

14 Nov 11



Building Drawing using AutoCAD

UNIT-01 (Introduction)

Building Drawing $\rightarrow$ (BD)

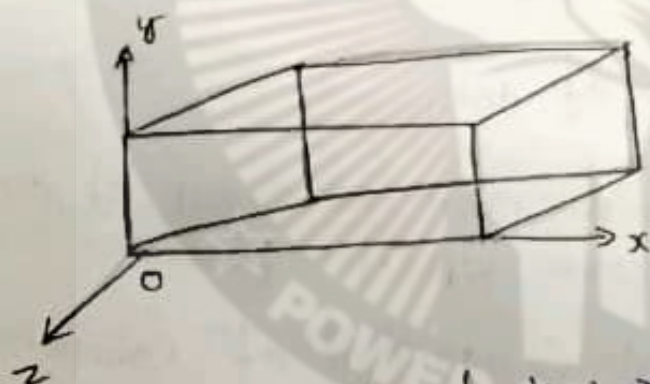
Before going to read this subject

It is common for all branch

Engineering graphics or Engineering Drawing

Engineering drawing or Engineering graphics :-

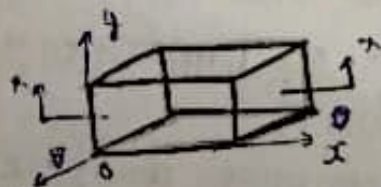
Plan $\rightarrow$ or top view Rectangle
elevation $\rightarrow$ or front view Rectangle
left side or view Side view $\rightarrow$ or Right side view Rectangle



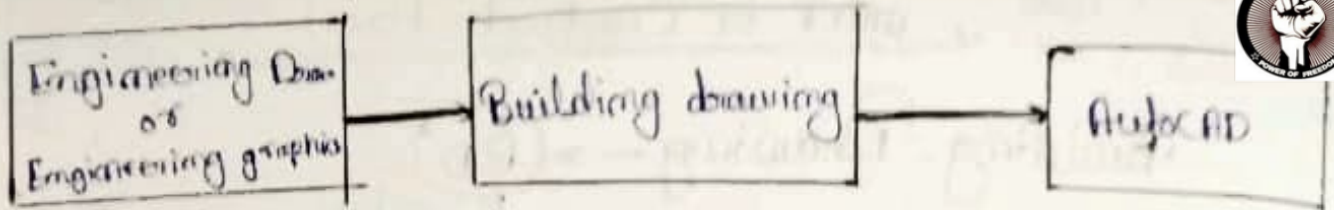
3-Dimensional object

Section $\Rightarrow$ Sectional view $\Rightarrow$ Rectangle with diagonal lines Rectangle

Ques Why we cut the section for an object?



Ans To know the internal detail of an object it is essential to cut the section of an object.



① Data, Program, Hardware, Software :-

Data :-

Collection of information and facts.

(सूचना व तथ्य
को data कहते हैं)

eg :-

Room
upto the 10th
standard

Side
upto the 10th
standard

Maths $\rightarrow \frac{36}{100}$
Science $\rightarrow \frac{20}{100}$

Science $\rightarrow \frac{35}{100}$
Maths $\rightarrow \frac{22}{100}$

I. Sc
├── PER
└── PCB
 ├── Ram
 └── seeds

Program :- Group of data.

Software :- Set of Program or group of program
the perform specific function.

Hardware :- Physical Component of Computer.
Known as Hardware.

AutoCAD :- It is one of the software by which
we can make 2-Dimensional and 3-Dimen-
sional modelling.

Projection :- In engineering graphics, projection
are mainly two types :-

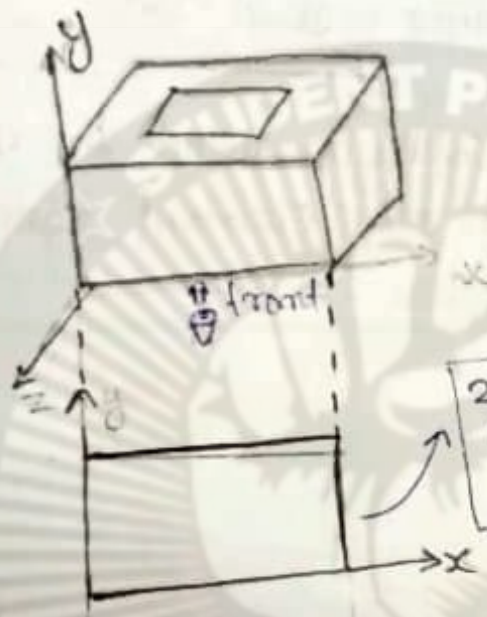


① Orthographic projection or orthographic view
(2D)

② Isometric Projection or Isometric view
(3D)

③

3-Dimensional view → 3-Dimensional axes → Isometric view or Isometric projection



2-Dimensional axes → 2-Dimensional axes → orthographic projection or orthographic view

23rd Nov

④ Advantages of CAD over the manual drawing →

- ① Easy to draw
- ② Less time consumption
- ③ High Accuracy and precision achieved.
- ④ Easier Modification.
- ⑤ Provided good storage capacity.
- ⑥ Detection of errors is easier.

⑤ AutoCAD :- or simply CAD

↳ It stands for Computer Aided design.



- ↳ AutoCAD is a Software mainly used for 2D and 3D modelling but AutoCAD perform best function in 2D modelling.
- ↳ AutoCAD Software is developed or manufactured by Autodesk inc.
- ↳ In india 80% 2D modelling is perform by the help of Autocad.
- ↳ Some of the Software used for

⊕ Some of the Software used for 2D and 3D modelling in our current scenario except Autocad →

- 1) Solid Pro
- 2) Rivet
- 3) 3Dmax
- 4) Felix Cad
- 5) Autocad civil 3D
- 6) Primavera etc.

NOTE ÷ For ^{Students} civil Engg → for 2D and 3D modelling they should go through the Autocad and Solid Pro Software.

- ⊕ package of MS-office
- ① MS-word
 - ② MS-Excel
 - ③ MS-PPP (Power Point)

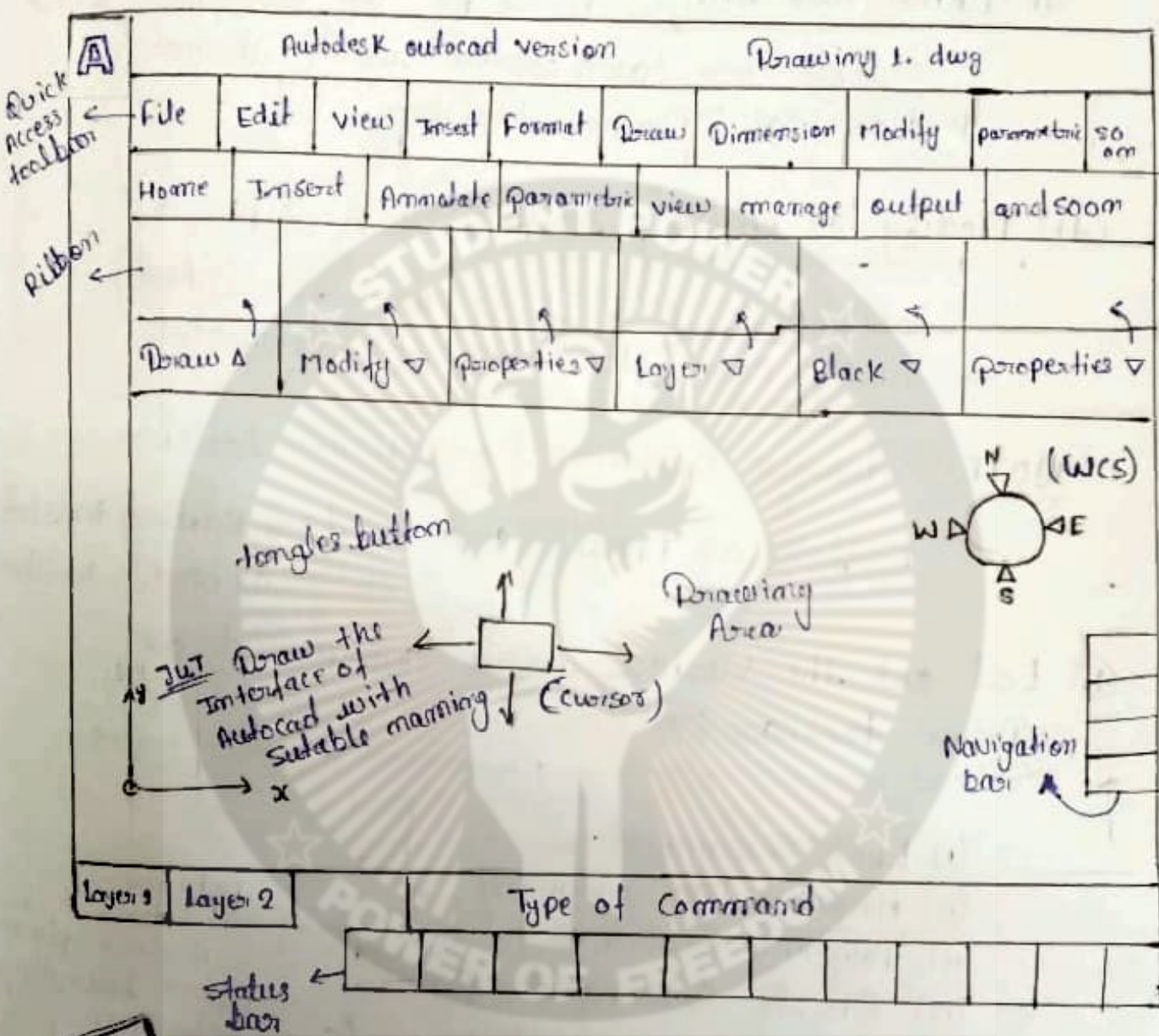
V.V.T

UNIT → 02 (Getting familiar with AutoCAD)



P.T.T

Interface of AutoCAD →



26th NOV

⊕ Toolbars →

bar means collection

tools means

Definition → A bar containing tools ; known as "toolbar".

→ Mainly we have to understand two important toolbar.

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(i) Draw Toolbar

(ii) Modify or editing Toolbar

① DRAW TOOLBAR → A type of toolbar whose tools are associated with drawing, known as "Draw toolbar."

② Modify or editing toolbar → A type of toolbar whose tools are associated with correction in the drawing.

NOTE → Draw Command ↔ Draw toolbar

Editing or Modify command ↔ Editing toolbar or modify toolbar

③ List out the various draw command or Draw toolbar →

(i) Line Command ———

(ii) Angular line command

(iii) Polyline Command ———

(iv) Circle Command ○

(v) Arc Command ∪ ∩ ∪ ∩

(vi) Rectangle Command □

(vii) Polygon Command

(viii) Ellipse

(ix) Construction line command

Polygon →

A close plan figure boundary only line segment.

28th NOV



④ DRAW TOOLBAR :-

① Line Command :-

Function $\rightarrow$ By this command, we can draw a certain or specific length of a line in either horizontal or vertical direction.

Shortcut Key $\rightarrow$ L $\leftarrow$

② Angular Line Command $\rightarrow$

Function $\rightarrow$ By the command, we can draw a certain or specific inclined length of a line.

Shortcut Key $\rightarrow$ L $\leftarrow$

③ Polyline Command $\rightarrow$

Function $\rightarrow$ By this command, we can draw multi line of specific or certain length at a type.

Shortcut Key $\rightarrow$ PL $\leftarrow$

④ Circle Command $\rightarrow$

Function $\rightarrow$ By the command, we can draw the circle with centre of any specific radius.

Shortcut Key $\rightarrow$ C $\leftarrow$



⑤ Arc Command $\rightarrow$ Arc is a part of a circle having certain centre and Radius.

function $\rightarrow$ By this command we can draw an arc with center of $\downarrow$ R any specific radius.

Shortcut key $\rightarrow$ A+I

⑥ Rectangle Command $\rightarrow$

function $\rightarrow$ By this command; we can draw a rectangle of certain length and breadth.

short key $\rightarrow$ REC+I

⑦ Polygon Command $\rightarrow$

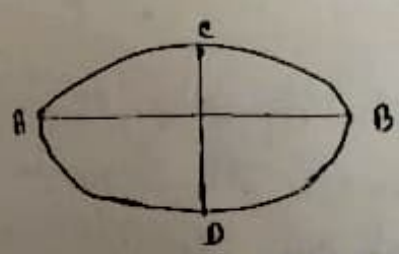
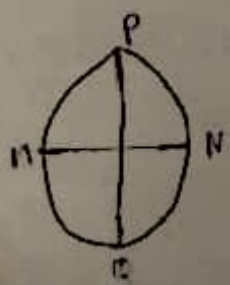
function $\rightarrow$ By this command, we can draw various types of polygon.

Shortcut Key $\rightarrow$ POL+I

⑧ Ellipse Command $\rightarrow$

* Axis whose length is greater, is known as "Major axis".

* Axis whose length is smaller; is known as "Minor axis".



Major axis
 $\downarrow$
Major diameter
Minor axis
 $\downarrow$
Minor diameter

AB $\rightarrow$ Major Axis
CD $\rightarrow$ Minor Axis
PQ $\rightarrow$ Major Axis
MN $\rightarrow$ Minor Axis



Function :- By this command ; we can draw an ellipse of specific length of major and minor axis.

Shortcut Key $\rightarrow$ **EL**

9 Construction Line Command $\rightarrow$

function $\rightarrow$ By the command we can draw infinity length of line either in horizontal or vertical direction. This command is useful in drawing the projection.

Shortcut Key $\rightarrow$

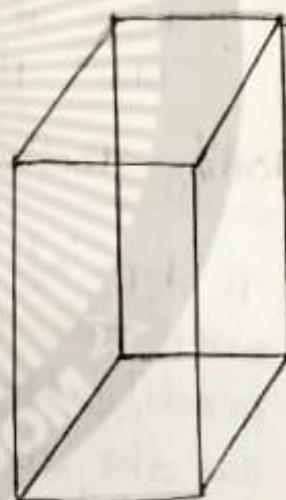
XL

front view
or
Elevation $\rightarrow$

Construction $\leftarrow$

Top view
or
Plan $\rightarrow$

Construction $\rightarrow$



Ques :- Write short notes on "draw tools-bar" (sm)



NOTE :- It is noticeable that while making drawing in AutoCad following four toggles buttons of status bar is always for effective and efficient drawing :-

- (i) Dynamic input
- (ii) polar tracking
- (iii) object snap tracking
- (iv) object snap

NOTE :- while making drawing i.e. plan, elevation, section etc. with only horizontal and vertical line then we have to "OFF" the object snap button and at the same time we have to on "ON" the orthomode button.

Ⓐ Modify Toolbar or Editing Toolbar :-

A type of toolbar whose tools are associated with the correction in the drawing or modification in the drawing or changes in the drawing. following are the important tools of modify toolbar are listed below :-

- (i) Copy Command
- (ii) Move Command
- (iii) Offset Command
- (iv) Trim Command
- (v) Fillet Command
- (vi) Chamfer Command
- (vii) Length Command
- (viii) Dimensioning Command
- (ix) Hatch Command

① Copy Command ÷

Short cut → CO + I

By the Copy Command; we can make the similar object from the given object.

② Move Command ÷

Short cut Key ÷ M + I

By this Command, we can shift the object from one place to another.

③ Offset Command ÷

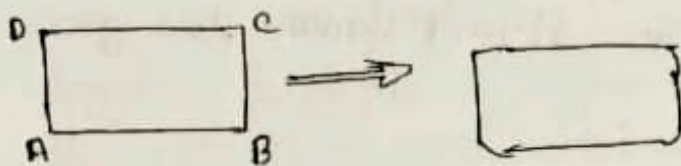
A ————— B
A ————— B
A ————— B

24 Dec Trim Command ÷

Short cut Key → TR + I

⑤ Fillet command $\Rightarrow$

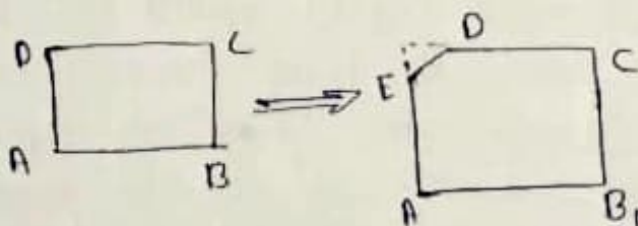
short cut key $\rightarrow$ F + 1



The main function of fillet command is to round off the corner position.

⑥ Chamfer Command $\Rightarrow$

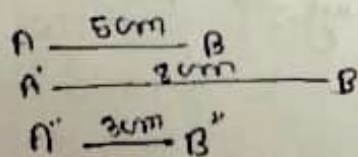
short cut key $\rightarrow$ CH + 1



The main function chamfer command is to convert the corner position to the inclined position.

⑦ Lengthen Command $\Rightarrow$

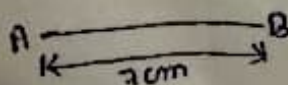
short cut key $\rightarrow$ LEN + 1



function $\Rightarrow$ The main function of lengthen command is to increase or decrease the given length of line.

⑧ DIMENSION COMMAND $\Rightarrow$

short cut key $\rightarrow$ DLT + 1



function $\div$ Dimension Command is used to provide the dimension of a given length of line

9) HATCH COMMAND $\div$

short cut key $\rightarrow$ H $\downarrow$



function $\div$ The main function of Hatch Command is to provide shading to unfill region.

SAMPLE QUESTION

unit No 01 (Introduction)

- Q(1.) Define the term plan, Elevation and section.
- Q(2.) Write shorter notes "AutoCad".
- Q(3.) Explain some of the Softwares used for 2D and 3D modelling.
- Q(4.) Differentiate between Manual drawing and AutoCad drawing.
- Q(5.) Write down the application or uses of AutoCad.
- Q(6.) Define the term data Program software.
- Q(7.) what do you mean by RF i.e. Representative fraction?

SAMPLE QUESTION FOR UNIT NO 02 (Getting familiar with Autocad)

Ques 1 Draw the interface of Autocad with suitable labelling.

M.T.R
Ques Write down the command with their function and shortcut for the draw toolbar.

Ques Write down the command with either function and shortcut for the modify toolbar.

Ques Write down the various toggle buttons for the status bar.

Ques write down the function and shortcut for the Trim, chamfer and fillet command.

Ques Write down the shortcut key for the following Autocad Command:->

- | | |
|-----------------------|---------------|
| (i) Dimension | (vii) Arc |
| (ii) Hatch | (ix) polyline |
| (iii) Lengthen | (x) Move |
| (iv) Offset | (xi) Copy |
| (v) Construction line | |
| (vi) Ellipse | |
| (vii) Polygon | |