

## Engineering Surveying

<b>Course Code</b>	<b>Credit Hours</b>
<b>CE-212</b>	<b>2-1</b>

### Course Description

This course is designed to give the basic survey and levelling knowledge to the prospective civil engineers. This knowledge is of fundamental importance for planning, design and construction work of Civil Engineering Projects. It is also required for interpreting topographic maps for setting out works exercising dimensional control, monitoring levelling profiles and quality of finished output.

In this course most of the field data is acquired manually using conventional methods

### Text Book:

1. Surveying Theorey and Practice, R.E. Davis, 6/7 Edition
2. Wolf P.R. & Ghilani C.D, (2004), Elementary surveying – An Introduction to Geomatics, 11th Edition, Prentice Hall USA.
3. Thomas, M. Lillesand & Ralph W. Kiefer, (2005), Remote Sensing and Images Interpretation, 5<sup>th</sup> Edition, John Wiley and Sons, Inc.
4. Survey & Levelling by T.P.Kanetkar and S.V.Kulkarni (Vol -I&Vol -II)
5. Surveying Principles and Application by Barry Kavanagh

### Reference Book:

1. Survey for Engineers by John Uren & Bill Price

### Prerequisites :

Nil.

### ASSESSMENT SYSTEM FOR THEORY

	<b>Without Project (%)</b>	<b>With Project/Complex Engineering Problems (%)</b>
Quizzes	15	10-15
Assignments	10	5-10
Mid Terms	25	25
Project	-	5-10
End Semester Exam	50	45-50

## ASSESSMENT SYSTEM FOR LAB

Lab Work/ Psychomotor Assessment/ Lab Reports	70%
Lab Project/ Open Ended Lab Report/ Assignment/ Quiz	10%
Final Assessment/ Viva	20%

### Teaching Plan

Week No	Topics/ Learning Outcomes
1-2	Introduction to land survey, definition of basic surveying terms branches and their application, Instruments used
3-4	Traversing, Computations and Plotting. Establishment of control points by Total station Traverse, Computations and Plotting.
5	How to make a scale line
6	Plane Table Survey, Maps and Plans, plotting, contour maps
7-8	Triangulation. Classification of triangulation systems
9	<b>MSE</b>
10-11	Levelling. Methods and types of levels, precise leveling
12	Contouring. Methods and application of contouring
13-15	Road Alignment. Profiles, cross-sections, computation of area and volumes by various methods including graphical analysis and use of software
16	Introduction to baseline and application of corrections
17-18	<b>ESE</b>

### Practical

Experiment No	Description
1	Introduction to basic survey instruments and their use
2	Measurement of distances with linear linear measurements, chain surveying and plotting
3	Measurement of angles and distances with a total station.
4	Performing the following operations with a Total Station. a. R.D.M(Remote Distance Measurement)

	<ul style="list-style-type: none"> <li>b. R.E.M (Remote Elevation Measurement)</li> <li>c. Find the position of unknown point with reference to existing known control points.</li> <li>d. Area perimeters (for finding the Area and perimeter of plan and irregular surfaces).</li> <li>e. Stake out (for layout of buildings and other infrastructure like roads etc.).</li> </ul>
5	Establishment of survey control points by Total station Traverse.
6	Developing a Topographic Map by Plane Table Survey. Plane Table Surveying radiation and intersection methods. Two Point Problem, Three Point Problem
7	Differential and Profile Levelling.
8	Contouring. Levels and plotting of contours
9	Road Alignment. Cross-sectioning and plotting
10	Triangulation