opencast mining, limits of open cast mining and its advantages and disadvantages.
- 1.2 Method of opening box cut, selection of site for box cut.

UNIT-2 OPENCAST MINE

- 2.1 How the removal of overburden is taking place, and how the overburden is removed from the site to Overburden Dump Area. .
- 2.2 What is bench height, Width and slope angle and factors affecting slope stability?
- 2.3 Various types of slope failures and Ground Water control.

UNIT-3 OPEN PIT LAYOUT AND DESIGN

- 3.1 Planning the layout and open pit mine with special reference to large mechanized mines. Optimum dimensions of open pit mines.
- 3.2 Removal of over burden and disposal, open cast bench- number, height, width and slope angle of the bench. Factors affecting the stability of the slope.
- 3.3 Various types of slope failures, problems on slope failures. Ground water control.

UNIT-4 DRILLING AND BLASTING

- 4.1 Drillability, mechanics of drilling, major types of drilling machines,
- 4.2 Basics of mechanics of blasting, principles of fragmentation.

UNIT-5 DESIGN OF BLASTING

- 5.1 With special reference to heavy blasting, air blasting, ground vibrations,
- 5.2 Fly rocks novel methods of drilling, smooth blasting and pre-splitting.

UNIT-6 SURFACE MINING METHODS

- 6.1 Casting, strip, quarrying and Placer Mining, and Modern Methods Excavation and loading:
- 6.2 Shovels, Dragline, Front-end loader, Stackers, Graders.
- 6.3 Non-Cyclic Surface Mining: Bucket Wheel Excavators and Continuous surface miners.

UNIT-7 TRANSPORT EQUIPMENTS

- 7.1 Dumpers, Aerial ropeways-monocable and bicable types and their constructional details.
- 7.2 Shovel- dumper combination, high angle conveyor and in-pit crusher.
- 7.3 Selection of equipment's.

Reference Books:

1. Elements of Mining Technology, Vol. – I, D. J. Deshmukh, 6th Edition, Central Techno Publications, Nagpur, 1998.
2. Latest Development of Heavy Earth Moving Machinery Amithosh De, Annapurna Publishers, Dhanbad, 1995.