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DEPARTMENT: ELECTRICAL ENGINEERING

COURSE TITLE: ENGINEERING DRAWING

COURSE CODE: ENG 232

1. A cutting plane line is used to represent a sectioned surface on a drawing. A cutting plane is represented on a drawing by a cutting plane line. This is a heavy long-short-short-long kind of line terminated with arrows. The arrows in show the direction of view.

2.

- Do not leave any size, shape, or material in doubt.
- To avoid confusion and the possibility of error, no dimension should be repeated twice on any sketch or drawing.
- Dimensions and notations must be placed on the sketch where they can be clearly and easily read.
- All dimension, extension, and leader lines should be thin, sharp, dark lines (.5mm/2H).
- Extension lines indicate the points between which the dimension figures apply. They are drawn perpendicular to the dimension lines, start with a visible gap (~1/32") between them and the object, and terminate 1/8" (3.2 mm) beyond the last arrowhead.
- Each dimension should be terminated by arrowheads touching the extension lines and pointing in opposite directions. Arrowheads are drawn freehand with .7mm/HB lead. The line should be broken only at the approximate center for the dimension figures.

3. HALF SECTION

A half-section is a view of an object showing one-half of the view in section, as in the drawing below. The diagonal lines on the section drawing are used to indicate the area that has been theoretically cut. These lines are called section lining or cross-hatching. The lines are thin and are usually drawn at a 45-degree angle to the major outline of the object

FULL SECTION

If the imaginary cutting plane passes through the entire object, splitting the drawn object in two with the interior of the object revealed, this is called a "full section." A full section is the most widely-used sectional view.

4. Leader lines are thin, solid lines that terminate in an arrow head or dot. Use arrow heads when leader lines terminate at the outline of an object. Use dots when leader lines terminate within the outline of the object or on the surface of the object.

5. scale 5:1= five times A scale of 5:1 means that everything is in reality as big. A 50mm line is to be drawn at a scale of 5:1 (ie 5 times more than its original size). The measurement 50mm is multiplied by 5 to give 250mm**.** A 250mm line is drawn.

Scale 1:10= A drawing at a scale of 1:10 means that the object is 10 times smaller than in real life scale 1:1. You could also say, 1 unit in the drawing is equal to 10 units in real life.

6. SHAPE IDENTIFICATION SYMBOLS

Diameter = 

RADIUS= R

SQUARE= 

SPHERICAL RADIUS= SR

CENTRE LINE: Centre lines are drawn to indicate the exact centre of a component being drawn. They are made from a series of lighter long and short dashes.

Centre

CUTTING PLANE LINE: Cutting plane lines are thick lines that run through the center of the object that the interior wants to provide an interior view of. Two perpendicular lines with arrows showing in which direction the interior of the object should be viewed are drawn at the end of the line.

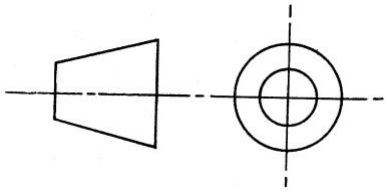
LONG BREAK: Long break lines are ruled lines with freehand zigzags that reduce the size of the drawing required to delineate an object and reduce detail.

7. a.

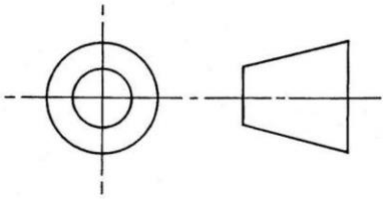
b. orthographic projection is the method of representing the exact shape of an object by dropping perpendiculars from two or more sides of the object to planes, generally at right angles to each other; collectively, the views on these planes describe the object completely.

8. It is called an orthographic projection when it has three two-dimensional drawings in each of which the object is viewed along parallel lines that are perpendicular to the plane of the drawing.

9. FIRST ANGLE PROJECTION: To get the first angle projection, the object is placed in the first quadrant meaning it's placed between the plane of projection and the observer.



THIRD ANGLE PROJECTION: For the third angle projection, the object is placed below and behind the viewing planes meaning the plane of projection is between the observer and the object.



OBJECTIVES

1. Reference plane
2. false
3. directly
4. 120°
5. 60
6. Rivet
7. crowning
8. 45°
9. Circle
10. An ellipse
11. Cylinder
12. Cone
13. Pivot bearing
14. 55

15. Horizontal plane.