

NAME: OBODO JOSEPH CHIJOKE

MATRIC NO: 18/ENG09/006

DEPARTMENT: AERONAUTICAL ENGINEERING

COURSE TITLE: ENGINEERING DRAWING II

COURSE CODE: ENG232

1. The sectioned surface is represented on a drawing by thin section lines uniformly spaced drawn at an angle of 45 degrees. These lines used for indicating sections must:
 - Be uniformly spaced by an interval of 0.1 inches or 2.5mm.
 - Uniformly thin not varying in thickness.
 - Do not run beyond the outer edges of the visible lines.
 - Usually at 45 degrees angle.

2. The principles of dimensioning are:
 - All dimensional information necessary to define a part clearly and completely shall be shown directly on a drawing.
 - Each feature should be dimensioned once only on a drawing.
 - Dimensions shall be placed on the view or section that shows clearly the corresponding features.
 - As far as possible, on a drawing, dimensions should be expressed in one unit only, preferably in millimeters, without showing the unit symbol (mm). Unit on the drawing may be shown however in a note.
 - No more dimensions than are necessary to define a part shall be shown on a drawing. No feature of a part shall be defined by more than one dimension in any one direction.
 - As far as possible dimensions should be placed outside the view.

- Dimensions should be represented from the visible outlines rather than from hidden lines.
- Dimensions should be given from a base line, a center line of a hole, or a finished surface. Dimensioning to a center line should be avoided, except when it passes through the center of a hole.
- Interesting projection and dimension lines should be avoided. Were unavoidable, however, neither line should be shown with a break. Dimension line should not be used as an extension line.
- If the space of dimensioning is insufficient, the arrow heads may be reversed and the adjacent arrow heads may be replaced by a dot.

3. The types of section are:

- a) Half section: This is the sectional view produced by two cutting planes at right angles to each other, which divides a view quarterly or into four parts. The view is obtained after removing the front quarter or one-fourth of an object.
- b) Full section: This is also called **Longitudinal section**. It is obtained by removing the front half portion of an object by a cutting plane that divides the object lengthwise hence the name 'longitudinal section'.

4. Leader lines are lines that refer to a feature. They are terminated:

- With a dot if they end within the outline of an object
- With an arrow if they end on the outline of an object.
- Without an arrow or a dot if they end on a dimension line.

5. Scale

a) Scale = 5:1=> Scales are given in the ratio of Scale length to Actual length. Therefore, the scale above means 5 units on a drawing to 1 unit in real life.

Therefore, the real length is being magnified by $\frac{5}{1}$ times to get the scale drawing.

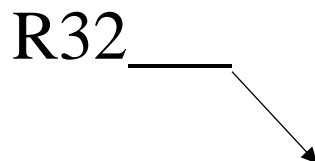
b) Scale = 1:10=> This scale as said earlier implies 1 unit on drawing is to 10 units in real life. Hence, the real length is being reduced by $\frac{1}{10}$ times to get the scale drawing.

6. Shape identification symbols

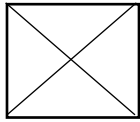
a) Diameter: A circle with a line passing through it as shown below



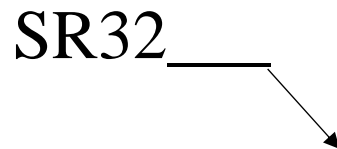
b) Radius: It is identified with the letter R placed before the value of the radius



c) Square: The square is identified with a square with its diagonals outlined as shown below



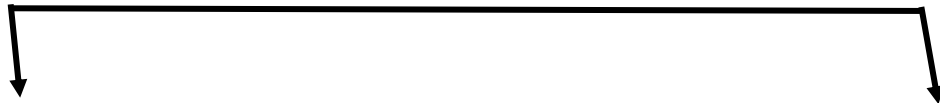
d) Spherical Radius: It is identified with the letters SR in front of a dimension



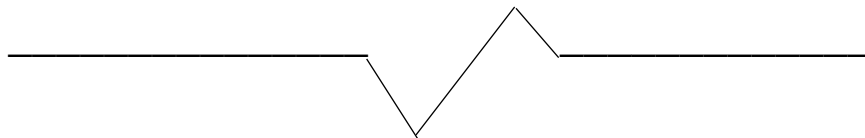
e) Center Line: This is indicated by thin lines with longer and shorter dashes as shown below



f) Cutting plane line: This is indicated with thick continuous lines with arrow heads.



g) Long break: This is indicated by a long line with 'z' breaks.



7. The elements to be considered while obtaining a projection are:

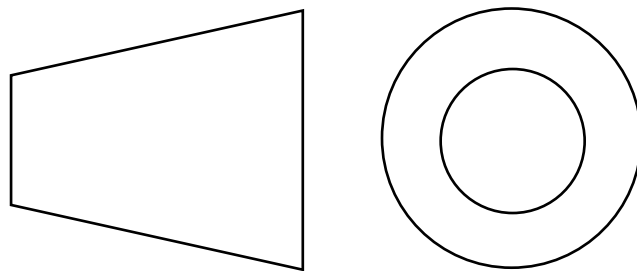
- i. The views of that projection
- ii. The direction of View.

Orthographic projection is the representation of three-dimensional objects by three two-dimensional drawings of which the object is viewed along parallel lines that are perpendicular to the plane of drawing. These views are referred to as Front, Plan and End views.

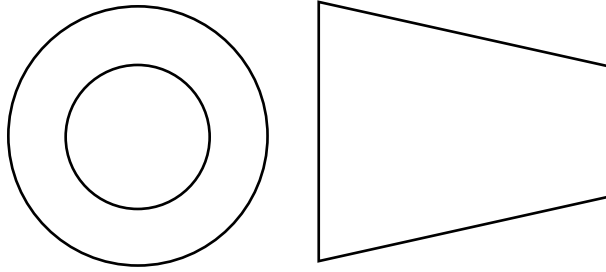
8. A projection is referred to as orthographic if it is viewed along parallel lines perpendicular to plane of drawing.

9. Orthographic projections are classified as

- First angle projection: In this Orthographic projection, the front view is placed in the first or second quadrants of the plane with the side view occupying the second if the front view is placed on the first, or the first if the front view is on the second. The plan view is placed below the front view. It is represented by the symbol



- Third angle projection: In this Orthographic projection, the front view is placed in the third or fourth quadrants of the plane with the side view occupying the fourth if the front view is placed on the third, or the third if the front view is on the fourth. The plan view is placed above the front view. It is represented by this symbol



OBJECTIVES

1. D) Inclined Plane
2. A) True
3. D) Normally
4. A) 60°
5. A) 60°
6. B) Rivet
7. C) Crowning
8. B) 45°
9. A) A Circle
10. A) An Ellipse
11. C) Cylinder
12. A) Cone
13. C) Pivot bearing
14. C) 55°
15. D) Horizontal plane

