

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN MINING ENGINEERING

SEMESTER: V

Subject Name: **Mining -II**

Sr. No.	Course Content
1.	<p>Shaft Sinking:</p> <p>1.1 Introduction Vertical stapling inclined shafts, Shapes & size of a shaft, Selection of site for shafts.</p> <p>1.2 Sinking operation: Through normal/coal measures strata,Bore hole patterns of blasting, rock/muck Disposal methods from underground & surface,Transport of men - material & rock/muck. Dealing with water during sinking, bucketing, pumping, etc, Providing ventilation in sinking shafts to remove explosive fumes & strata - gases.</p> <p>1.3 Support of shaft sides: Support of shaft sides, Temporary and permanent lining, Scaffolding, etc.</p> <p>1.4 Safety in shaft sinking: Safety aspects of shaft sinking.</p> <p>1.5 Special methods of shaft sinking: Pilling, Drop shaft caission, Cementation, Freezing, etc.</p> <p>1.6 Misellaneous: Mechanised sinking, Sinking upwards, Widening & deepening of shafts, Shaft centering for vertical shafts, Directions & gradient maintenance of inclined shafts.</p>
2.	<p>Drift Driving/Tunneling:</p> <p>2.1 Connecting different levels, Horizons, mineral bodies, Crossing fault, Dykes folds, washouts to establish continuity connections for purpose of transport, Traveling, Ventilation, etc., Blasting hole patters, Rock disposal transport, ventilation, pumping, etc.,During, Tunnelling.</p> <p>2.2 Support of drift/Tunnels.</p> <p>2.3 Safety aspects.</p> <p>2.4 Mechanised tunneling.</p>
3.	<p>Support of Roof, Sides & Floor Control in Mines:</p> <p>3.1 Properties of various types of roof, testing of roof, Materials used for support in mines, Classification of supports.</p> <p>3.2 Seasoning of timber, preservation of timer, setting of prop Bars, cogs, side support, fore polling, Roof bolts.</p> <p>3.3 Support of roadway, roadway junction, Clearing up of heavy roof fall, Withdrawal of support.</p> <p>3.4 Yielding type of support and Hydraulic supports</p> <p>3.5 Roof bolting practice, Different types of rock bolts.</p> <p>3.6 Face advancing supports.</p>

Laboratory Experiences:

1. Study and sketches of temporary lining during shaft sinking.
2. Study and sketches of permanent lining during shaft sinking.
3. Study of drilling & blasting pattern for shaft sinking.
4. Study of different types of special methods of shaft sinking.
5. Sketch and study of different types of blast hole patterns in drift drivage/tunnelling.
6. Study of hydraulic, friction, screw types props and chock release mechanisms.
7. Study of different ways of supporting road way junctions, Masonary, steel, etc.
8. Study of safety supports, Roof stitching etc.
9. Study of different types of face advancing supports.

Reference Books:

1. Elements of Mining Technology, D.J. Deshmukh.
2. U/G metalliferous Mining Methods, Y. P. Chacherkar.
3. U.M.S.