

AMMS02 ELEMENTS OF MINING

UNIT-1 INTRODUCTION TO MINING ENGINEERING AND OPENING UP OF DEPOSITS

- 1.1 Introduction to mining engineering:
- 1.2 Significance to mining industry in national economy and infrastructure building,
- 1.3 Basic mining terminologies, geo-technical investigations,
- 1.4 Classification of mining methods, selection criteria for underground or opencast mining methods.
- 1.5 Opening up of deposits: Types, size and location of entries into underground coal and other minerals.

UNIT-2 SHAFT SINKING OPERATION, SPECIAL AND MECHANIZED METHODS OF SHAFT SINKING

UNIT-3 DEVELOPMENT OF WORKINGS

- 3.1 Development of workings:
- 3.2 Drivage of cross cuts, drifts, inclines and raises by conventional and mechanized methods.
- 3.3 Arrangements for ventilation, supports, lighting, transportation and drainage;
- 3.4 Drilling patterns for underground coal mines and hard rock mines.

UNIT-4 MINE SUPPORTS

- 4.1 Types of support: timber, prop, chock/cog, cross bar, concrete, steel and hydraulic supports.
- 4.2 Yielding and rigid supports.
- 4.3 Fore poling, roof stitching, roof bolting, applicability, advantages and limitations of various supports.

UNIT-5 TUNNELING METHODS

- 5.1 Conventional method: drilling and blasting method, types of drill patterns, blasting and transportation of muck.
- 5.2 Mechanized method: construction and working principle of tunnel boring machine, applicability, advantages and limitations of tunnel boring machine.
- 5.3 Shield tunneling method: construction and working principle, applicability, advantages and limitations.

References Books:

- 1 “Universal mining school volumes” Cardiff Gt.Britain, 1931.
- 2 Winning and working by B.Ghosh.
- 3 Advances in Drilling & Blasting by V.R.Sastry.
- 4 Drilling & Blasting by Carlos Lopez Jimeno.
- 5 Workshop on New Development in Mining Machinery.