

# **PNS SCHOOL OF ENGINEERING & TECHNOLOGY**

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## **CIVIL ENGINEERING DRAWING ( CED-1) ( 3<sup>rd</sup> Semester )**

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**CIVIL ENGINEERING DEPARTMENT**

# **AUTO CADD LAB**

## **OBJECTIVES:**

To introduce the students to draft the plan, elevation and sectional views of buildings in accordance with development and control rules satisfying orientation and functional requirements as per National Building Code.

## **LIST OF EXPERIMENTS**

1. Principles of planning, orientation and complete joinery details  
(Paneled and Glazed Doors and Windows)
2. Buildings with load bearing walls
3. Buildings with sloping roof
4. R.C.C. framed structures.

## **OUTCOMES:**

The students will be able to draft the plan, elevation and sectional views of the buildings, industrial structures, and framed buildings using computer software.

## **COURSES CONTENTS**

### **1-AutoCAD software**

#### **STUDY EXERCISE - AUTOCAD COMMANDS**

EXPT -1

Recap of the drawing ,format,edit,dimension ,modify commands  
( To study the basic commands used in AUTOCAD drawing )

#### **OBJECTIVE**

To study the basic commands used in AUTOCAD drawing in accordance with development and control rules satisfying orientation and functional requirements as per National Building Code.

### **THEORY :-**

CAD means Computer Aided Design or Drafting. Auto cad is most widely used software developed by auto desk. Auto cad is a drafting package in almost all engineering branches. There are drafting packages like cad are DIAP, CAMD, and Delights. Auto cad is one of the most popular cad packages. It is a general purpose computer aided design. We can draw geometrical entries like plan, section and elevation of a building.

- We can make accurate drawings like plan, section and elevation of a building.
- Improved engineering productively
- Reduced engineering personal requirement.
- Drawing modification or eraser to intake.
- Drawings prepared in the software can be stored safely.

### **PROCEDURE -**

#### **::STEPS :**

ARC- Creates an arc  
AREA- Calculates the area and perimeter of objects  
or of defined areas  
ARRAY Creates multiple copies of  
objects in a pattern  
  
BHATCH- Fills an enclosed area or selected objects  
with a hatch pattern  
BLOCK Creates a block definition  
from objects you select  
BOUNDARY creates a region or  
a polyline from an enclosed area  
  
BOX- Creates a three-dimensional solid box  
  
BREAK- Erases parts of objects or splits  
an object in two  
CAL Evaluates mathematical  
and geometric expressions  
CHAMFER  
Bevels the edges of objects.

CIRCLE- Creates a circle  
COPY- Duplicates objects  
DIST- Measures the distance and angle between two points  
DIVIDE- Places evenly spaced point objects or block  
EXPLODE- Breaks a compound object into its component objects  
EXPORT Saves objects to other file formats.

EXTEND- Extends an object to meet another object

EXTRUDE- Creates unique solid primitives by extruding existing two-dimensional objects  
FILLET Rounds and fillets the edges of objects.

GRID- Displays a dot grid in the current viewport.

GROUP- Creates a named selection set of objects .

HATCH- Fills a specified boundary with a pattern.

RESULT:

The study of basic commands used in AUTOCAD and able to draft the plan ,section ,elevation of a structure using these command

## SECTION -2

*PLAN , ELEVATION AND SECTIONAL ELEVATION OF FLAT ROOF BUILDING ( LINE DIAGRAM TO AUTOCAD SOFTWARE)*

*AIM –*

To draw a reading room with R.C.C flat roof using Auto CAD with suitable scale the following views with complete dimensions and details.

1. Plan at window sill level.
2. Section on AB.
3. Elevation on AB

## THEORY :-

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## EXPERIMENTAL PROCEDURE : -

**SPECIFICATION :-** The following specifications correspond to the line plan of the reading room with RCC flat roof.

**1.Foundation:-** The foundation for all main walls will be in cement concrete 1:4:8, 600 wide and 200 thick laid at 600 below ground level. The masonry footing will be in RR masonry in CM 1:5, the first footing being 400x400 for all walls.

**2. Basement : -** The basement will be in RR masonry in CM 1:5, 200 wide 300 thick above G.L for all walls and is filled with clean sand to a depth of 150. A DPC in CM 1:3, 20 thick will be provided for all walls at basement level.

**3.super structure : -** All walls will be in B.W in CM 1:5, using 1<sup>st</sup> class B.W, 200 thick. The height of all walls will be 3000 above F.L. All walls including basement will be plastered smooth and CM 1:4 externally and 1:6 internally for 12.5 thick. Parapet walls, 200 thick and 450 high will be provided all round. Roofing:

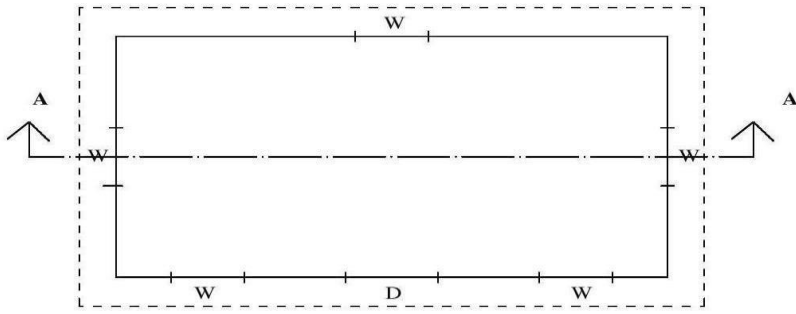
**4.Roofing: -** *The roofing will be of R.C.C 1:2:4 mix , 100 thick flat slab over the room. A weathering course in brick jelly lime concrete 1:5:9 mix plastered with combination mortar 75 thick over the slab.*

**5.flooring :-** The flooring will be in CC 1:4:8, 130 thick and plastered smooth with CM 1:3,20 thick.

Steps will be in brick walk in CM 1:5 laid on a 1800 x450 x150 thick CC1:4:8 footing. Rise 150, Tread 300.

NOTE :-

- 1.Any other dimensions found necessary may be assumed suitably making clear indications of the same.
- 2.All dimensions indicated are in millimeter



LINE PLAN

ALL DIMENSIONS ARE IN mm

REFERENCE

Type	Description	Size
D	Door	1500 x 2100
W	Window	1200 x 1200
Steps		
	Rise	150
	Tread	300