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COURSE TITLE: Engineering Drawing II

**THEORY**

1. To represent a sectioned surface on a drawing, the surface, which was cut off, will be shaded by drawing thin lines inclined to the base of the drawing at 45 degrees. If there is a hole in the diagram, before sectioning, the hole in the sectioned part will not be shaded.
2. Principle of dimensioning:

* Dimensions are normally expressed in millimetres
* Dimensions of less than unity are preceded by zero
* Each dimension only appears once
* It should not repeated on other views
* Dimension relative to a particular feature should be place in one view, which shows the relevant features most clearly, rather than spread over several views.
* Dimension lines should be thin continuous lines
* All dimension lines should maintain same distance from the drawing
* Centre lines should not be used for dimensioning
* Arrowheads touching the extension lines and pointing in opposite directions should terminate each dimensions.

1. *FULL SECTIONS*

This is when a cutting plane line passes entirely through an object, splitting the drawn object in two with the interior of the object revealed.

*HALF SECTIONS*

This is when the cutting plane is assume to be bend at right angle and cut through only half of the represented object length and one-quarter of the object is removed. Half section is use on symmetrical objects and shows the object’s internal and external construction in the same drawing.

1. Leader lines are terminated with the use of arrowheads or dots
2. *Scale 5:1*

The scale means it is enlarging, that is, for every five (5) units on drawing represent one (1) unit in reality. Which means it is showing the element bigger on the drawing.

*Scale 1:10*

The scale means it is reducing, that is, for every one (1) unit on drawing represent ten (10) units in reality. Which means it is showing the element/object smaller on the drawing.

NOTE: the scale drawings represent the same units. For example if a drawing is, 1cm in the drawing then it will be equal to 10cm in reality. Similarly if it is mm.

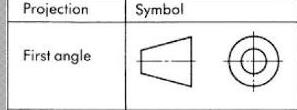
1. SHAPE IDENTIFICATION SYMBOLS
2. Diameter: **Ø**
3. Radius: R
4. Square: □
5. Spherical radius: SR
6. Elements considered while obtaining a projection are:

* The front view
* Side view
* Top view/ Plan

Orthographic Projection ( sometimes referred to as orthogonal projection) is way of representing three three-dimensional (3D) objects in three(3) two-dimensional (2D) drawings in each of each of which the objects is viewed along parallel lines that are perpendicular to the plane of the drawing.

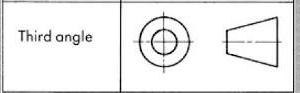
Orthographic projection is a way of drawing a 3D object from different directions. Which involves the front, side and top views so that the person looking at the drawing can see the important parts.

1. A projection of an object is refer to orthographic when it is drawn in 2D format, the plan, front and side view are drawn separately with parallel lines connecting the three together.
2. *FIRST ANGLE PROJECTION*

This is a method of creating a two-dimension (2D) drawing of a three-dimension (3D) object. In this projection method, the object is place in the first quadrant and positioned in front of the vertical plane and above the horizontal plane.

*THIRD ANGLE PROJECTION*

This is another perspective projection method used to represent three-dimensional objects using a series of two-dimensional views. In third angle projection, the 3D object to be projected is placed in the third quadrant and is positioned behind the vertical plane and below the horizontal plane. Unlike in first angle projection where the plane of projection is supposedly opaque, the planes are transparent in third angle projection.



OBJECTIVES

1. A-
2. B
3. C
4. A
5. A
6. B
7. C
8. B
9. B
10. A
11. C
12. A
13. C
14. C
15. D