216U06C105 – Engineering Drawing

Module – I: Projection of Points and lines and planes

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What you will learn ?

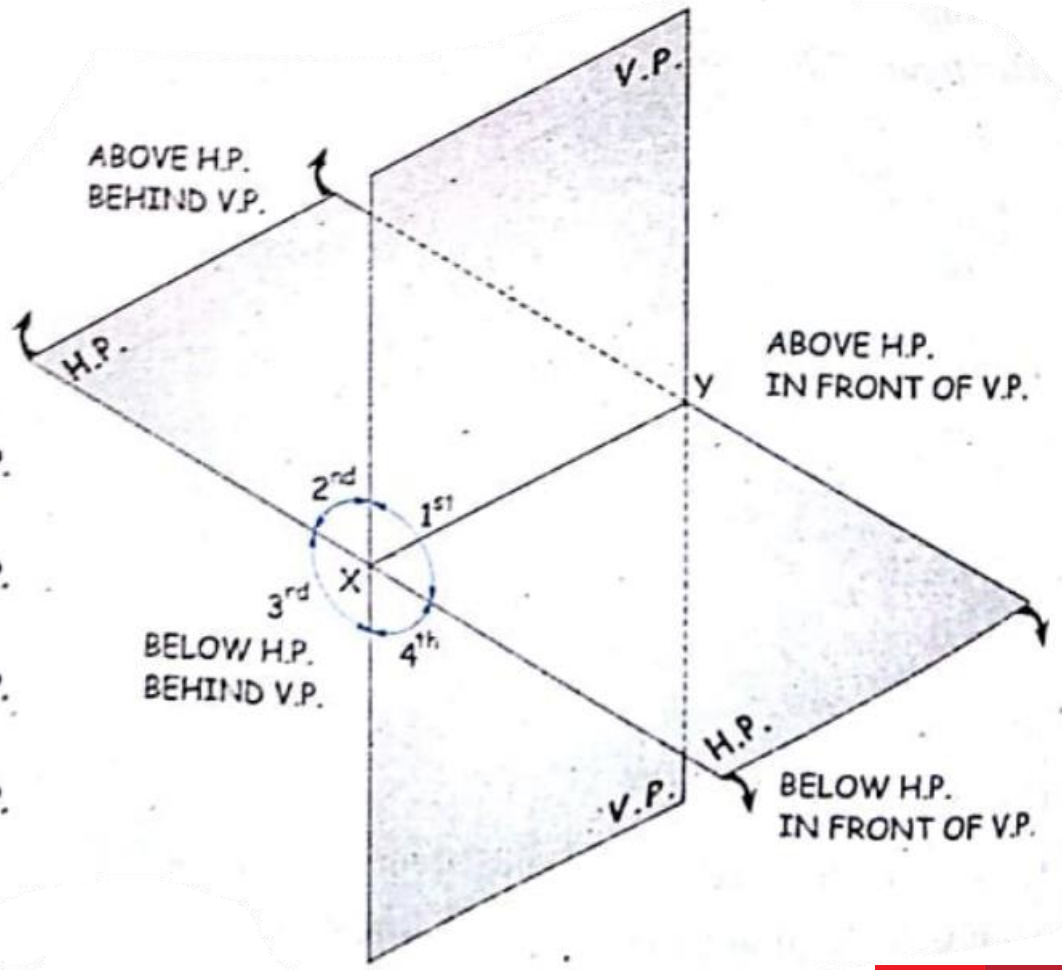
Projection of Points

Ist Quadrant ⇒ A point is ABOVE H.P. and INFRONT OF V.P.

IInd Quadrant ⇒ A point is ABOVE H.P. and BEHIND V.P.

IIIrd Quadrant ⇒ A point is BELOW H.P. and BEHIND V.P.

IVth Quadrant ⇒ A point is BELOW H.P. and INFRONT OF V.P.



Projection of Lines (Notations)

Description	Notation
Actual line	AB
F.V. of line	$a'b'$
T.V. of line	ab
S.V. of line	$a''b''$
Line assumed parallel to the V.P.	AB_1
Corresponding true length of assumed line AB_1	$a'b_1'$
Corresponding plan length of assumed line AB_1	ab_1
Line assumed parallel to the H.P.	AB_2
Corresponding true length of assumed line AB_2	ab_2
Corresponding elevation length of assumed line AB_2	$a'b_2'$
True Inclination of a line with the H.P.	θ
True Inclination of a line with the V.P.	ϕ
Apparent Inclination of F.V. of a line with the XY line	α
Apparent Inclination of T.V. of a line with the XY line	β

Projection of Lines

- Projection of line with reference to Principal Planes

❑ Line parallel to two principal planes and Perpendicular to 3rd plane

- ➢ Line parallel to HP and VP and Perpendicular to Profile plane
- ➢ Line parallel to VP and PP and Perpendicular to the HP
- ➢ Line parallel to HP and PP and Perpendicular to VP

Projection of Lines

- Projection of line with reference to Principal Planes

❑ Line parallel to one principal planes and inclined to the other

➢ Line parallel to VP and inclined to HP and PP

Q 1 A line AB having length 50 mm has its point A 10 mm above the H.P. and 20 mm in front of the V.P. The line is parallel to V.P. and inclined at an angle $\theta = 45^0$ to the H.P. Draw the projection of a line.

Projection of Lines

- Projection of line with reference to Principal Planes

❑ Line parallel to one principal planes and inclined to the other

➢ Line parallel to HP and inclined to VP and PP

Q. 2 A line AB having length 50 mm has its point A 10 mm above the H.P. and 20 mm in front of the V.P. The line is parallel to H.P. and inclined at an angle $\phi = 45^0$ to the V.P. Draw the projection of a line.

Projection of Lines

Projection of line with reference to Principal Planes

❑ Line inclined to the both the reference planes

Q. 3 A line AB, 70 mm long is inclined at an angle 30^0 to the H.P. and 45^0 to the V.P. Its end point A is 10 mm above the H.P. and 20 mm in front of the V.P. Draw the projections of line AB. Assume, complete line to be in 1^{st} quadrant.

Q. 4 A line AB, 70 mm long has its end A 10 mm above the H.P. and 20 mm in front of the V.P. The end B is 45 mm above the H.P. and 70 mm in front of the V.P. Draw the projections of line AB and find its inclination with H.P. and V.P.

Projection of Lines

Projection of line with reference to Principal Planes

❑ Line inclined to the both the reference planes

Q. 5 The F.V. of line AB measures 50 mm and makes an angle 45^0 with the XY line. The point A is 10 mm above the H.P and 20 mm in front of V.P. Draw the projections of line AB if it is inclined with the V.P. at 45^0

Q. 6 The distance between the end projectors of a straight line AB is 35 mm. The end A is 10 mm above the H.P. and 20 mm in front of the V.P. while end B is 45 mm above the H.P. and 70 mm in front of the V.P. Draw the projections of line and determine its inclination with H.P. and V.P. also find its T.L.

Projection of Lines

- Projection of line with reference to Principal Planes

❑ Line inclined to the both the reference planes

➢ Line inclined to the both the reference planes

Q. 7 The F.V. of 85 mm long straight line AB measures 60 mm while its T.V. measures 70 mm. Draw the projections of AB if its end A is 10 mm above the H.P. and 20 mm behind the V.P. while its end B is in the 1st quadrant. Determine the inclination of line AB with the reference plane.

Projection of Lines

- Projection of line with reference to Principal Planes

❑ Line inclined to the both the reference planes

➢ Line inclined to the both the reference planes

Q. 8 The T.V. of line AB measures 60 mm and is inclined at 56^0 to the XY line. Point A is 10 mm above the H.P. and 20 mm in front the V.P. Point B is 45 mm above the H.P. and in front of the V.P. Draw the projections of line AB.

Projection of Lines

- Projection of line with reference to Principal Planes

❑ Line inclined to the both the reference planes

➢ Line inclined to the both the reference planes

Q. 9 The line AB 70 mm long, has its end A 10 mm above the H.P. and 15 mm in front of V.P. its top view and front view measures 60 mm and 40 mm respectively. Draw the projections of the line and determine its inclination with H.P. and V.P.

Projection of Lines

- Projection of line with reference to Principal Planes

❑ Line inclined to the both the reference planes

➢ Line inclined to the both the reference planes

Q. 10 The plan length of line AB. 75 mm long measures 50 mm. The end A is 50 in front of the V.P. and 15 above the H.P. The end B is 15 in front of the V.P. and above the H.P. Draw the projections of line AB and determine its inclinations with the H.P. and V.P.

References

- Engineering Drawing, N. H. Dubey

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Thank you !!

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