

Course Type	Course Code	Name of Course	L	T	P	Credit
DP1	MNC 203	MINE SURVEYING LAB.	0	0	2	2

**Course Objective**

The primary objective of the course is to introduce students to various surveying methods and instruments

**Learning Outcomes**

Upon completion of the course, students will be able to conduct various measurements (linear and angular) using different methods and modern instruments.

Sl. No.	Aim of experiment	No. of Practicals	Learning Outcome
1	<b>Study and sketch of linear measuring instruments</b> (Tapes and Distometer) and carryout linear measurement.	1	Measurement of linear distances using direct and indirect methods
2	<b>Introduction to various angular measurement instruments</b> and measurement of angles using theodolite	1	Measurement of horizontal and vertical angles
3	<b>Closed Traversing</b> using theodolite and distribution of closing errors	1	Transferring coordinates from known baseline
4	<b>Introduction to various Levelling instruments and carryout profile leveling</b> using auto level	1	Transferring of RLs from known benchmark
5	<b>Study and sketch of Total Station</b> and determination of coordinates using Total Station	2	Usage of Total Station and its application in data acquisition
6	<b>Preparation of digital mine plans using Total station data</b>	1	Processing of Total station data and Preparing digital plans
7	<b>Study and sketch of electronic gyro- theodolite (Gyromat-3000)</b> and determination of Gyro-north	1	Obtaining Gyro-meridian and gyro bearing of a survey line using digital gyro theodolite
8	<b>Study and sketch of Nadir Plummet and LASER</b> and demonstration for mine correlation survey	1	Usages and procedure of the modern way of mine correlation survey.
9	<b>Study of GNSS system and carryout GNSS survey in relative point positioning.</b>	1	DGPS surveying for delineation of surface features
10	<b>Study of Terrestrial LIDAR (TLS)</b> and demonstration for Topographical Surveying	1	Application of TLS for surface terrain mapping and modelling
11	Preparation of a Digital Map/part-plan of Campus using the above tools (capstone Project)	2	Use of the integrated technologies for digital mapping

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