



BANGLADESH TECHNICAL EDUCATION BOARD
Agargaon, Dhaka-1207

4-YEAR DIPLOMA-IN-ENGINEERING PROGRAM
SYLLABUS (PROBIDHAN-2016)

ARCHITECTURE & INTERIOR DESIGN
TECHNOLOGY CODE: 687
4th SEMESTER

SUBJECT NAME: CAD-1

SUBJECT CODE: 68742

AIMS:

Able to develop knowledge, skill and attitude in the field of Computer Aided Drafting (CAD) with special emphasis on:

- Drawing environments and drawing aids.
- Different setup of drawing in Auto CAD.
- Drawing commands.
- Modification & edits of drawing.
- Printing the drawing elements.

SHORT DESCRIPTION: Drawing environments and drawing aids; Different setup of drawing in Auto CAD; Drawing commands; Modification & edits of drawing; & Printing the drawing elements

Theory 1. Understand the drawing environments and drawing aids.

- 1.1. Define AutoCAD software and identify the different areas of CAD graphic screen.
- 1.2. Explain menu bar, command prompt area, toolbar and drawing tools.
- 1.3. Explain the drawing tools, different menus and dialog boxes of CAD software.
- 1.4. State how to save the file& exit from the file.

2. Understand the units, limits &layer.

- 2.1. State the units using units command.
- 2.2. State the drawing limits using limits command.
- 2.3. Explain the layer control option.
- 2.4. List the name of a layer and make it current.
- 2.5. State freeze, lock option of the layer.
- 2.6. Explain the color, line type & line weight for different layer.

3. Understand the dimension style and dimensioning.

- 3.1. Define set up of dimension style using dimension style manager.
- 3.2. State the dimension style using modifies dimension style.
- 3.3. State the units, dimension lines and arrows, text, leader & annotations etc.

3.4. Define dimension in the object using linear, angular, radius, diameter, and ordinate, align, center mark, continuous, base line commands.

3.5. Define edit dimension.

4. Understand the Text style.

4.1. Define the text style using text style commands.

4.2. Mention the text height & font using text style commands.

4.3. Explain the text justification using text style command.

4.4. State how to write text by using dtext and multiple text commands.

4.5. Define edit the text in a given drawing.

4.6. State how to insert text in CAD from other software (i.e. MS Word, Excel etc)

5. Understand the geometrical shape or object.

5.1. State the command to draw Line using Cartesian and Polar co-ordinate system.

5.2. Define single and multiple points using point commands.

5.3. Define straight and angular line using line commands.

5.4. State Connect lines, arcs etc. using snap command.

5.5. Define Erase the object using different erase commands.

6. Understand the rectangle, circle, polygon, poly line etc.

6.1. Define rectangle using rectangle commands.

6.2. Discuss circles using different method of circle commands.

6.3. Discuss polygon using different method of polygon commands.

6.4. Define poly line using poly line commands.

6.5. Define poly line and arc together using poly line commands.

6.6. State different thickness of poly line using poly line commands.

7. Understand the ellipse, arc, donut, offset, array etc.

7.1. Define ellipse using center and axis method commands.

7.2. Define arc using different commands of arc.

7.3. Define donut using donut commands.

7.4. Describe lines in certain distance using offset commands.

7.5. Duplicate an object in a fixed number & fixed distance using the rectangle array commands.

7.6. Describe duplicate an object in a fixed number & rotating distance using the polar array commands.

8. Understand ray, chamfer, fillet, lengthen, hatch, stretch and scale etc.

8.1. Define ray in a certain angular distance using ray command.

- 8.2. Describe chamfer & fillet in a given figure.
- 8.3. Describe different lengthen command in a given line.
- 8.4. Explain the drawing areas of an object using different pattern of hatch command.
- 8.5. State stretch command to extend an area.
- 8.6. Define scale command to enlarge or reduce an object in a ratio.

9. Understand Edit and modify the object.

- 9.1. Define select and delete the object in various methods.
- 9.2. Explain duplicate the object using copy.
- 9.3. State trim command in a given drawing.
- 9.4. State the extend command in a given drawing.
- 9.5. Define mirror command to create duplicate reverse copy.
- 9.6. State Break the line using break command.
- 9.7. State Rotate the object in different angle /direction using rotate command.

10. Understand the Layout and plot the drawing.

- 10.1 Define layout for plot.
- 10.2 Define the scale & assign pen (if necessary) for plot.
- 10.3 State the paper & plotter for plotting.
- 10.4 Define the environment for plotting.
- 10.5 State how to plot the drawing.

PRACTICAL

1. Set up the drawing environments and drawing aids.

- 1.1 Start CAD software and identify the different areas of CAD graphic screen.
- 1.2 Use menu bar, command prompt area, toolbar and drawing tools.
- 1.3 Use the drawing aids, different menus and dialog boxes of CAD package.
- 1.4 Save the drawing & exit from the file.

2. Set-up the units, limits, layer.

- 2.1 Fix-up the units using units command.
- 2.2 Fix-up the drawing limits using limits command.
- 2.3 Create the name of a layer and make it current.
- 2.4 Use freeze, lock option of the layer.

2.5 Set the color, line type & line weight for different layer.

3. Set-up the dimension style and dimensioning.

3.1 Set-up the dimension style using dimension style manager.

3.2 Fix-up the units, dimension lines and arrows, text, leader & annotations etc.

3.3 Put dimension in the object using linear, angular, radius, diameter, ordinate, align, center mark, continuous, base line commands.

3.4 Edit dimension.

4. Set-up the Text style.

4.1 Set the text style using text style commands.

4.2 Fix-up the text height & font using text style commands.

4.3 Write text by using d ext and multiple text commands.

4.4 Insert text in CAD from other software (i.e. MS Word, Excel etc).

5. Construct the geometrical shape or object.

5.1 Draw straight and angular line using line commands.

5.2 Draw single and multiple points using point commands.

5.3 Connect lines, arcs etc. using snap command.

5.4 Erase the object using different erase commands.

6. Construct the rectangle, circle, polygon, poly line etc.

6.1 Draw rectangle using rectangle commands.

6.2 Draw circles using different method of circle commands.

6.3 Draw polygon using different method of polygon commands.

6.4 Draw poly line using poly line commands.

6.5 Draw poly line and arc together using poly line commands.

7. Construct the ellipse, arc, donut, offset, array etc.

7.1 Draw ellipse using center and axis method commands.

7.2 Draw arc using different commands of arc.

7.3 Draw donut using donut commands.

7.4 Duplicate an object in a fixed number & fixed distance using the rectangle array commands.

7.5 Duplicate an object in a fixed number & rotating distance using the polar array commands

8. Construct ray, chamfer, fillet, lengthen, hatch, stretch and scale etc.

- 8.1 Use chamfer & fillet in a given figure.
- 8.2 Use different lengthen command in a given line.
- 8.3 Fill the drawing areas of an object using different pattern of hatch command.
- 8.4 Use stretch command to extend an area.
- 8.5 Use scale command to enlarge or reduce an object in a ratio.

9. Edit and modify the object.

- 9.1 Select and delete the object in various methods.
- 9.2 Duplicate the object using copy.
- 9.3 Use trim command in a given drawing.
- 9.4 Use the extend command in a given drawing.
- 9.5 Use mirror command to create duplicate reverse copy.
- 9.6 Break the line using break command.
- 9.7 Rotate the object in different angle /direction using rotate command.

10. Prepare a drawing in different layer using Auto CAD.

- 10.1 Draw a given floor plan of a building using various commands.
- 10.2 Draw an elevation of the building using various commands.
- 10.3 Draw the section of the building using various commands.
- 10.4 Put dimension & write the text or annotation on the floor plan & section.

11. Set the Layout and plot the drawing.

- 11.1 Create layout for plot.
- 11.2 Set up the scale & assign pen (if necessary) for plot.
- 11.3 Select the paper & plotter for plotting.
- 11.4 Plot the drawing.

REFERENCE BOOKS:

- 1. Mastering Auto CAD - Engr. Symuel Mallik
- 2. Auto CAD 2D & 3D - Engr. Md. Shah Alam
- 3. Autodesk