

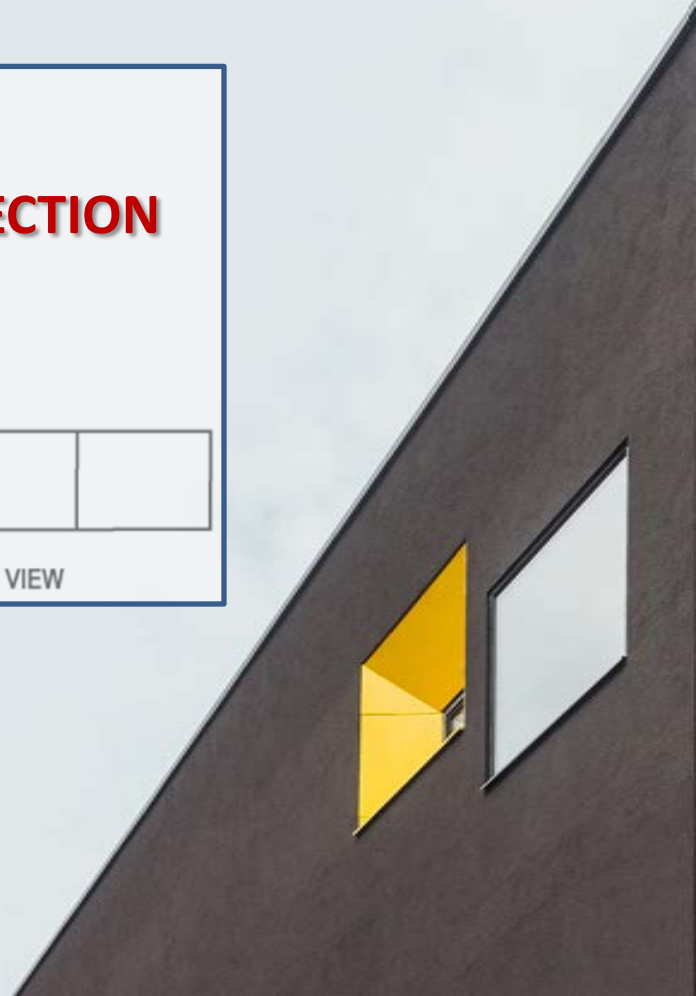
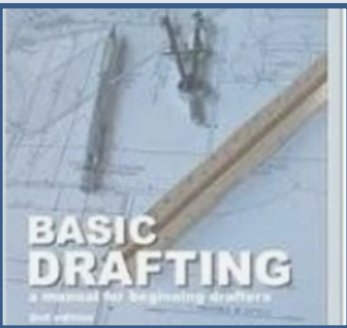
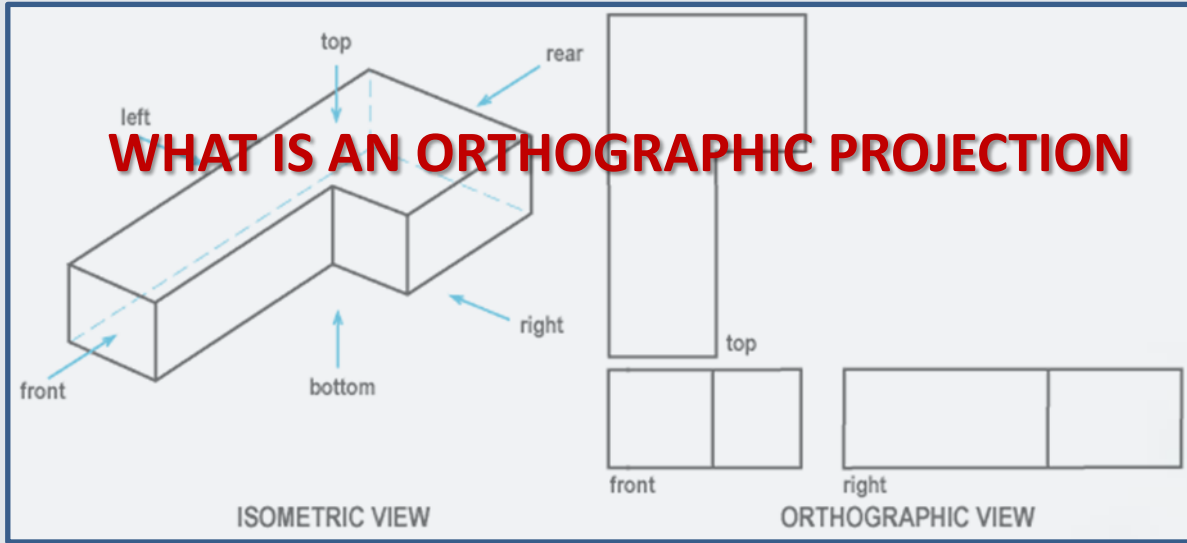


ORTHOGRAPHIC PROJECTION



LECTURE # 4
EDP CODE: 152007003
COURSE NAME: BASIC DRAFTING
ARCHITECT: NASEER ULLAH

WHAT IS AN ORTHOGRAPHIC PROJECTION



ORTHOGRAPHIC PROJECTION

Take a minute and imagine you are shopping for a chair to go in your living room. You find the perfect one, but it is way too expensive.

Fortunately, you have a cousin that builds furniture. Maybe he can build the chair for you! Describing the chair over the phone was more than a challenge. Your cousin suggests you send him pictures of the chair from multiple angles, along with the measurements.

This experience illustrates the process that a furniture designer must go through in order for the manufacturer to create the chair as intended.

Three-dimensional drawings can be used to show the overall concept and design, but they are often not clear or detailed enough.

Orthographic drawings can help to overcome those challenges.



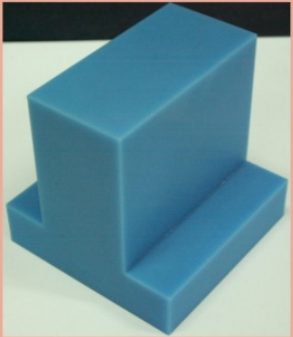
Projection Theory

ORTHOGRAPHIC PROJECTION

Purpose

- To graphically represent a 3-D object on 2-D media (paper, screen etc.).

Object (3D) placing on the paper (2D)



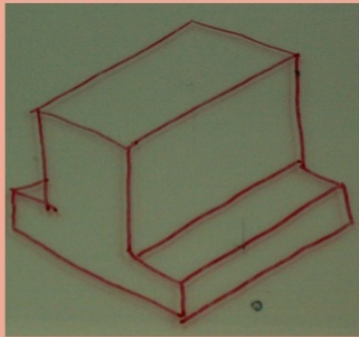
Inconvenient to communicate

Transparent plate is placed between object and observer's eyes.



Object's features are transferred through projection.

A view of an object on 2D media



Convenient to communicate

Orthographic projection, common method of representing three-dimensional objects, usually by three two-dimensional drawings in each of which the object is viewed along parallel lines that are perpendicular to the plane of the drawing.

Concept

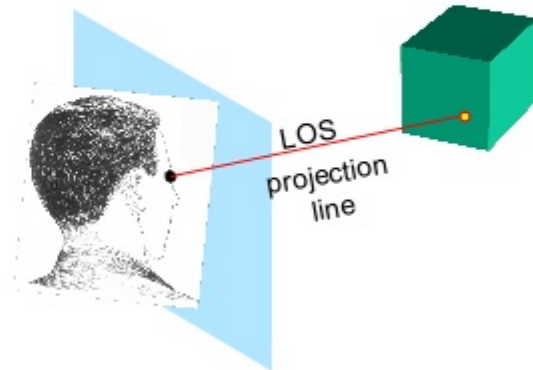
- A projection theory is based on 2 variables:
 - 1) Line of sight
 - 2) Plane of projection (image or picture plane)

- **Line of sight (LOS)**

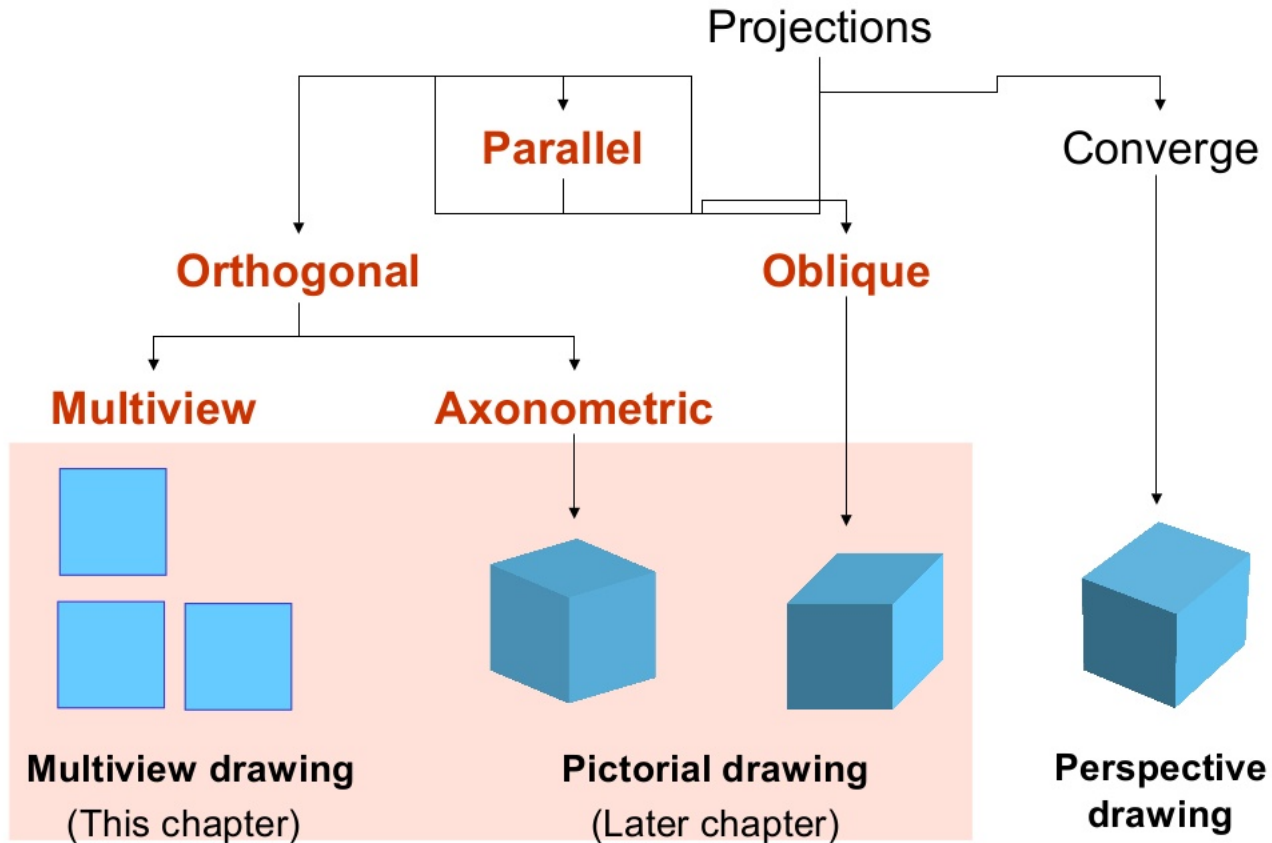
is an imaginary ray of light between an observer's eye and an object.

- **Plane of projection**

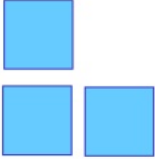

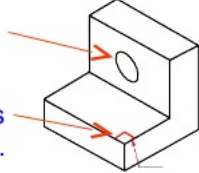
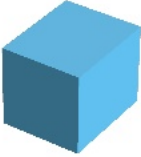
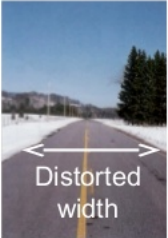
is an imaginary flat plane upon which the image created by the LOS is projected.



Summary : Types of views



View comparison

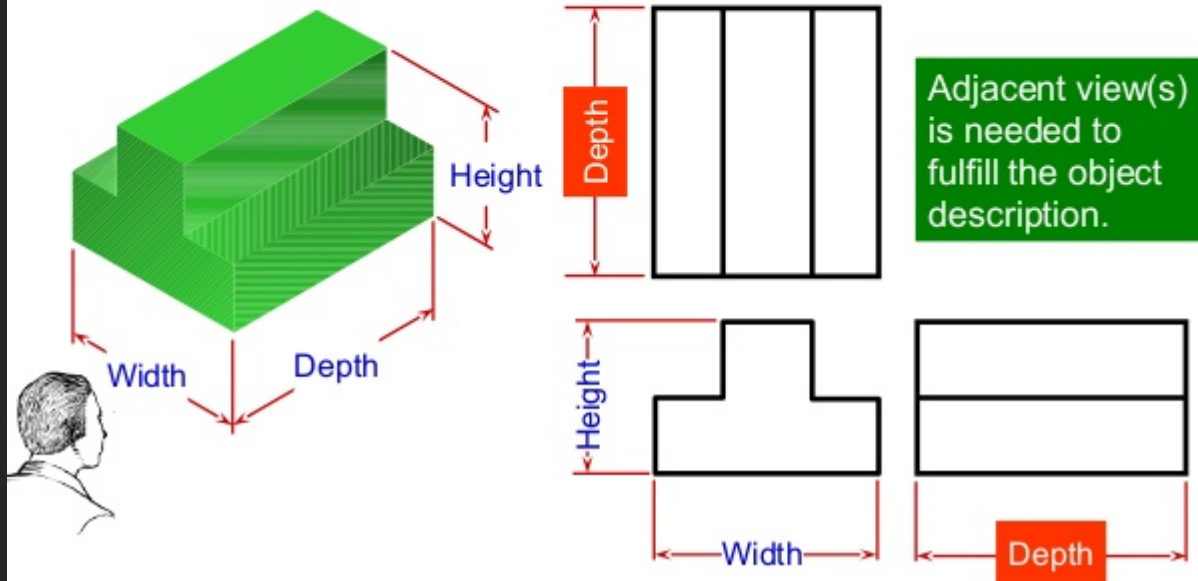
Type	Advantage	Disadvantage
Multiview drawing 	<ul style="list-style-type: none">● Accurately presents object's details, i.e. size and shape.	<ul style="list-style-type: none">● Require training to visualization.
Pictorial drawing 	<ul style="list-style-type: none">● Easy to visualize.	<ul style="list-style-type: none">● Shape and angle distortion Circular hole becomes ellipse Right angle becomes obtuse angle. 
Perspective drawing 	<ul style="list-style-type: none">● Object looks more like what our eyes perceive.	<ul style="list-style-type: none">● Difficult to create● Size and shape distortion 



Multiview drawing

Definition

- Multiview drawing is a set of related images that are created by viewing the object from a different direction.



LINE TYPES



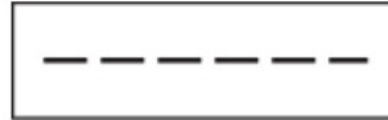
- **Visible lines**

Visible lines represent visible edges and boundaries.
Continuous and thick (0.5 - 0.6 mm).



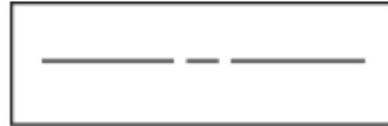
- **Hidden lines**

Hidden lines represent hidden edges and boundaries.
Dashed and medium thick (0.35 - 0.45 mm).



- **Center lines**

Center lines Represent axes of symmetry.
Long dash – short dash and thin (0.3 mm).



- **Dimension and Extension lines**

Dimension and extension lines are used to show the size of an object. In general, a dimension line is placed between two extension lines and is terminated by arrowheads, which indicates the direction and extent of the dimension.

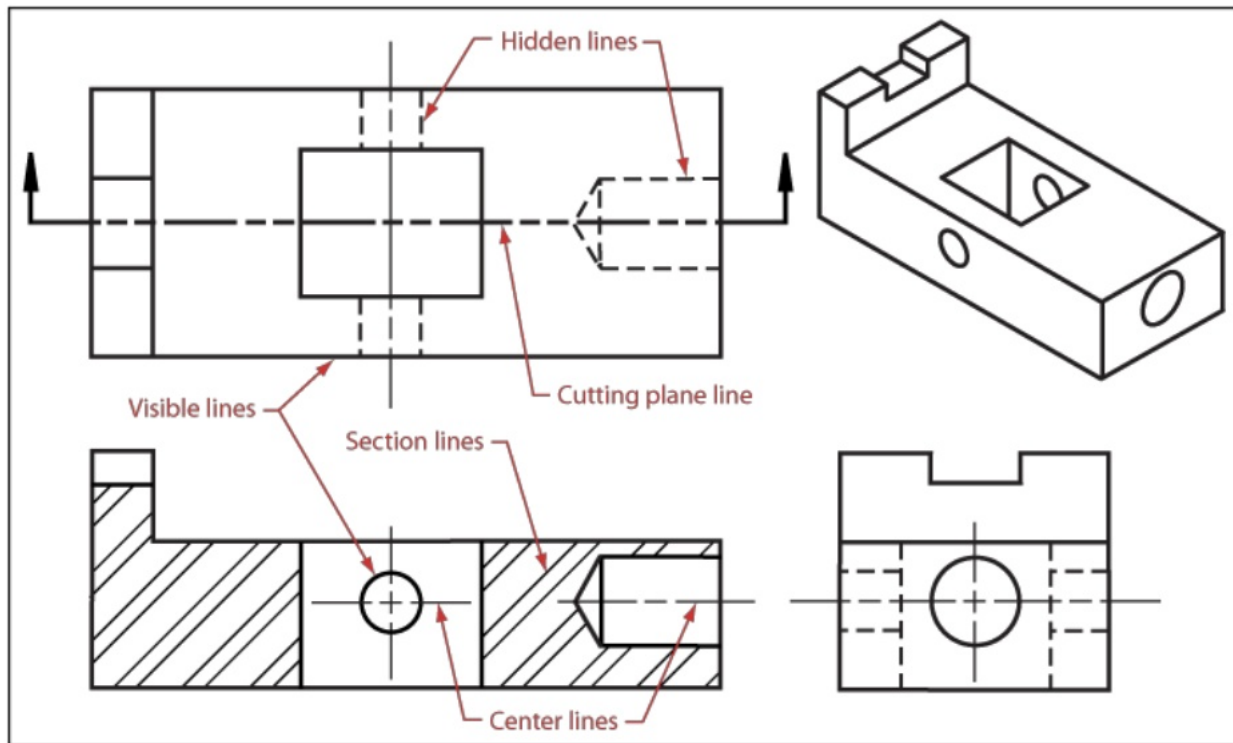
The line type is continuous and the line weight is thin (0.3 mm).

TEST:

http://www.engineeringessentials.com/ege/ortho/ortho_page5_ex1.htm



LINE TYPES





ORTHOGRAPHIC PROJECTION

Drawing Steps

1. Choose a front view.



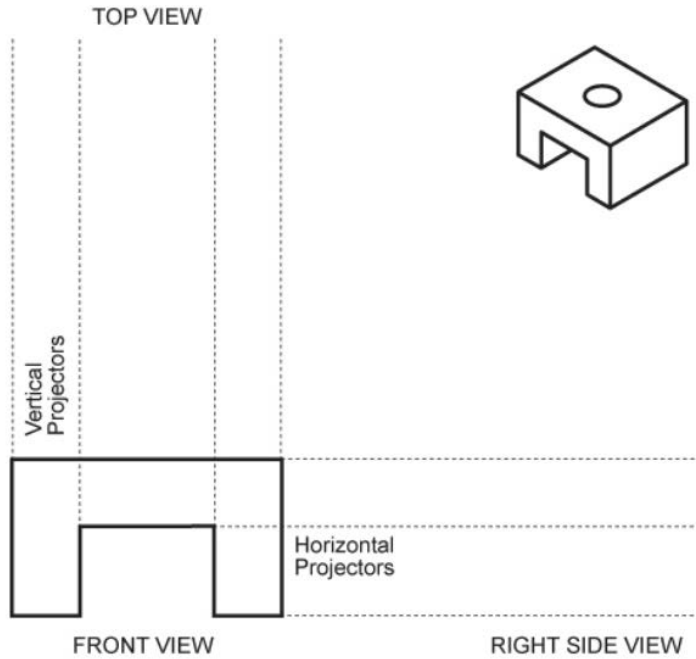
FRONT VIEW

4. Draw horizontal and vertical projectors.

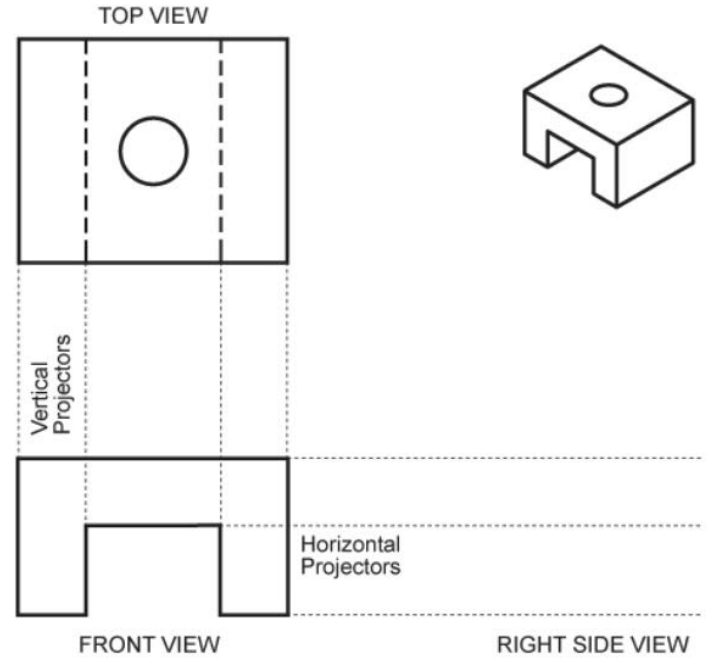


FRONT VIEW

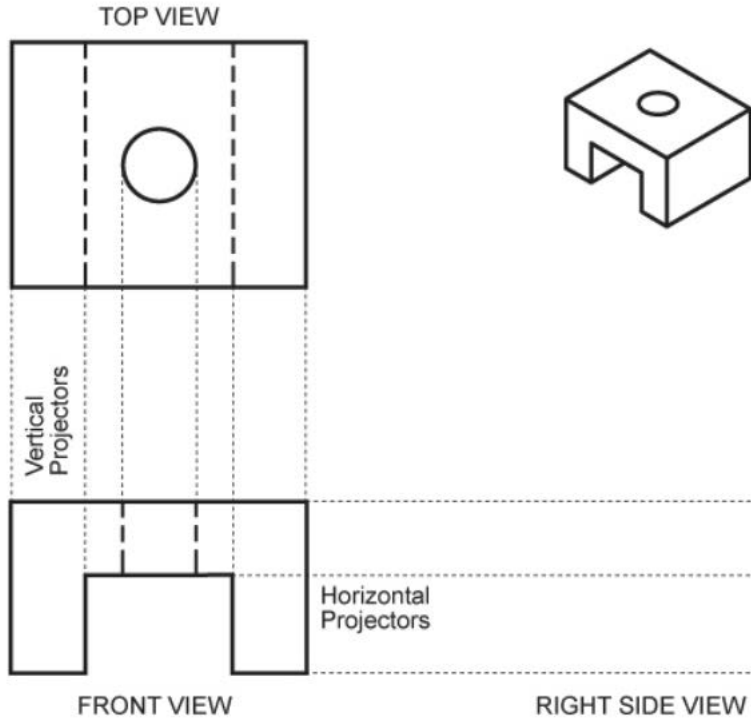
5. Draw the top view.



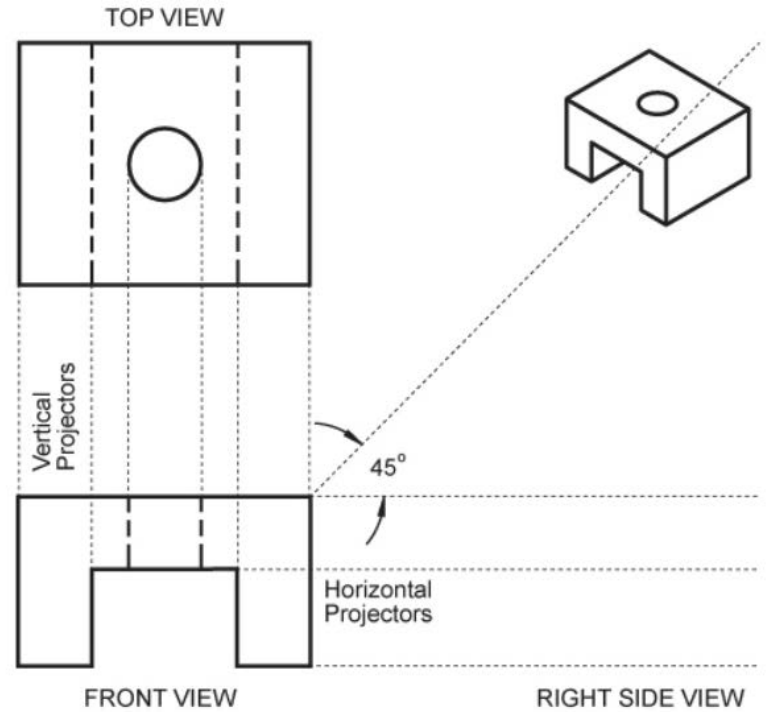
6. Project back to the front view if necessary.



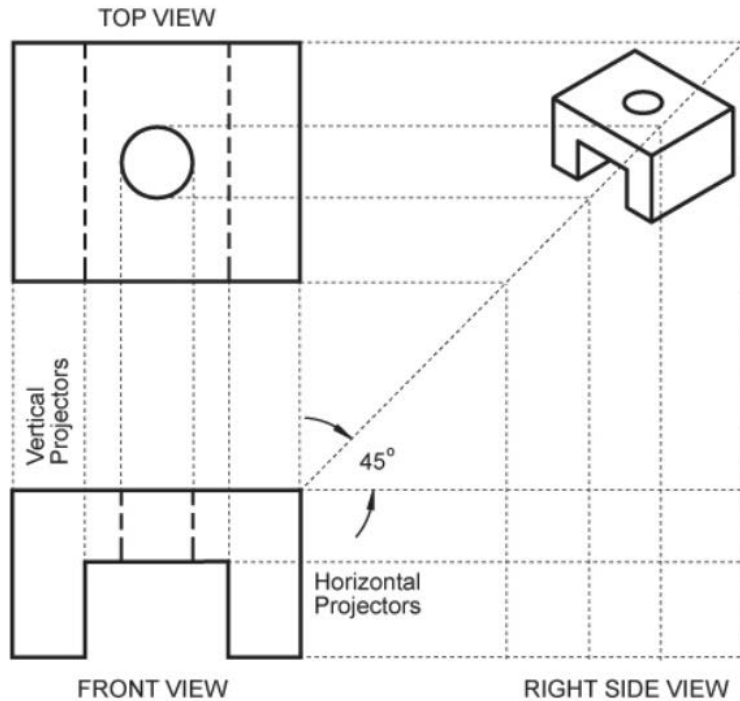
7. Draw a 45 degree projector off the front view.



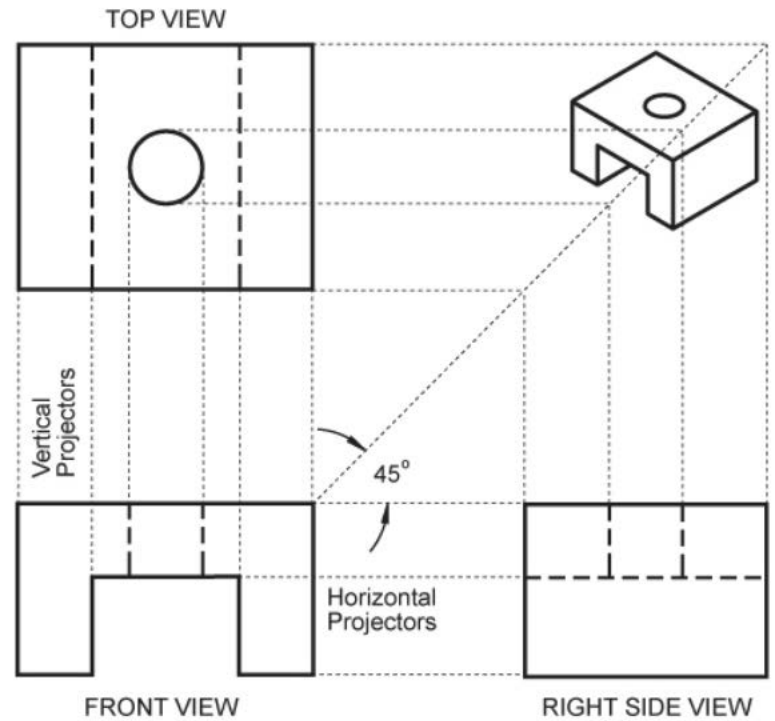
8. Project over from the top view and down.



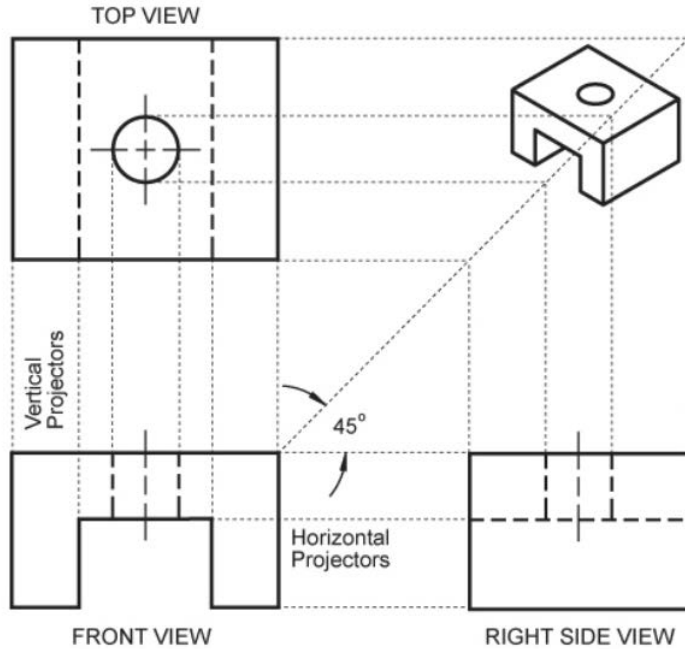
9. Draw the right side view.



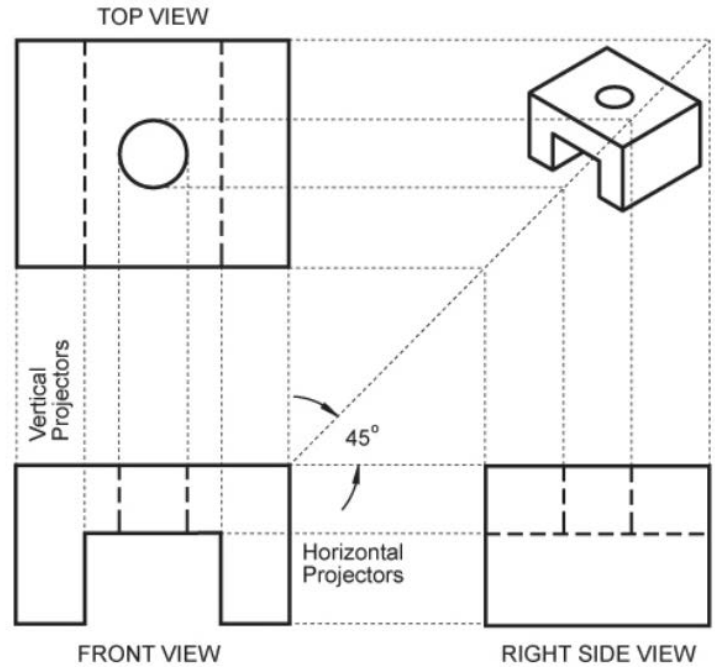
10. Project back from the right side view if needed. (We don't in this case.)



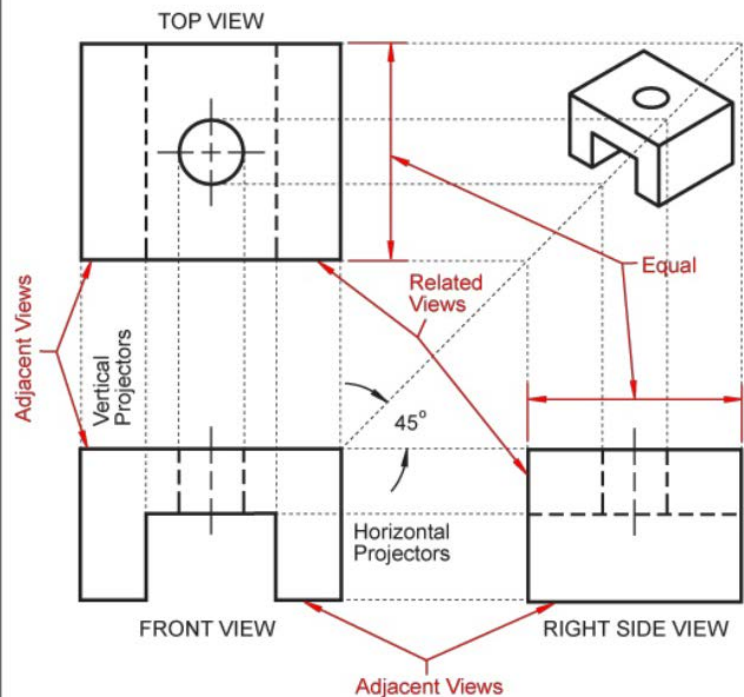
Click to see the comments.



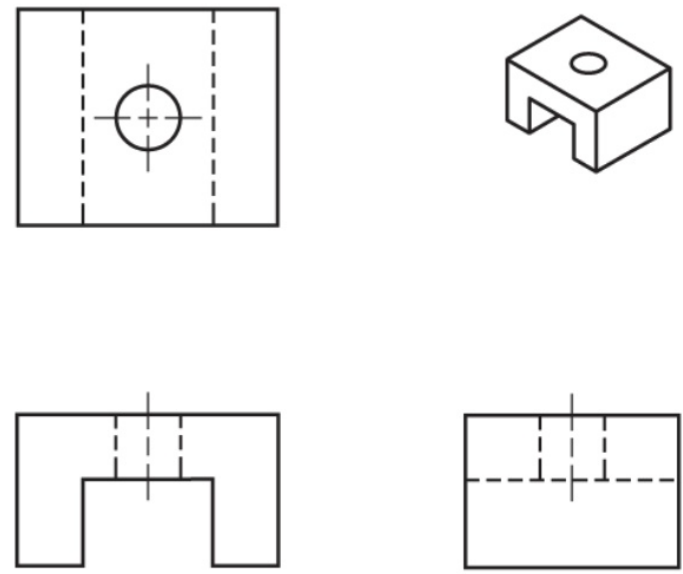
11. Add center lines.



Click to see the completed orthographic projection.



Completed orthographic projection.





Department of Art and Design

IQRA national University, Peshawar.

Subject: Basic Drafting

Assignment # 4

Draw an orthographic projection (Front, Side and Top View) of the given isometric view on 20"×30" or A3 sheet.

Also Specify the dimension of the given isometric shape from your own side.

Note: Draw light construction line (guidelines) for drawings and don't erase the line after completing the drawings also highlight the shape in bold line.



GIVEN ISOMETRIC VIEW

Video Link for demonstration.

- 1) <https://www.youtube.com/watch?v=1sjaelzuGAK>
- 2) <https://www.youtube.com/watch?v=CACQU-Oe3rQ>



THANKS