

# AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH (AIUB)

Faculty of Engineering

Bachelor of Science in Electrical and Electronic Engineering (EEE) BAE 2101: Computer Aided Design and Drafting

# Experiment # 02: Familiarization with different toolbars and command of AutoCAD software.

**Objective:** To familiarize the students with the most important toolbars of AutoCAD Software and use of some useful commands.

**Drawing Toolbar:**

1. **Line**

Drawing Procedure:

* 1. Input Line command
  2. pick any point as first point of line (just click or input x,y value of first point)
  3. pick another point as last point of line (just click or input x,y value of last point) d. Press enter to terminate.

# Polygon

Drawing Procedure:

* 1. Input polygon command
  2. Input number of sides
  3. Pick any point as center (just click)
  4. Input I or C for Inscribed or Circumscribed option
  5. Input value for the radius

# Rectangle

Drawing Procedure:

* 1. Input rectangle command
  2. Pick any point as first corner
  3. Pick other corner point of the rectangle (click or input value)

# Arc

Drawing Procedure:

* 1. Input arc command
  2. Pick any point as first point
  3. Pick another point as second point
  4. Pick another point as third point

# Circle

Drawing Procedure:

* 1. Input circle command
  2. Pick any point as center point
  3. Input value for the radius

# Ellipse

Drawing Procedure:

* 1. Input Ellipse command
  2. Input C for center
  3. Pick any point as center point
  4. Input value for maximum axis
  5. Input value for minimum axis

# Donut

Drawing Procedure:

* 1. Input Donut command
  2. Input value for inside diameter
  3. Input value for outside diameter
  4. Pick point to place donut
  5. Press Enter to terminate

# Point

Drawing Procedure:

* 1. Input Point command
  2. Pick desire point
  3. Press Esc for

# Hatch

Drawing Procedure:

* 1. Input Hatch command
  2. Open pattern box
  3. Choose any pattern and select OK
  4. Select pick point button and pick any point inside closed object, then press enter
  5. Select preview button to see the view of hatch and press spacebar to return
  6. If necessary, change Scale and Angle
  7. Press Enter to terminate

# Text

Drawing Procedure:

* 1. Input Multiline Text command
  2. Pick two corner points for text area
  3. Write text and press enter
  4. Change font if necessary
  5. Change height if needed
  6. Change text format
  7. Press OK to terminate

**Modify Toolbar:**

1. **Erase**

Drawing Procedure:

* 1. Input Erase command
  2. Select object and press enter

# Copy

Drawing Procedure:

* 1. Input Copy command
  2. Select object (objects) and press enter
  3. Input M for multiple copy (for single copy, no need this step)
  4. Pick a point as base point
  5. Pick displacement point
  6. Press enter to terminate

# Mirror

Drawing Procedure:

* 1. Input Mirror command
  2. Select object (objects) and press enter
  3. Draw a line as a mirror line by picking two points
  4. Press enter to retain sourse object or input Y to delete source.

# Offset

Drawing Procedure:

* 1. Input Offset command
  2. Input value for offset ditance
  3. Select object (objects) and then click on desire side
  4. press enter

# Array

Drawing Procedure 1(for rectangular Array):

* 1. Input Array command
  2. Click rectangular Array button
  3. Click select object button then select object and press enter
  4. Input value for number of Rows
  5. Input value for number of Columns
  6. Input value for row offset
  7. Input value for collumn offset
  8. Input value for Angle
  9. Click OK button

Drawing Procedure 2 (for polar Array):

1. Input Array command
2. Click polar Array button
3. Click select object button then select object and press enter
4. Pick center point
5. Choose one method and input values
6. Tick the box rotate items as copied or not
7. Click OK button

# Move

Drawing Procedure:

* 1. Input Move command
  2. Select object (objects) and press enter
  3. Pick a point as a base point
  4. Click on the point where object will be moved

# Rotate

Drawing Procedure:

* 1. Input Rotate command
  2. Select object (objects) and press enter
  3. Pick a point as a base point
  4. Input value in angle for rotation

# Scale

Drawing Procedure:

* 1. Input Scale command
  2. Select object (objects) and press enter
  3. Pick a point as a base point
  4. Input value for scaling (for example 2 for double)

# Trim

Drawing Procedure:

* 1. Input Trim command
  2. Select object (from where objects to be trimmed) and press enter
  3. Select objects to trim

# Extend

Drawing Procedure:

* 1. Input Extend command
  2. Select object (limits upto objects to be extended) and press enter
  3. Select objects to extend

# Explode

Drawing Procedure:

* 1. Input Explode command
  2. Select object and press enter

# Print or Plot a Drawing

Procedure

1. Input plot command
2. From plot device tab option, select the printer/ploter
3. From plot style table option, select monochrome.ctb
4. From plot setting tab option, select the paper size and choose the unit
5. From drawing oriention option, select the Portrait or Landscape
6. From plot scale option, select scaled to fit
7. From plot offset option, select center the plot
8. From plot area option, click on Window button
9. Click two corner point to make a window for necessary part of drawing
10. If necessary, click on Full Preview button to view the drawing and press spacebar
11. Click ok button to print the drawing.

# Some useful commands in Auto CAD

|  |  |  |
| --- | --- | --- |
| **Command Name** | **Shortcut** | **Uses** |
| Unit | UN + Enter | To set the unit system |
| Dimension | D + Enter | To set dimension system |
| Limit | Limits + Enter | To set the size of drawing sheet |
| Line | L + Enter | To draw line |
| Erase | E + Enter | To erase or delete selected part of the drawing |
| Trim | Tr + 2Enter | To cut unwanted extra line |
| Move | M + Enter | To move drawing object |
| Copy | Ctrl + C | To make other copy of the drawing object |
| Rectangle | Rec + Enter | To draw rectangle |
| Circle | C + Enter | To draw circle |
| Arc | Arc + Enter | To draw arc |
| Ellipse | El + Enter | To draw ellipse |
| Donut | Do + Enter | To draw the cross section of pipe or  reinforcement |

|  |  |  |
| --- | --- | --- |
| Fill | Fill + Enter | To fill the inside area of a boundary |
| Point | Po + Enter | To draw point |
| Point Style | Pointstyle + Enter | To modify Point |
| Scale | Sc + Enter | To increase or decrease the size of the drawing  object using factor |
| Divide | Div + Enter | To divide the object in multiple segment |
| Measure | Me + Enter | To divide the object in multiple segment using  measurement |
| Hatch | H + Enter | To hatch or insert different symbol inside a  boundary |
| Line weight | Lw + Enter | To modify line |
| Array | Ar + Enter | To copy a object in different row and column |
| Drafting Setting | Ds + Enter | To modify the drafting elements |
| Linear Dimension | Dli + Enter | To show the length of drawing |
| Regen | Re + Enter | To make the circle and arc smooth |
| Block | B + Enter | To save any object in computer with definite  name. |
| Insert | I + Enter | To insert the objects those were saved using  block command |
| Minsert | Minsert + Enter | To insert the objects those were saved using  block command and modify them |
| Extend | Ex + Enter | To increase the length of line up to the next  perpendicular line. |

**Reference:**

1. Kristen S. Kurland , “AutoCAD 2004, 2D Training Manual”.
2. Bob McFarlane, “Beginning AutoCAD 2004”
3. [David Byrnes](http://www.amazon.com/David-Byrnes/e/B001IGV37Y/ref%3Dntt_athr_dp_pel_1/181-5557732-0632033) and [Mark Middlebrook,](http://www.amazon.com/s/ref%3Dntt_athr_dp_sr_2/181-5557732-0632033?_encoding=UTF8&field-author=Mark%20Middlebrook&search-alias=books&sort=relevancerank) “AutoCAD 2007 For Dummies”.