COURSE CONTENT

SURVEYING AND GEOMATICS LABORATORY

III Semester: CE

Course Code	Category	Hours/ Week			Credits	Maximum Marks		
		L	T	P	C	CIA	SEE	Total
2530173	Core	0	0	2	1	40	60	100
Contact Classes: Nil	Tutorial Classes: Nil	Practical Classes: 30				Total Classes: 30		

Prerequisites: NIL

Course Overview :

The Surveying and Geomatics Laboratory trains students in field and office techniques for measuring distances, angles, and elevations. It covers surveying instruments, mapping, GPS, total stations, data processing, and preparation of plans, developing practical skills essential for civil engineering projects.

Course Objectives: The objectives of the course are to

- Learn and understand the various basic concept and principles used in surveying like Chain Surveying, Compass Surveying, Plane Table Surveying, and Levelling Surveying.
- Learn and understand about theodolite and total station in surveying.
- Learn and understand how to calculate Area of plot and Ground.
- Learn and understand about Horizontal Angle, Vertical Angle, Horizontal distance and Vertical distance to study the ground profile using total station.

Course Outcomes: At the end of the course student will be able to:

- Prepare Map and Plan for required site with suitable scale.
- Prepare contour Map and Estimate the Quantity of earthwork required for formation level for Road and Railway Alignment.
- Judge which type of instrument to be used for carrying out survey for a Particular Area and estimate the area.
- Judge the profile of ground by observing the available existing contour map.

CYCLE-I

Theodolite surveying:

1. Measurement of horizontal angles and vertical angles.
2. Distance between two inaccessible points.
3. Measurement of area by theodolite traversing (Gales traverse table).
4. Determination of tachometer constants.
5. Distance between two inaccessible points using the principles of tachometer surveying.

6. Distance between two inaccessible points using the principles of trigonometric surveying

CYCLE-II

Total Station:

7. Area Measurement
8. Stake Out
9. Remote Elevation Measurement
10. Missing Line Measurement
11. Longitudinal & Cross Section Profile
12. Contouring
13. Providing a Simple Circular Curve
14. Demonstration using DGPS

MATERIALS ONLINE:

1. Course template
2. Lab Manual
3. Open-ended experiments
4. E-Learning Readiness Videos(ELRV)