

# GUJARAT TECHNOLOGICAL UNIVERSITY

## Diploma in Mining Engineering

### Semester: 4

**Subject Name**    Surface Mining

Sr. No.	Course content
1.	<b>SURFACE MINING:-</b>  Advantages & disadvantages of preliminary evaluations of surface mine project. Pit planning & Design, surface mining methods, choice of machine, systems- Coal/Lignite/ Mineral O.B. Thickness ratio- stripping ratio.
2.	<b>MINE DEVELOPMENT:-</b>  Opening out - preparation of haulroads section of waste dumping sites etc.
3.	<b>DRILLING &amp; BLASTING:-</b>  3.1 Explosives used in open cast mine. ANFO, SLURRY Explosive, LOX, Emulsion Explosives. 3.2 Formation of Benches, drilling principle, different types of blast hole drills, use of different types of Quarry- Explosives, secondary blasting, problems associated with drilling and blasting.
4.	<b>EXCAVATION &amp; TRANSPORTATION:-</b>  4.1 Principles of operation of single bucket & multibucket excavators. 4.2 Cyclic methods: Shovel-dumpers- pay loaders, drag lines, rippers, scrappers continuous methods. 4.3 Study of above machinery. 4.4 Conveyors: Stacker Reclaimer- Railway Ropeways, 4.5 Case studies & layout of dumper shovel combination. 4.6 Open pit slope stability , Ground water control utilities. 4.7 Organisation structures.
5.	<b>OPEN CAST MECHANISATION:</b>  Shovel mining, Dragline Mining, Dumpers, Crushers, Conveyors, Deep hole blasting.

**LABORATORY EXPERIENCES:**

1. Study of different types of explosives used in open cast mining.
2. Study & sketch of different types of drilling patterns used in O/C Mines.
3. Study of different methods of secondary blasting.
4. Study of Constructional features & Working methods of Bucket Wheel Excavator.
5. Study of hydraulic excavators & rope shovel.
6. Study of draglines.
7. Study of dumpers.
8. Study of stackers reclaimers.
9. Study of Aerial rope ways.

**Reference Books:**

<b>Sr. No.</b>	<b>Name of Books</b>	<b>Author</b>
1.	Elements of Mining Technology	D.J.Deshmukh
2.	Surface Mining Technology	Samir kumar Das
3.	U.M.S.	