

COURSE CODE: CE-183
COURSE NAME: Surveying
CREDIT HOURS: Theory = 1 Practical = 2 Total = 3
CONTACT HOURS: Theory = 16 Practical = 96 Total = 112
PREREQUISITE: None
MODE OF TEACHING: Lectures, Problem Solving Activities and Practical in Field

COURSE DESCRIPTION: This course provides the knowledge and understanding of design layout and setting out of project on ground. The course introduces the students regarding homographic map and interpretation of contours. The course gives the students chance of practically handling survey instruments. Survey work related to designing of roads and calculating the quantities of earth work involved is also part of syllabus. Finally habit of keeping an eye on minor details and accuracy is inculcated through practically going through all the steps involved in the layout of a project.

PRACTICAL APPLICATIONS

This course focuses on the principles and practices of survey required for construction projects. Every construction project of any magnitude is based to a greater or less degree upon measurement taken during the process of a survey and is constructed about lines and points established by the surveyor. Carrying out the survey is therefore imperative for assistance in the conception, design and execution of engineering works. This course combines theoretical concepts, problem-solving, class activities and field work to learn the practical applications of concepts learned in the course. *Studying this subject would equip the students to apply the knowledge they have attained to real- time civil engineering assignments.*

RELEVANT PROGRAM LEARNING OUTCOME (S):

The course is designed so that students will achieve the PLO/s:

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|---|----------------------------------|-------------------------------------|----|---------------------------------|-------------------------------------|
| 1 | Engineering Knowledge: | <input type="checkbox"/> | 7 | Environment and Sustainability: | <input type="checkbox"/> |
| 2 | Problem Analysis: | <input type="checkbox"/> | 8 | Ethics: | <input type="checkbox"/> |
| 3 | Design/Development of Solutions: | <input type="checkbox"/> | 9 | Individual and Team Work: | <input checked="" type="checkbox"/> |
| 4 | Investigation: | <input type="checkbox"/> | 10 | Communication: | <input type="checkbox"/> |
| 5 | Modern Tool Usage: | <input checked="" type="checkbox"/> | 11 | Project Management: | <input type="checkbox"/> |
| 6 | The Engineer and Society: | <input type="checkbox"/> | 12 | Lifelong Learning: | <input type="checkbox"/> |

COURSE LEARNING OUTCOMES:

Upon successful completion of the course, the student will be able to:

S.No	CLO	Domain	Taxonomy	PLO
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			Level	
1	DEFINE homographic map and contours in order to explain site conditions and ground profile	Cognitive	1	-
2	PERFORM effective monitoring of accuracy and quality of work in the field using survey instruments like Total Stations, Levels etc.	Psychomotor	2	5
3	Effectively CORRESPOND to the group while executing computations and adjustments of traverse.	Affective	2	9
4	Maintain ethical conduct in lab and adhere to lab safety procedures while contributing effectively towards individual and/ or group goals.	Affective	5	9

TOPICS COVERED WITH THEIR CONTRIBUTION TO PLOs:

Theory

Week	Topic Covered	Reading Assignment/ Homework	CLO #
1	General Introduction to Survey	Chapter 1	1
2	Precision in survey and different scales	Chapter 1	1
3	Traversing with prismatic compass	Chapter 2 Quiz 1	1
4	Computations and adjustments of traverse. Problem Solving Activity	Chapter 2 Assignment 1	1
5	Plane Table Surveying, methods of plane tabling	Chapter 3	1
7	Principle of levelling, Reading of levels Classification of levelling	Chapter 4 Quiz 2	
8	Errors in levelling. Problem Solving Activity	Chapter 4	
9	Mid Semester Exam		
10	Contouring, Characteristics of contour line, Setting grade-stakes for sewers	Chapter 5 Assignment 2	1
11	Cross sectioning, Trigonometric levelling. Problem Solving Activity	Chapter 5	1
12	Calculation of Area, computation of areas from plans, trapezoidal rule, Simpson rule	Chapter 6 Quiz 3	1
13	Earthwork calculations, measurement of volumes from cross-sections and various formulas for computation of volumes	Chapter 7 Assignment 3	1
14	Distance measurement by tapes, error involved. Problem Solving Activity	Chapter 8	
15	Chain Surveying, methods of chain surveying and errors involved. Problem Solving Activity	Chapter 9 Quiz 4	
16	Introduction to Global Positioning System	Chapter 10	

		Assignment 4	
17	Accuracy & Factors affecting GPS	Chapter 10	
End Semester Exam			

Practicals

No.	Practicals
1-4	Drawing of Chain Survey Sketch of a small area
5-8	Use of level and drawing a contour plan of an area
9-12	Use of plane table and drawing a plane table sketch of an area
13-16	Drawing of L-section and cross section of a small track by level

TEXT AND MATERIAL:

Textbook (s)

1. *Surveying and Levelling Vol I by T.P Kanetkar .1982*

References Material:

1. *Irvine, W. Surveying for Construction, McGraw Hill.*
2. *Davis, R.E. Surveying Theory and Practice, McGraw Hill.*

ASSESSMENT SYSTEM:

Relative grading system will be followed to award grades. % age weight of different exams is as under:

<u>Theoretical/Instruction</u>	25%
Assignments (4)	10%
Quizzes (4)	15%
Midterm Exams (2)	25%
End Semester Exam	50%
<u>Practical Work</u>	75%
Field Work	40%
Quiz	10%
Rubrics	30%
Viva	20%
Total	100%