

**University of Engineering and Technology, Taxila**  
Department of Civil Engineering

<b>Course Title:</b>	Surveying-I (CE-104)
<b>Pre-requisite(s):</b>	None
<b>Credit Hours:</b>	2 + 4
<b>Contact Hours:</b>	2 + 4
<b>Text Book(s):</b>	<ol style="list-style-type: none"><li>1. Surveying Theory and Practice, <i>by</i> R.E. Davis, 7<sup>th</sup> Edition.</li><li>2. Surveying and Leveling (Vol. I), <i>by</i> T.P Kanetkar and S.V Kulkarni.</li></ol>
<b>Reference Book(s):</b>	<ol style="list-style-type: none"><li>1. Elementary Surveying-An introduction to Geometrics, <i>by</i> Wolf P.R. &amp; Ghilani C.D, 11<sup>th</sup> Edition.</li><li>2. Surveying Principles and Application, <i>by</i> B. Kavanagh, 8<sup>th</sup> Edition.</li></ol>

**Catalog Data:**

Introduction; Techniques; Modern methods in surveying; Leveling and contouring; Surveying drafting and computations; Field work.

**Course Objectives:**

- Have the ability to apply knowledge of mathematics, science and engineering to understand the measurement techniques and equipment used in land surveying.
- To enable students to understand theory and practice of land surveying.
- To enable students in reading and preparing surveying maps.
- To develop skills to use modern survey instruments.

**Course Learning Outcomes:**

At the end of this course, the student will:

CLO:1 Gain the ability to use modern survey equipment to measure angles and distances.

CLO:2 Gain the ability to measure differences in elevation, draw and utilize contour plots.

CLO:3 Appreciate the need for accurate and thorough note taking in field work to serve as a legal record.

## Course Contents:

### Introduction

- Introduction to land surveying
- Definitions of basic surveying terms branches and their application
- Instruments used

### Techniques

- Distance measurement techniques
- Theodolite and its types
- Traversing and triangulation, bearings and meridians, plane table surveying
- Plane Table Surveying
- Computation of areas and volumes by various methods

### Modern Methods in Surveying

- Earthwork calculation
- Digital Theodolite, field procedures for Digital Theodolite in topographic surveys
- Construction layout using Digital Theodolite

### Leveling and Contouring

- Methods and types of levels, precise leveling
- Methods and applications of contouring

### Grading Policy:

Sr. No.	Grading	% of Total Marks
1	Assignments	10
2	Quizzes	10
3	Practical	20
4	Midterm Exam	20
5	Final Exam	40
<b>Total</b>		<b>100</b>

### Student Learning Outcomes:

Students who pass the course will be able to use modern survey equipment to measure angles and distances. Improve ability to function as a member of survey party in completing the assigned field work.

### Course Professional Outcome/Industrial Usage:

Students appreciate the need for licensed surveyors to establish positioning information for property and structures.

PLOs	CLOs		
	CLO-1 (Ability to use modern tools)	CLO-2 (Understanding of Survey Tools)	CLO-3 (Ability to utilize contour plots )
<b>PLO 1</b> (Engineering Knowledge)	✓	✓	✓
<b>PLO 2</b> (Problem Analysis)			
<b>PLO 3</b> (Design/Development of Solutions)			
<b>PLO 4</b> (Investigation)			
<b>PLO 5</b> (Modern Tool Usage)			
<b>PLO 6</b> (The Engineer and Society)			
<b>PLO 7</b> (Environment and Sustainability)			
<b>PLO 8</b> (Ethics)			
<b>PLO 9</b> (Individual and Team work)			
<b>PLO 10</b> (Communication)			
<b>PLO 11</b> (Project Management)			
<b>PLO 12</b> (Lifelong Learning)			

Assessment Modules	CLOs		
	CLO 1	CLO 2	CLO 3
<b>Assignments</b>		✓	✓
<b>Quizzes</b>	✓	✓	✓
<b>Midterm Exam</b>	✓	✓	
<b>Final Exam</b>	✓	✓	✓