

SHEET 1

PENANG SANGAM HIGH SCHOOL

P. O. BOX 44, RAKIRAKI

LESSON NOTES - 19

SCHOOL: PENANG SANGAM HIGH

SUBJECT: TECHNICAL DRAWING

YEAR/ LEVEL: 11 C/D

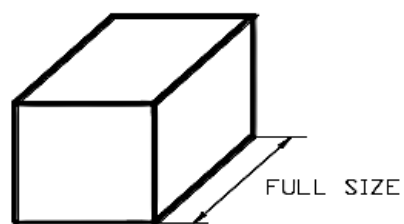
Strand	TD11.3 APPLIED DRAWING
Sub - Strand	TD11.3.3 PICTORIAL PROJECTION
Content Learning Outcome	TD11.3.3.1 Demonstrate knowledge and skills in oblique projections and 1 point perspective of simple woodwork projects and engineering drawings.

OBLIQUE DRAWING

Oblique projection is a method of producing a pictorial view of an object. The projectors from the object to the projected plane are parallel but oblique to the plane, and the object is positioned with a face parallel to the plane.

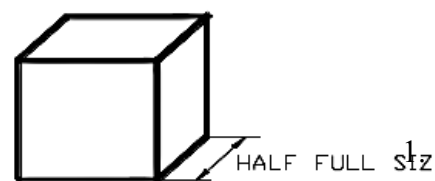
Common scales used for the receding axis:

- Full size, then the view so drawn is called **cavalier projection**.
- Half full size, then the view so drawn is called **cabinet projection**.



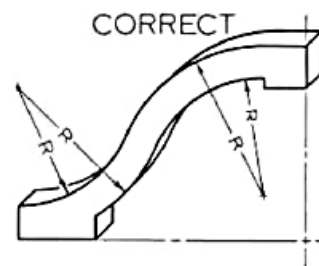
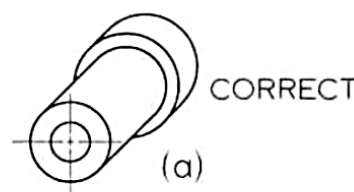
RULE 2

Place the object so that the longest dimension is shown on the front.

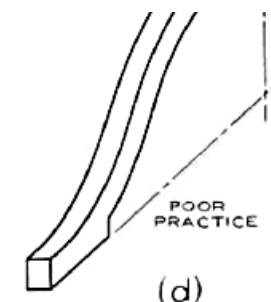
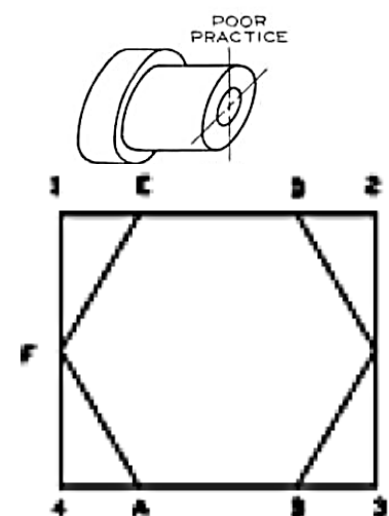


CABINET

1. Draw a box around the front view of the orthographic drawing and label the corners from 1 – 4.



Preferred



Not Preferred

GENERAL RULES FOR OBLIQUE DRAWING

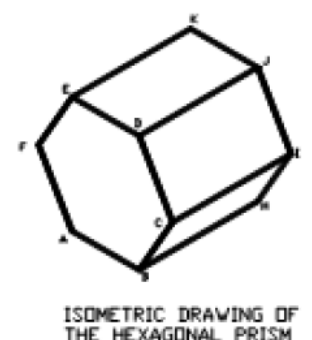
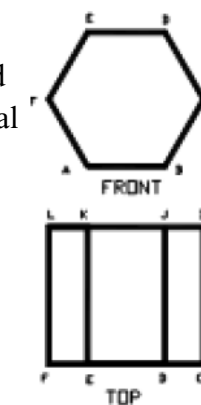
Below are three basic rules that should be considered when making an oblique drawing of an object.

RULE 1

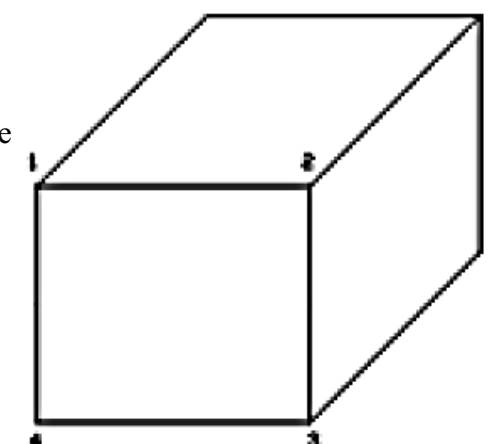
Place the object so that the circular shapes are shown on the front.

WORKED EXAMPLE

On the right are orthographic and isometric drawings of a hexagonal prism. Draw the same object in cavalier oblique.



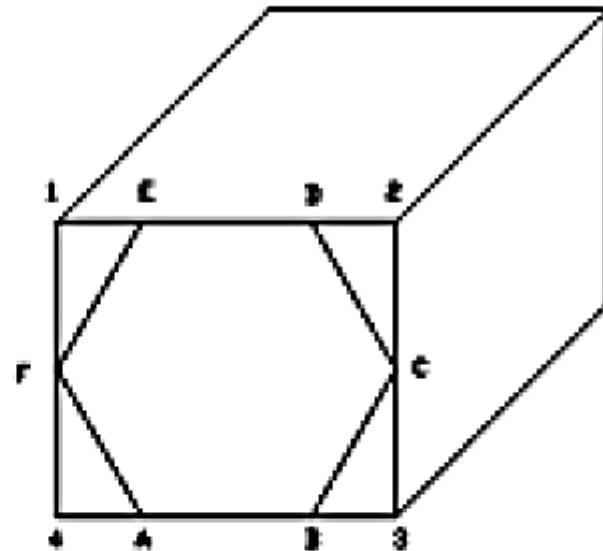
2. Separately draw an oblique box. Because we want a cavalier oblique drawing, use the full width of



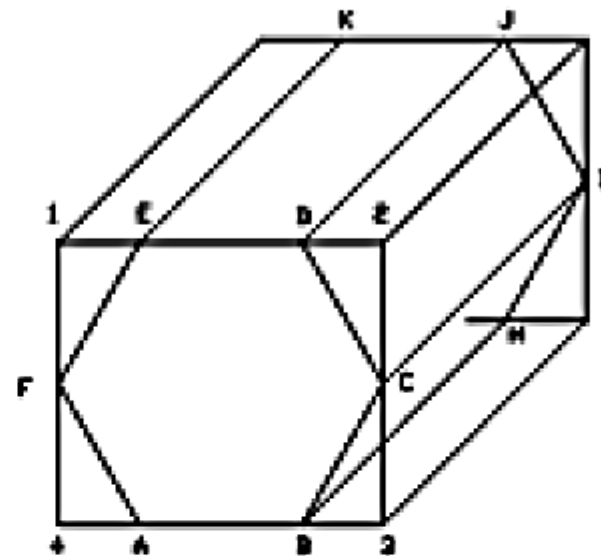
THE OBLIQUE AXES

Oblique drawing is based on the three lines known as the oblique axes. As you can see in the diagram above, one axis is horizontal (0°) one is vertical (90°) and one is at a 45° angle to the horizontal. When we make an oblique drawing, we mark all measurements along the oblique axes or along lines parallel to them. We mark the length of the object on the horizontal axis, the height on the vertical axis and the width on the receding axis.

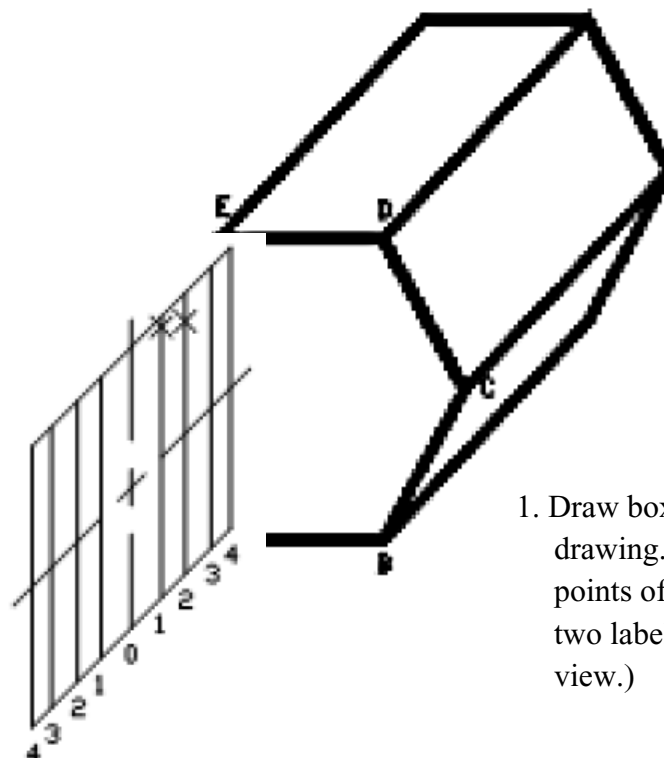
3. Use a compass to transfer points A, B, C, D, E and F from the front view in step 1 to the oblique box. Do this for each point by setting your compass to the distance between the point and its nearest corner. Then connect the points to complete the front view as shown. The hexagonal prism, which you can measure from the isometric drawing or from the top view of the orthographic drawing.



4. Project parallel lines back from points B, C, D and E as shown. Then use a compass to transfer points H, I, J and K from the isometric drawing to these lines. Join the points as shown.



5. Complete the drawing by darkening the wanted lines. Here the construction lines have been erased so you can see the object more clearly. (But you should always leave them as light lines on your drawings.)

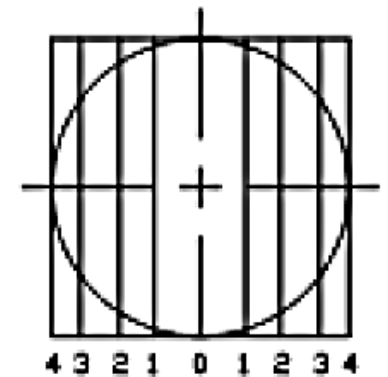


DRAWING OBLIQUE CIRCLES AND ARCS

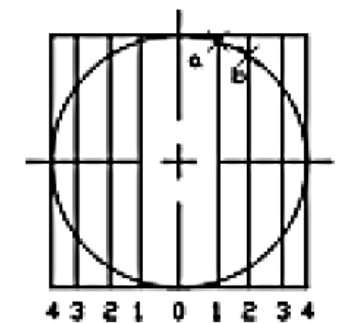
Drawing A Circle in Oblique Using the Offset Coordinates Method

WORKED EXAMPLE: Draw the given circle in oblique

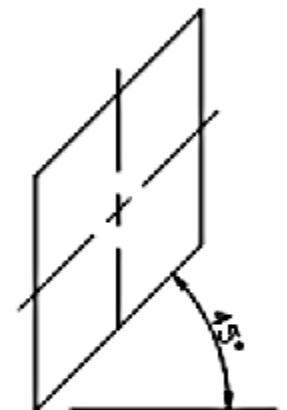
1. Draw a square around the given circle. Then draw offset coordinates and label the coordinates from the centre outward as shown. (Offset coordinates are just parallel lines, in this case vertical ones. The distance between the lines doesn't have to be equal.)



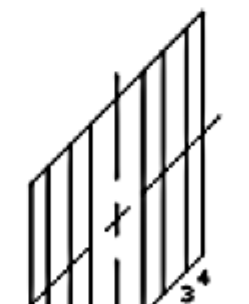
2. Mark the positions of the circle on each coordinate.



3. Draw a separate oblique square by starting with the oblique axes. Note that there are two ways in which you can draw the oblique square, depending on whether your circle will be on the top or the side of an object. For the remainder of this example, we'll assume the circle will be on the side of an object (although the construction methods are the same in either case).

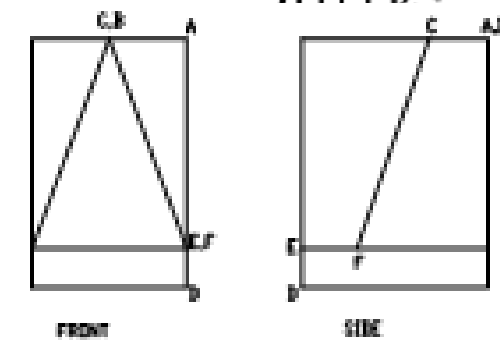


4. Use a compass or divider to transfer the offset coordinates you drew in step 1 to the oblique square. Do this for each coordinate by setting your compass the distance between it and the centre line and marking these points on the bottom of the square.

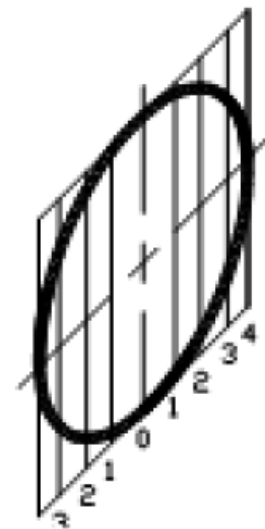


5. Use a compass or divider to transfer the points that you drew in step 2 to the oblique square. SANGAM EDUCATION BOARD – ONLINE RE

1. Draw boxes around the front and side views of the orthographic drawing. Label coordinates A, B, C, D, E and F to mark the starting points of the slant edges and their nearest corners. (Some points have two labels because they line up exactly with each other in a particular view.)



6. Connect the points to draw the oblique circle.



DRAWING INCLINED SURFACES IN OBLIQUE

This example will show how to draw inclined surfaces. This is similar to drawing circles in oblique using offset coordinates method.

EXAMPLE: Given below is an orthographic drawing of shaped block. Draw the same shaped block in oblique.

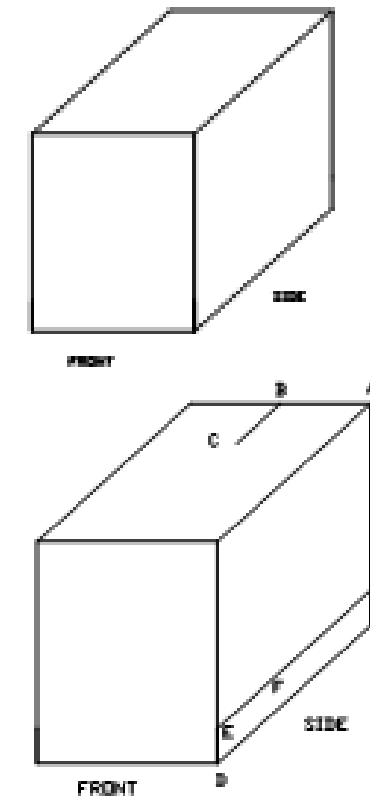


QUESTION 1

Given: The object in 1st angle orthographic projection
Required: To draw the object in cavalier oblique

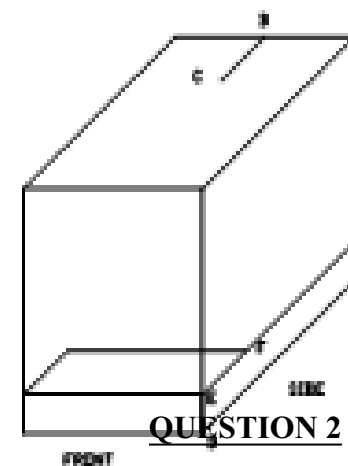
2. Separately draw an oblique box.

3. Use a compass and 45° set square to transfer points A, B, C, D, E and F, in that order, to the oblique box.
- Transfer points A and B from the front view.
 - Transfer point C by drawing an offset coordinate (a parallel line) from point B and then finding the distance to point C along that line from the side view.
 - Transfer points D and E from the front view.
 - Transfer point F by drawing a parallel line from point E and then finding the distance to point F along that line from the side view.



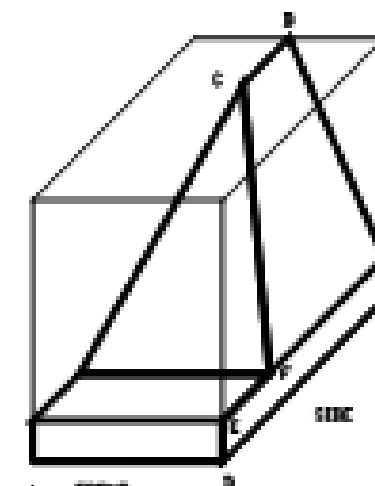
4. Draw the visible horizontal and vertical edges

5. Draw the visible inclined edges.

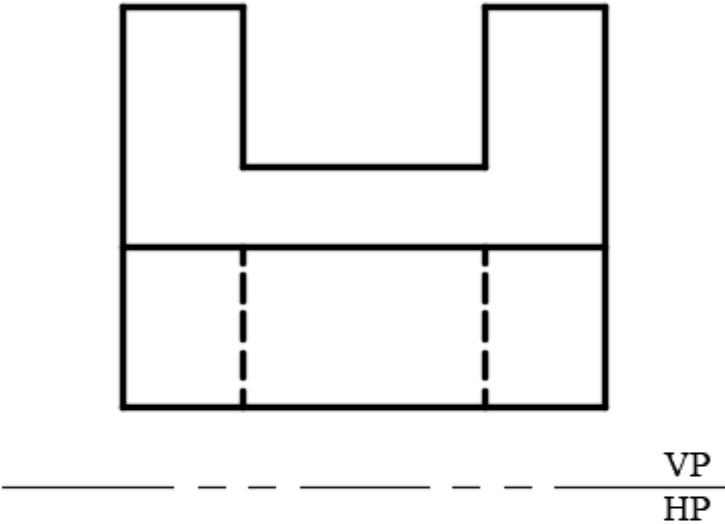


QUESTION 2

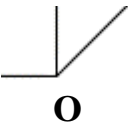
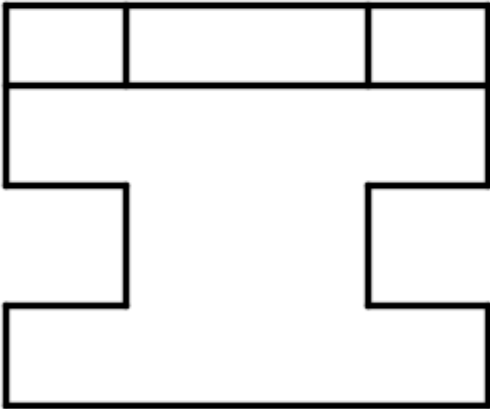
Given: The object in 1st angle orthographic projection
Required: To draw the object in cavalier oblique



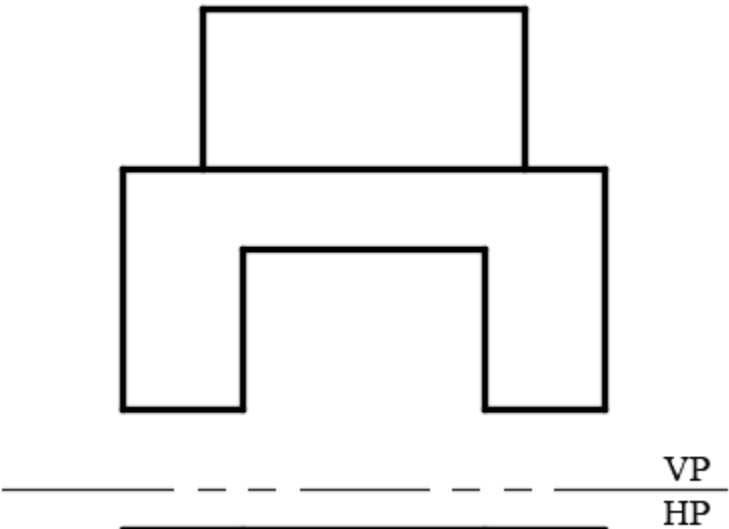
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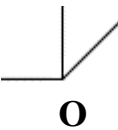
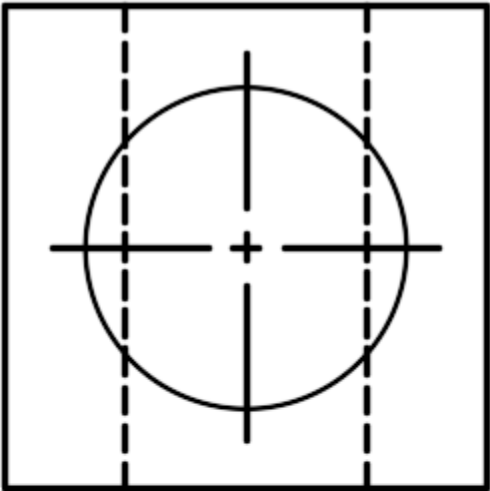
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THE END