

SURVEY LABORATORY

Equipment's Available in the Lab

Sl. No	Name of the Equipment's	Specification	Quantity
1	Geo fennel total station	FTD05 & Code Prism Pole L25,5/8",2.5mm	3
2	Vernier Theodolite with tripod stand	Erect image with AI tripod	7
3	Dumpy level with accessories & tripod stand	25 mm Internal Focusing completely made of brass with gun metal axis, High quality blue coated optics for glare-Free viewing 360 ⁰ Circle graduated to one degree supplied with all standard accessories in FRP case, with heavy duty tripod.	7
4	Plain table with ai tripod	Plane table with board size 75cm*60cm*22mm made of metal protectors at corners with circular plate plane table head, through compass, spirit level, plumb pop	7
5	Prismatic compass with tripod	-	7
6	Hand held GPS	Garmin global positioning system Terex 20 with data downloading cable, battery	1
7	Surveyor compass with aluminium stand	-	2

COURSES OFFERED

Sl. No	Odd Sem (Course code & Name)	Class	Even Sem (Course code & Name)	Class
1	CE3361 Surveying & Levelling Laboratory (R2021)	II Civil	-	-
2	CE3512 Survey Camp (2 weeks) (R2021)	III Civil	-	-

CE3361-SURVEYING AND LEVELLING LABORATORY

OBJECTIVES:

- To understand the practical knowledge for the basic surveying instrument
- To understand the practical knowledge to carryout levelling for various engineering projects and location of site etc.
- To understand the practical knowledge about theodolite for surveying operation in engineering projects and location of site
- To understand the practical knowledge on tachometry surveying for various projects
- To understand the practical knowledge on total station for various project

OUTCOMES:

Upon Completion of the course, the students will be able to:

- Acquired practical knowledge to carryout Triangulation including general field marking for various engineering projects and Location of site etc.
- Acquired practical knowledge to carryout levelling for various engineering projects and Location of site etc.
- Acquired practical knowledge on Theodolite surveying for various engineering projects and Location of site etc.
- Acquired practical knowledge on Tacheometry surveying for various engineering projects and Location of site etc.
- Acquired practical knowledge on Total Station surveying for various engineering projects and Location of site etc.

LIST OF EXPERIMENTS

Chain Survey

1. Study of chains and its accessories, Aligning, Ranging, Chaining and Marking Perpendicular offset
2. Setting out works – Foundation marking using tapes single Room and Double Room Compass Survey
3. Compass Traversing – Measuring Bearings & arriving included angles

Levelling – Study of levels and levelling staff

4. Fly levelling using Dumpy level & Tilting level
5. Check levelling

Theodolite – Study of Theodolite

6. Measurements of horizontal angles by reiteration and repetition and vertical angles
7. Determination of elevation of an object using single plane method when base is Accessible/inaccessible.

Tacheometry – Tangential system – Stadia system

8. Determination of Tacheometric Constants
9. Heights and distances by stadia Tacheometry
10. Heights and distances by Tangential Tacheometry

Total Station – Study of Total Station, Measuring Horizontal and vertical angles

11. Traverse using Total station and Area of Traverse
12. Determination of distance and difference in elevation between two inaccessible points using Total station.

CE3512 - SURVEY CAMP

OBJECTIVES:

- The objective of the survey camp is to enable the students to get practical training in the field work.
- Groups of not more than six members in a group will carry out each exercise in survey camp.
- At the end of the camp, each student shall have mapped and contoured the area.
- The camp record shall include all original field observations, calculations and plots.

OUTCOMES:

- Handle the modern surveying instruments like Total station and GPS
- Apply modern surveying techniques in field to establish horizontal control.
- Understand the surveying techniques in field to establish vertical control
- Apply different survey adjustment techniques.
- Carry out different setting out works in the field

LIST OF EXPERIMENTS

Two weeks Survey Camp will be conducted during summer vacation in the following activities:

1. Traverse – using Theodolite / Total station
2. Contouring
 - (i). Radial tachometric contouring - Radial Line at Every 45 Degree and Length not less than 60 Meter on each Radial Line
 - (ii). Block Level/ By squares of size at least 100 Meter x 100 Meter at least 20 Meter interval
 - (iii) L. S & C.S - Road and canal alignment for a Length of not less than 1 Kilo Meter at least L.S at Every 30M and C.S at every 90 M
3. Offset of Buildings and Plotting the Location
4. Sun observation to determine azimuth (guidelines to be given to the students)
5. Use of GPS to determine latitude and longitude and locate the survey camp location
6. Traversing using GPS
7. Curve setting by deflection angle

Apart from above students may be given survey exercises in other area also based on site condition to give good exposure on survey.