ICE-1108 Engineering Drawing

Lab 3

Pictorial and Isometric Views

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Pictorial Views

ii. **Pictorial views:**

Pictorial view is 3D which is used to visualize an object in one view.

With the help of pictorial view complicated engineering drawings can easily be communicated to the people who do not have sufficient training in understanding the O.V.

A pictorial view provides the main dimensions of the object.

It cannot be used as a working drawing.

It is used only to visualize the object.

Pictorial Views

ii. **Pictorial views:**

There are three main divisions of pictorial drawings:

- Axonometric
- Perspective
- Oblique

Types of drawing

Oblique:

If the rays are at an angle to the plane, the projective method is called oblique.

Perspective:

Rays are taken to a particular station point result in perspective projection. By the methods of perspective the object is represented as it would appear to the eye.

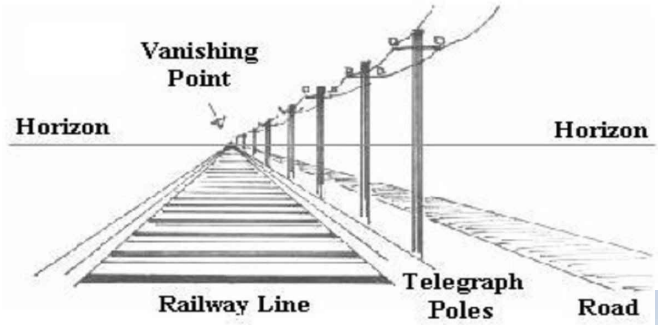
Perspective View

Perspective:

- If you look along a straight road, the parallel sides of the road appear meet at a point in the distance. This point is called the vanishing point and has been used to add realism to art since the 1400's in Florence, Italy (via city.net, no longer active).
- Suppose you want to draw a railroad track that vanishes into the distance. The rays from the points a given distance from the eye along the lines of the tracks are projected to the eye. The angle formed by these rays decreases with increasing distance from the eye. The picture below shows an overhead view of an observer (camera or eye) looking down the track.

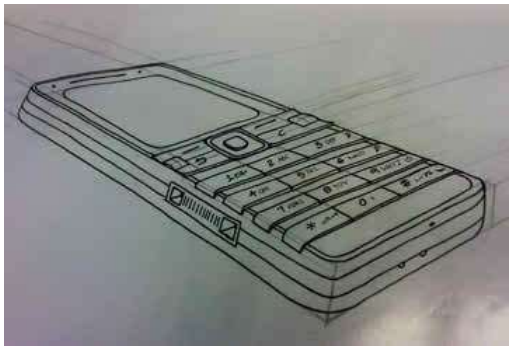
Perspective view

Perspective view



Perspective view

Perspective view



Axonometric

Axonometric:

i. Trimetric
ii. Dimetric
iii. Isometric

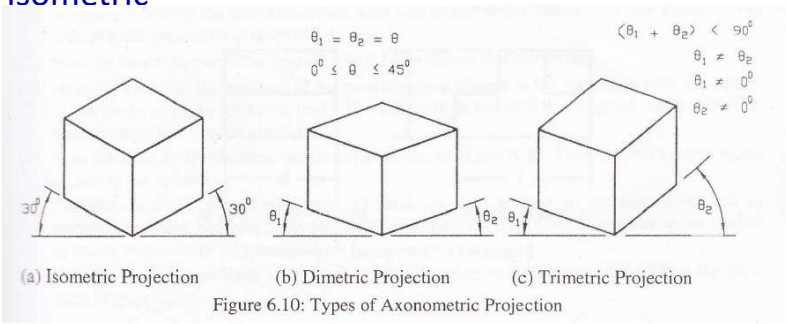
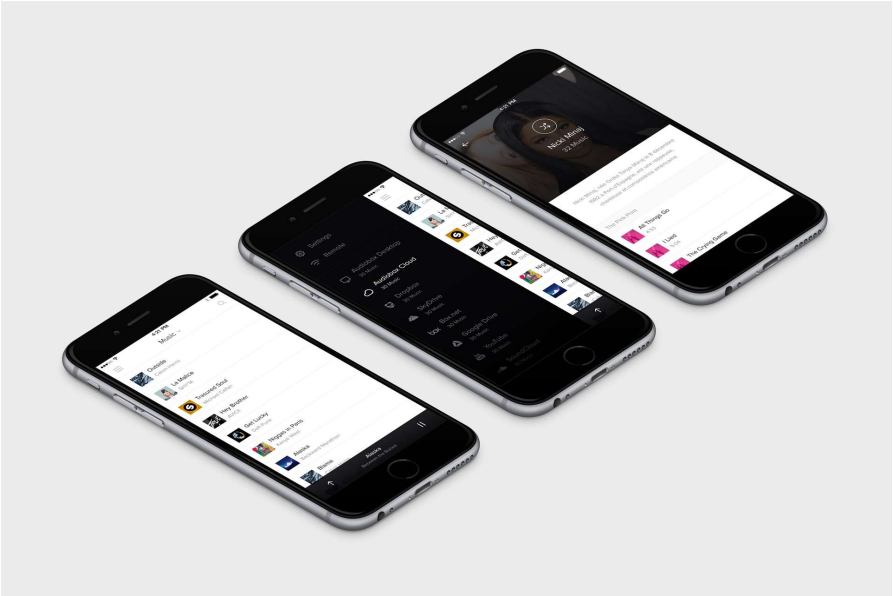


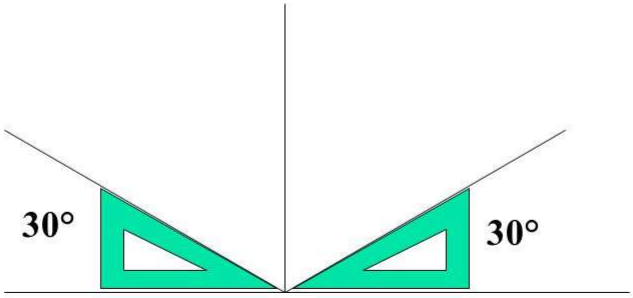
Figure 6.10: Types of Axonometric Projection

Axonometric

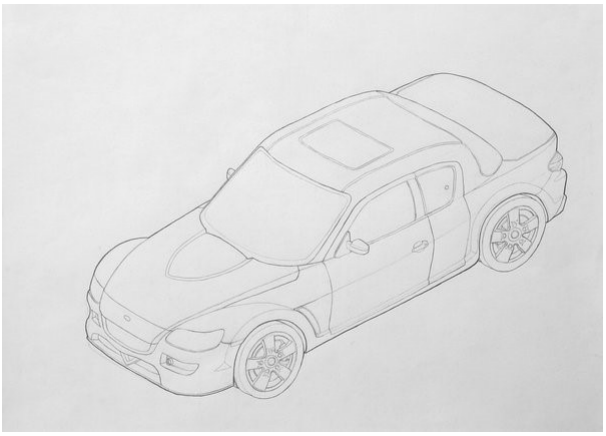


Isometric Drawings - Crates

Begin constructing your crate by drawing the 2 lines at 30° to the horizontal and the vertical line of the front corner.



Axonometric



Axonometric

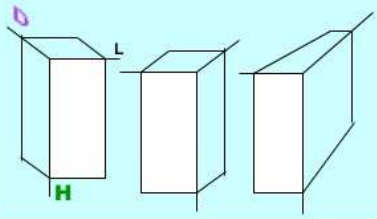
ISOMETRIC DRAWING

IT IS A TYPE OF PICTORIAL PROJECTION IN WHICH ALL THREE DIMENSIONS OF AN OBJECT ARE SHOWN IN ONE VIEW AND IF REQUIRED, THEIR ACTUAL SIZES CAN BE MEASURED DIRECTLY FROM IT.

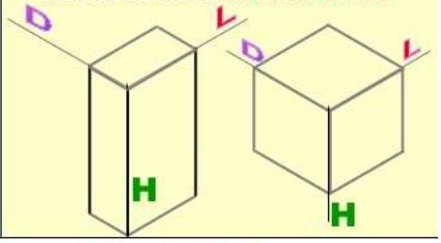
TYPICAL CONDITION.

IN THIS 3-D DRAWING OF AN OBJECT, ALL THREE DIMENSIONAL AXES ARE MENTAINED AT EQUAL INCLINATIONS WITH EACH OTHER.(120°)

3-D DRAWINGS CAN BE DRAWN IN NUMEROUS WAYS AS SHOWN BELOW. ALL THESE DRAWINGS MAY BE CALLED 3-DIMENSIONAL DRAWINGS, OR PHOTOGRAPHIC OR PICTORIAL DRAWINGS. HERE NO SPECIFIC RELATION AMONG H, L & D AXES IS MENTAINED.

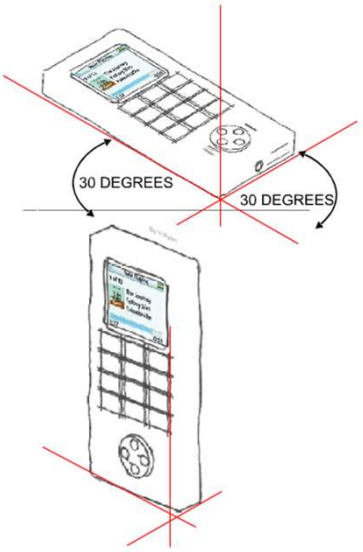


NOW OBSERVE BELOW GIVEN DRAWINGS. ONE CAN NOTE SPECIFIC INCLINATION AMONG H, L & D AXES. ISO MEANS SAME, SIMILAR OR EQUAL. HERE ONE CAN FIND EDUAL INCLINATION AMONG H, L & D AXES. EACH IS 120° INCLINED WITH OTHER TWO. HENCE IT IS CALLED ISOMETRIC DRAWING

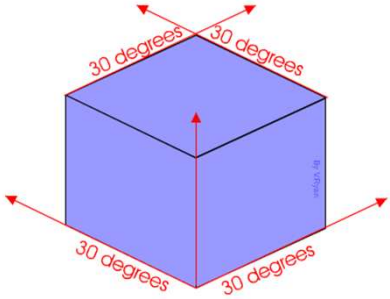


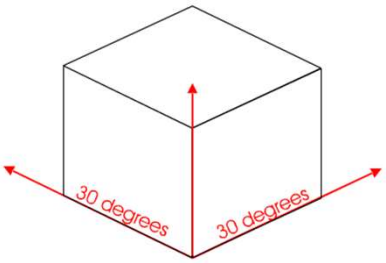
PURPOSE OF ISOMETRIC DRAWING IS TO UNDERSTAND OVERALL SHAPE, SIZE & APPEARANCE OF AN OBJECT PRIOR TO IT'S PRODUCTION.

Types of drawing



Types of drawing

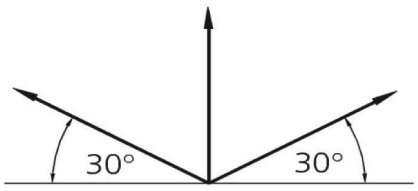




Types of drawing

Isometric Axes

- Vertical lines remain vertical
- Horizontal lines are inclined at 30 degrees
- Used to produce realistic looking 3D views



Types of drawing

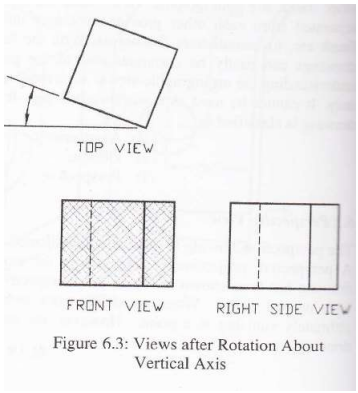


Figure 6.3: Views after Rotation About Vertical Axis

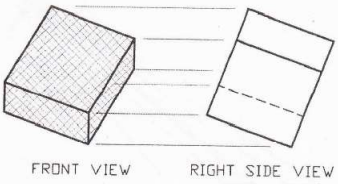
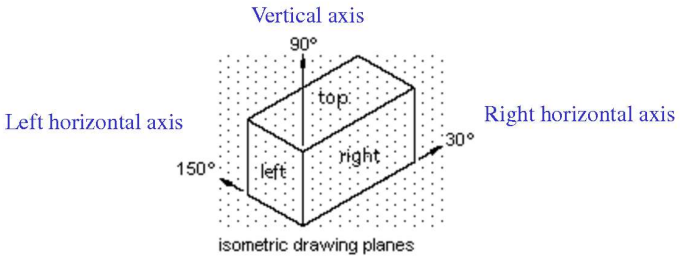


Figure 6.4: Views after Rotation about Horizontal Axis (Tilting)

Types of drawing



Types of drawing

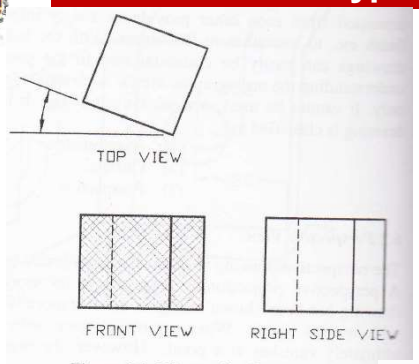


Figure 6.3: Views after Rotation About Vertical Axis

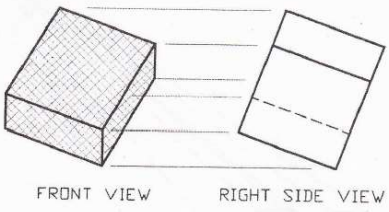
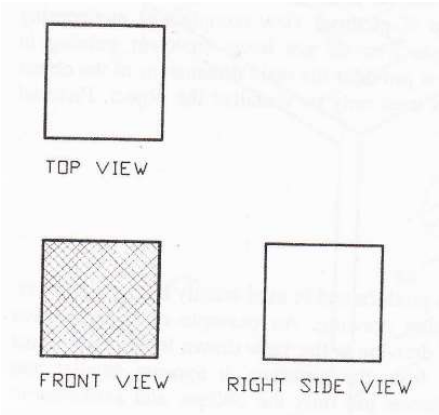
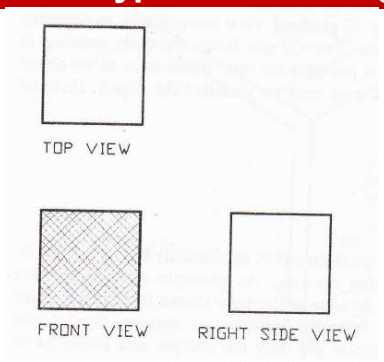


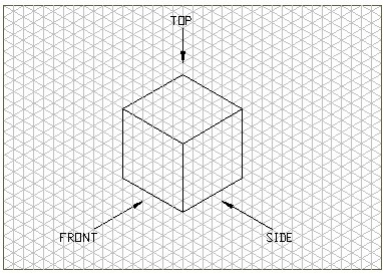
Figure 6.4: Views after Rotation about Horizontal Axis (Tilting)

Types of drawing

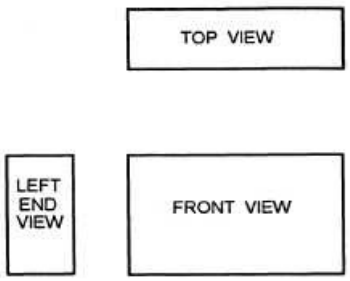


Types of drawing



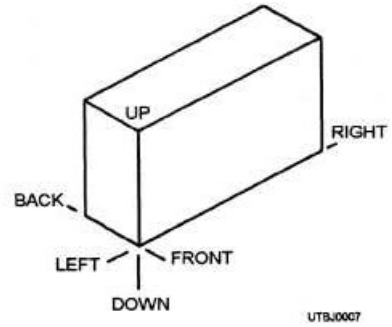


Types of drawing



A. ORTHOGRAPHIC

Types of drawing



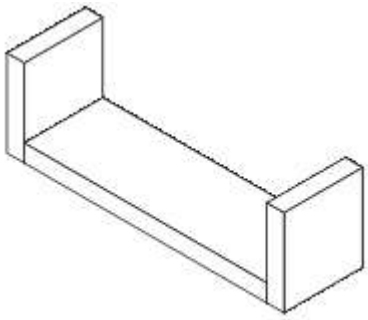
B. THREE-VIEW ISOMETRIC

Types of drawing

Top View

Front View

Side View



Isometric

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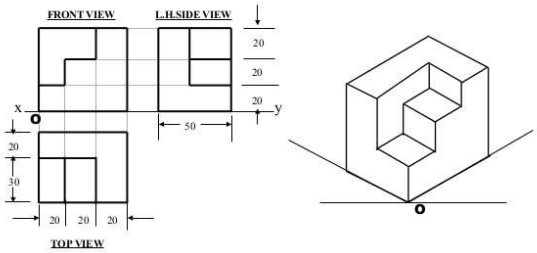
F.V. & T.V. and S.V.of an object are given. Draw it's isometric view.

STUDY ILLUSTRATIONS

ORTHOGRAPHIC PROJECTIONS




THANKS YOU
ICE Dept. Engineering Drawing