

BASIC KNOWLEDGE OF AUTOCAD SOFTWARE

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What is an AutoCAD ?

AutoCAD is a commercial computer-aided design (cad) and drafting software developed and marketed by Autodesk.

It is used for making 2d and 3d architectural and interior drawing with scale and proportion.
AutoCAD has complete features to fulfill any architectural or interior projects basic to detailed drawings.

This software functions with commands.
For specific requirements, a specific command is there.
For example
Draw a line - "line" command - short word "L"
Draw a rectangle- "rectangle" command - short key - "rect"

To understand and learn more about this software, students can download the AutoCAD student version, which is available online on Autodesk website.
Here we are presenting a tutorial video of AutoCAD basic learning.

For online downloading students require:
Windows-10 for Computer / Laptop.
Student Login Id
Enrollment Number
Email Id
After receiving the Enrollment number you can download AutoCAD Student Version with following instruction of downloading AutoCAD.



AutoCAD Logo and Main Page

BASIC KNOWLEDGE OF AUTOCAD SOFTWARE

SHORTCUT	COMMAND	DESCRIPTION
A	ARC	Creates an arc.
B	BLOCK	Creates a block definition from selected objects.
C	CIRCLE	Creates a circle.
D	DIMSTYLE	Creates and modifies dimension styles.
E	ERASE	Removes objects from a drawing.
F	FILLET	Rounds or fillets the edges of objects.
G	GROUP	Creates and manages saved sets of objects called groups.
H	HATCH	Fills an enclosed area or selected objects with a hatch pattern, solid fill, or gradient fill.
I	INSERT	Inserts a block or drawing into the current drawing.
J	JOIN	Joins similar objects to form a single, unbroken object.
L	LINE	Creates straight line segments.
M	MOVE	Moves objects to a specified distance in a specified direction.
O	OFFSET	Creates concentric circles, parallel lines, and parallel curves.
P	PAN	Adds a parameter with grips to a dynamic block definition.
Q	QSAVE	Saves the current drawing.
R	REDRAW	Refreshes the display in the current viewpoint.
S	STRETCH	Stretches objects crossed by a selection window or polygon.
T	MTEXT	Creates a multiline text object.
V	VIEW	Saves and restores named views, camera views, layout views and preset views.
W	WBLOCK	Writes object or a block to a new drawing file.
X	EXPLODE	Breaks a compound object into its component objects.
Z	ZOOM	Increases or decreases the magnification of the view in the current viewpoint.

BASIC KNOWLEDGE OF AUTOCAD SOFTWARE

SHORTCUT	COMMAND	DESCRIPTION
AREA	AREA	Find the area of closed or open shapes in a drawing.
AR	ARRAY	Make a rectangle, polar or path array.
CHA	CHAMFER	Add slanted edges to sharp corners of objects.
CO	COPY	Copy objects or text.
DI	DISTANCE	Find the distance between two point in a drawing.
DIVIDE	DIVIDE	Divide objects into multiple equal parts.
DS	DDOSNAP	Open the drafting settings window.
HIDEOBJECTS	HIDEOBJECTS	Hide selected objects in a drawing.
ISOLATE	ISOLATE	Hide all objects in a drawing except the one we have selected.
LA	LAYERS	Open the Layer Properties Manage Palette (which allows you to tweak the settings for layers).
MA	MATCHPROPERTIES	Copy the properties of one object onto another.
MI	MIRROR	Produce a mirror copy of an object.
OOPS	OOPS	Restore the last object you deleted.
OP	OPTIONS	Open the options window (contains the settings for AutoCAD).
POL	POLYGON	Produce a polygon (you select the number of sides, from 3 to 1024).
PL	PLINE	Make a polyline.
REC	RECTANGLE	Create a rectangle.
RO	ROTATE	Rotate an object.
SC	SCALE	Change the scale of an object.
SCALETEXT	SCALETEXT	Change the scale of text.
TR	TRIM	Trim a shape or line.
UNITS	UNITS	Alter the unit settings of your drawing.

BASIC KNOWLEDGE OF AUTOCAD SOFTWARE

What is an AutoCAD ?

AutoCAD is a commercial computer-aided design (CAD) and drafting software. Developed and marketed by Autodesk, AutoCAD was first released in December 1982 as a desktop app running on microcomputers with internal graphics controllers.

Advantages of AutoCAD

➤ Draw to Scale

One of the main benefits of AutoCAD is that it allows you to draw to scale. You start by choosing the appropriate units of measurement. Then, you can draw your model at 1:1 scale. This allows you to easily determine the actual size of the product you're drawing. You can also adjust the scale to see how it would look in different sizes without having to adjust the drawing itself.

➤ Easy Layout and Viewing

When you're using AutoCAD, it's easy to zoom in and out and pan to other areas of the drawing. This is particularly useful when you're working on large or complicated designs. The interface is easy to navigate, with various tools enabling you to view your drawing from different distances and perspectives.

➤ Draw Accurately

AutoCAD makes it easy to draw objects accurately, with various options to set the exact size and alignment that you need. On your screen, there's a rectangular grid. You can click on any interval on the grid to locate the point that you need. If this isn't accurate enough for you, you can use your keyboard to enter the exact coordinates of the location at which you want to start drawing.

➤ Save Time and Money

One of the main benefits of computer-aided design is that it's incredibly efficient. All of the above factors contribute to a much quicker and easier design process. This allows you to finish a project as fast as possible, saving you time and money.

➤ Make Changes Easily and Reduce Risk of Error

In AutoCAD, you don't have to go through a long process just to adjust your drawing. You can create designs quickly and easily, using the software's easy tools to complete tasks in a fraction of the time it would take via manual drafting. It's also very easy to make changes and adjustments. When you're designing a prototype, you're likely to go through multiple drafts or phases. This will require you to constantly tweak your drawing until you get the desired product.

➤ Identify Design Problems

With CAD, you can see a 3D image of your drawing. You can rotate it to examine it from all angles, as well as changing colors and line weight to get the appearance you're looking for. Visualizing your product in this way allows you to identify and solve any problems with the design before the production process starts.

➤ Store and Transfer Data Safely

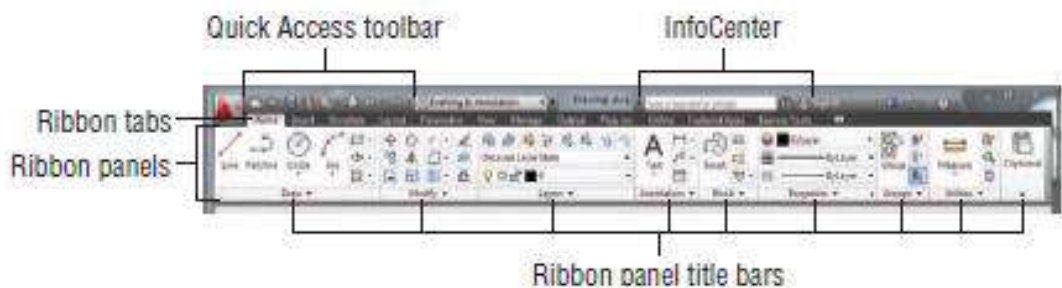
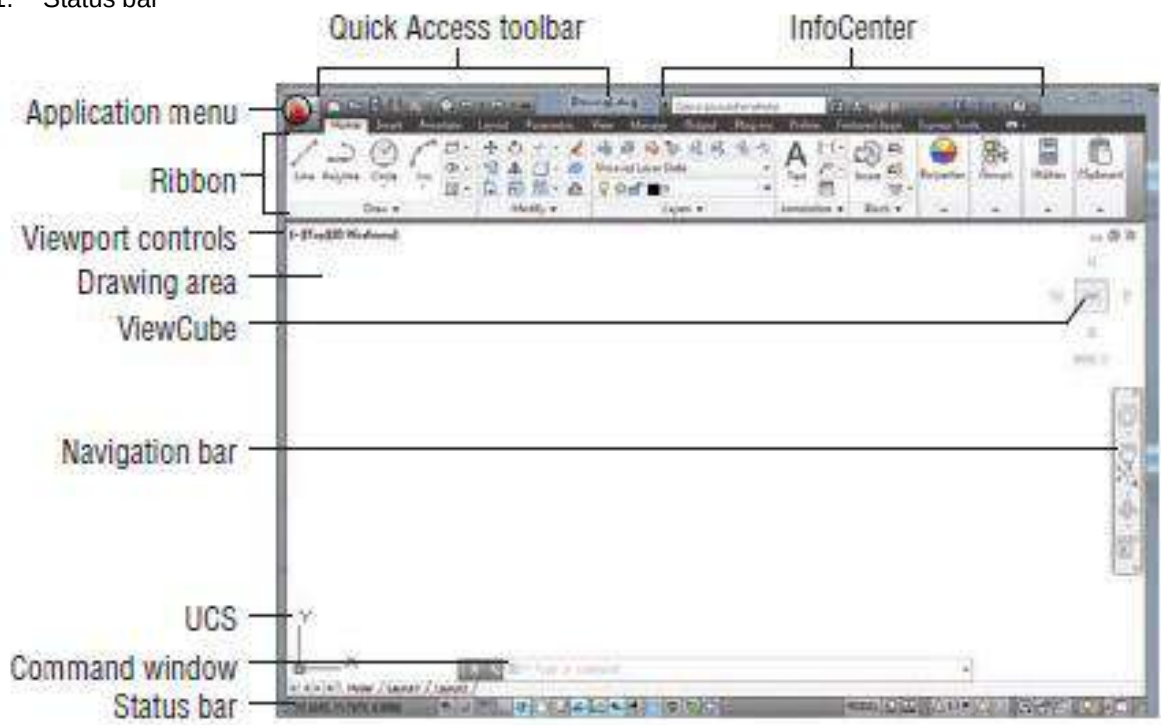
If you have a large design team, you may need to have multiple people working on one project or file at the same time. AutoCAD allows you to do this. The software creates a database of everything you draw, tracking every single change that is made to each drawing. Everything is stored securely, so you don't need to worry about data loss or corruption. You can also upload files online and share them between different parties with the click of a mouse.

BASIC KNOWLEDGE OF AUTOCAD SOFTWARE

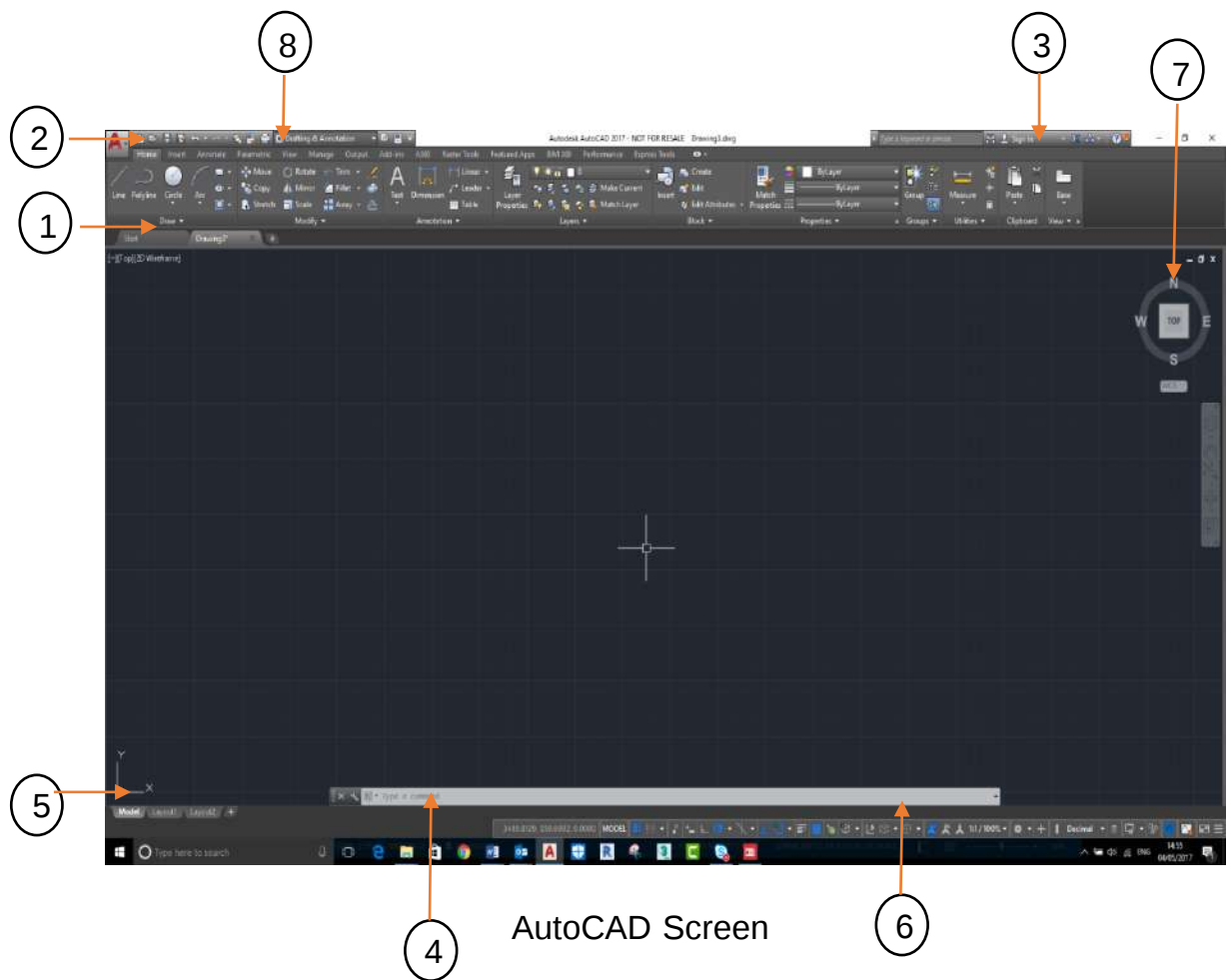
The AutoCAD window

The AutoCAD software window is divided into 11 parts

1. Application menu
2. Quick access toolbar
3. InfoCenter
4. Ribbon
5. Drawing area
6. UCS Icon (used coordinate system icon)
7. Viewport Controls
8. View Cube
9. Navigation bar
10. Command window
11. Status bar



BASIC KNOWLEDGE OF AUTOCAD SOFTWARE



AutoCAD Screen

1. The Ribbon

Maximize the area available for work using a compact interface that contains many of the same tools and controls available in toolbars and dialog boxes. The ribbon can be displayed horizontally across the top of the drawing window, vertically to the left or right of the drawing window, or as a floating palette.

2. The Menu Browser

Browse all of the classic drop-down menus available in AutoCAD, or perform a real-time search of the menus, menu actions, tooltips, command prompt text strings, and tags. Use the menu browser to browse for recent documents, currently open documents, and commands recently executed from the menu browser.

3. Info Center

Search for information through keywords or phrases, display the Communication Center panel for product updates and announcements, or display the Favorites panel to access saved topics. You can also receive information from RSS feeds to which you subscribe, or feeds published by your CAD manager.

4. The Command Prompt

Execute a command by entering the full command name or command alias at the command prompt and pressing ENTER or SPACEBAR. When Dynamic Input is on and is set to display dynamic prompts, you can enter many commands in tooltips that are displayed near the cursor.

5. Viewports

Display multiple views of the same drawing, each with different visual styles. Add or remove viewports using the VPORTS command, or from the ribbon on the View tab in the Viewports panel.

6. Status Bar

View the coordinate values of your cursor, and access several buttons for turning drawing tools on and off, as well as many display tools used to scale annotations.

BASIC KNOWLEDGE OF AUTOCAD SOFTWARE

7. View Cube

Display visual feedback of the current orientation of a model, or adjust a model's viewpoint. Restore the previous view, or click and drag over the Rewind wedge to scroll through the navigation history to restore a previous view. You can access the View Cube from the drawing status bar.

8. Quick Access Toolbar

Store commands that you frequently access in AutoCAD. By default, you can access New, Open, Save, Plot, Undo, and Redo from the Quick Access toolbar. Add commands to the Quick Access toolbar using the shortcut menus of all commands on the ribbon, menu browser, and toolbars.

Function Keys:

Keys	Feature	Description
F1	Help	• Displays help for the active tooltip, command, palette or dialog box.
F2	Expanded history	• Display an expanded command history in the command window.
F3	Object snap	• Turns objects snap on and off.
F4	3D Object snap	• Turns additional objects snaps for 3D on and off.
F5	Isoplan	• Cycles through 2D isoplan settings.
F6	Dynamic UCS	• Turns automatic UCS alignment with planar surface on and off.
F7	Grid display	• Turns the grid display on and off.
F8	Ortho	• Locks cursor movement to horizontal or vertical.
F9	Grid snap	• Restricts cursor movement to specified grid intervals.
F10	Polar tracking	• Guides cursor movement to specified angles.
F11	Object snap tracking	• Tracks the cursor horizontally and vertically from object snap locations.
F12	Dynamic input	• Displays distances and angles near the cursor and accepts input as you use Tab between fields.



Function keys

BASIC KNOWLEDGE OF AUTOCAD SOFTWARE



Options

1. Access option command

1. Click – on application menu
2. Click – on option (right side bottom)
- or
1. Type – option in the command bar.

Changing the color of the drawing window using option dialog box

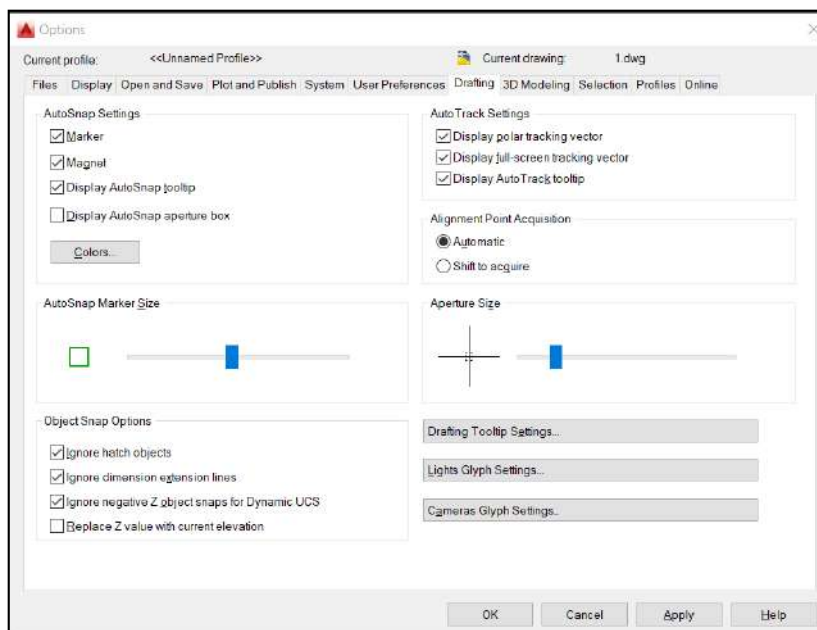
1. Click – on display tab>window element>color theme
2. Press – on color dialog box
3. Click – on down arrow (color dialog box)
4. Choose – color
5. Click –on apply and close.

Changing the mouse right button behavior using option

1. Click – use and preferences
2. Press – right click customization.
3. Turn on – time sensitive right-click.
4. Click – on apply and close

Changes in default options

1. We can change fonts
2. We can change Auto Snap marker size
3. We can change Aperture size

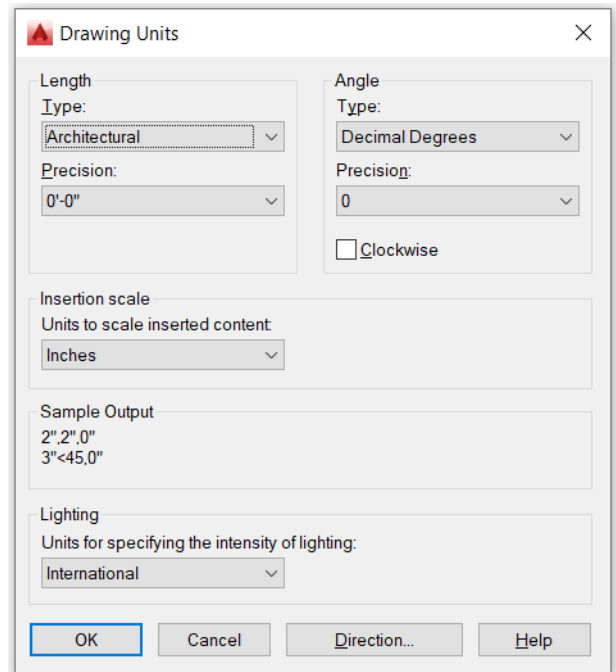


Option Dialog Box

BASIC KNOWLEDGE OF AUTOCAD SOFTWARE

Units

1. Type – DDUNITS at the command bar.
command : DDUNITS or UN
2. Press – enter
3. Specify architecture on decimal in the type unit
4. Specify precision according to your understanding.
5. Specify insertion scale Inches or Feet.
6. Click - Ok



Unit Dialog Box

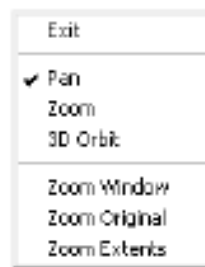
Pan

To shift the location of a view.

1. Choose – view, pan
or
2. Click – the pan icon
or
3. Type – Pan at the command bar.
command : Pan or P
4. Press – enter

Notes

- While in the PAN command, click with the right mouse button to see the following menu
- Panning can also be done by using the window scroll bars.



Navigation bar

BASIC KNOWLEDGE OF AUTOCAD SOFTWARE



Zoom

To increase or decrease the apparent size of the objects in the current workspace.

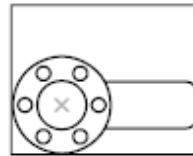
1. Choose – view, zoom
or
2. Click – the zoom icon 
or
3. Type – zoom at the command bar.
command : Zoom or 'Z'
4. Type – one of the following options:

The following options are:

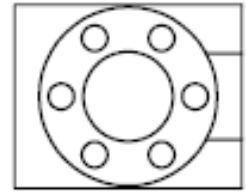
1. All – Places entire drawing (all visible layers) on display at once. Forces a regeneration.
2. Extents – display current drawing content as large as possible.
3. Previous – restores previous view.
4. Window – designates rectangular area to be drawn as large as possible.
5. Number – magnification relatives to zoom all display.
6. NumberX – magnification relative to current display.
7. Center – specifies center point and new display height.
8. Dynamic permits you to pan a box representing the viewing screen around the entire generated portion of the drawing an enlarge or shrink it.

Notes

- While in ZOOM command, click with the right button to see the menu to the right



Before zoom



After zoom



Navigation bar