

**University of Engineering and Technology, Taxila**

Department of Civil Engineering

**Course Title:** CE-101 Civil Engineering Drawing

**Pre-requisite(s):** None

**Credit Hours:** 1+2

**Contact Hours:** 1+6

**Text Book(s):** 1. Basics of the Engineering Drawing, Zahid Ahmed Siddiqi, 1<sup>st</sup> Edition

**Reference Book(s):** 1. A Course in Civil Engineering Drawing, V. B. Sikka, Latest Edition  
2. Elementary Engineering Drawing (Plane and Solid Geometry), N. D. Bhatt, 49<sup>th</sup> Edition

**Catalog Data:**

Introduction to Engineering Drawing; Conceptual Drawings and Projection System; Architectural Plan, Elevation and Section of a Simple Building; Structural Details of a Simple Building; Architectural and Structural Details of Staircase; Structural Details of Water Tank; Architectural and Structural Details of Boundary Wall; Plumbing, Sanitation, and Roof Drainage Plan of a Simple Building; Electrical Drawings; Types of Civil Engineering Drawings.

**Course Objectives:**

- To enable students to learn basics of general drawing and civil engineering drawing.
- To understand fundamentals of architectural, structural, plumbing and electrical drawings.

**Course Learning Outcomes:**

At the end of this course, the student will:

CLO 1: Learn basics of both general engineering drawing and basic civil engineering drawings.

CLO 2: Understand the fundamentals of architectural, structural, plumbing and electrical drawings.

CLO 3: Have skills to (i) produce architectural, structural, & plumbing drawings and (ii) study electrical details/layout.

**Course Contents:**

1. Introduction to Engineering Drawing and Types of Civil Engineering Drawings

- Drawing, sketch, painting and map
- Drawing instruments and their use
- Type of drawing lines and appropriate uses
- General rules for drawing lines
- Gothic lettering
- Dimensioning
- Planning of a drawing sheet
- Drawing types with respect to technicality (Survey plan, contour plan, geotechnical plan, infrastructures drawing, architectural drawing, structural drawing, plumbing drawing, electrical drawing)
- Drawing types with respect to project execution (Proposals/PC-1 drawing, Submission /Tender drawing, Working /Construction drawing, Completion /As-built drawing)

2. Conceptual Drawings and Projection system

- Conceptual drawing
- Projection system and its variables
- Classification of projections
- Perspective and parallel projections
- Oblique projection
- Axonometric projection (isometric projection)
- Orthographic projections (First-angle and third-angle projection) and their comparison
- Importance of line types and rules
- Glass box concept and six principle views
- Comparison between isometric and orthographic views
- Sections, Details behind the cutting plane, Parts not sectioned
- Scaling

3. Architectural Plan, Elevation and Section of a Simple Building

- Architectural views (Plan, elevation and section) of a simple building
- General terminologies and symbols including schedule of opening
- Architectural design of a house
- Covered area specification of various development authorities
- General notes

4. Structural Details of a Simple Building

- Foundation plan
- Plinth plan
- Lintel plan

- Slab plan
- Cross-sectional details of foundation, columns, vertical stiffeners, plinth band, lintel band, lintels, beams and slabs
- General notes

5. Architectural and Structural Details of Boundary Wall and Staircase

- Plan, elevation and section of a boundary wall
- Structural design considerations
- Simple staircase and its components terminology
- Architectural details of a simple stair
- Structural details of a simple stair
- Types of stairs

6. Plumbing, sanitation, and Roof Drainage Plan of a Simple Building

- Typical water supply system
- Water and waste water removal system
- Roof drainage slopes
- Standard Plumbing symbols
- General notes

7. Electrical Drawings of a Simple Buildings

- Typical layout of electrification
- Symbols used for electrical layout
- General notes

**Grading Policy:**

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

**Student Learning Outcomes:**

Upon completion of this course, the student will be able to effectively use various drawing equipments, understand basic drawing techniques and use them to produce civil engineering drawings.

**Course Professional Outcome/Industrial Usage:**

The students will learn an in-depth knowledge and understanding of the principles governing the civil engineering drawing.

**Mapping:**

<b>CLO's</b> <b>PLO's</b>	<b>CLO 1</b> General and Civil Engineering Drawing	<b>CLO 2</b> Fundamentals	<b>CLO 3</b> Skills
PLO 1 (Engineering Knowledge)	✓	✓	
PLO 2 (Problem Analysis)			
PLO 3 (Design/Development of Solutions)			
PLO 4 (Investigation)			
PLO 5 (Modern Tool Usage)			
PLO 6 (The Engineer and Society)			
PLO 7 (Environment and Sustainability)			
PLO 8 (Ethics)			
PLO 9 (Individual and Team work)			✓
PLO 10 (Communication)			
PLO 11 (Project Management)			
PLO 12 (Lifelong Learning)			

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