## Session 6 : Freehand Sketch



* To express the original ideas/designs on a clear sketch
* To clarify and record the verbal expression in form of sketch


## Various types of sketch



Less Detail, Less Structure, Less Restrictions

More Detail, More Structure, More Restrictions


## Sketch of bearing support




Faculty of Engineering, TU ME 111 Engineering Graphics TEP \& TEPE: International Programmes of Engineering

## Sketching of a horizontal line



## Methods of sketching a circle


(A)

- Sketch lightly enclosing square
- Mark the midpoint on each side
- Draw arcs tangent to the sides, and heavy in the final circle

(B)
- Sketch lightly
enclosing square
- Mark the mid-
point on each side
and draw diagonals
- Sketch light arcs
and heavy in the
final circle

(C)
- Sketch two center
lines \& $45^{\circ}$ radial
lines
- Sketch light arcs at
the estimated radius
from center
- Sketch the circle
heavily

(D)
- Prepare a trammel on a paper
- Move it to different positions and mark points
- Sketch the circle heavily ________ heanly


## Circle V.S. Ellipse

If the circle is viewed obliquely, it appears as an ellipse.


Orthographic views
Isometric view

## How to draw an ellipse



## Isometric ellipse


(A) Correct

(B) Incorrect

Importance of proportion


- Keep the sketch in proportion
- Establish the relative width compared to the height, using pencil as a measuring stick
- For this example, height is about 1.75 times the width


## Orthographic sketch



Final sketch
Step 4

## Isometric Sketch

Isometric axes:
1 vertical + 2 inclined axes oriented at $30^{\circ}$
 with the horizontal line


## Oblique Sketch

Oblique axes:
1 vertical + 1 horizontal +
1 inclined axes oriented at $30^{\circ}, 45^{\circ}$, or $60^{\circ}$ with the horizontal line


Cabinet oblique


## Sketch of lines




## Exercise 1: Draw multiview sketch

 (Front, Top, Right side views)

Note: Larger space between ticks indicates 5 mm ., and smaller space indicates 2.5 mm .

## Exercise 2: Draw an isometric sketch




