

ENGINEERING GRAPHICS – II**II Semester****Objective**

At the end of the practice the students will be able,

To state the importance of drawing.

To draw the development of surfaces.

To draw projection of solids.

To draw sectional views of solids.

To convert orthographic views to isometric drawing.

SCHEME OF INSTRUCTION AND EXAMINATION

Subject	Instruction		Examination			Duration
	Hours / Week	Hours / Semester	Marks			
ENGINEERING GRAPHICS - II	6	96	Internal	Examination	Total	3 Hrs.
			25	75	100	

TOPICS AND ALLOCATION

Sl.No.	Topics	Hours.
1	Development of surfaces	18 Hrs.
2	Projection of solids	18 Hrs.
3	Section of Solids	18 Hrs.
4	Isometric projections	33 Hrs.
	Test	9 Hrs.

DETAILED SYLLABUS**Unit-1****18 Hrs.****1.1 Development of surfaces**

- 1.1.1 Need for preparing development drawing with reference to sheet metal work - Development of cube, cylinder, prism and pyramids, frustum of pyramids and cones – Exercises in triangular, square, pentagon and hexagon prisms and pyramids, cylinder and cone.
- 1.1.2 Development of T-pipe, elbow, ducts, tray, lamp shade and funnel.

Unit-2**18 Hrs.****2.1 Projection of solids**

- 2.1.1 Introduction - important terms - classification of solids – triangular, cube, pentagonal and hexagonal prisms and pyramids - solids of revolution – cylinder and cone.
- 2.1.2 Projections of solids in simple positions – parallel to one plane and perpendicular to other plane - projections of solids with axis inclined to HP and parallel to VP - projections of solids with axis inclined to VP and parallel to HP - Projections of solids with axis parallel to both planes - exercises.

Unit - 3**18 Hrs.****3.1 Section of Solids**

- 3.1.1 Introduction - section planes - apparent section - true section - sectional view - need for sectional view - cutting plane - cutting plane line - procedure for drawing a sectional view.
- 3.1.2 Section plane perpendicular to VP and parallel to HP - section plane perpendicular to HP and parallel to VP - section plane perpendicular to VP and inclined to HP - section plane perpendicular to HP and inclined to VP – auxiliary projections of solids showing true shape of section – exercises.

Unit - 4**33 Hrs.****4.1 Isometric projections**

- 4.1.1 Introduction – isometric view - isometric projection – difference between isometric view and isometric projection - isometric scale - rectangular construction - methods of drawing an isometric view.
- 4.1.2 Angles in Isometric view - irregular curves in isometric drawing - circles in isometric method – four centre method for drawing an ellipse - arcs of circles in isometric – exercises.

TEST**9 Hrs.**

Text Books

1. Gill P.S., "Engineering drawing", S.K.Kataria & Sons.
2. Bhat N.D., "Engineering drawing", Charotar Publishing House.

Reference Books

1. Venugopal.K, Sreekanjana G, "Engineering Graphics" New Age International Publishers.
2. Thomas E.French, Charles J.Vierck, Robert J.Foster, "Engineering drawing and graphic technology", McGraw Hill International Editions.
3. Barkinson & Sinha, "First Year Engineering Drawing", Pitman Publishers.
4. Shah/Rana, "Engineering Drawing", Pearson Longman.

ENGINEERING GRAPHICS – II

II Semester**Learning Structure:****Problem**

To acquire the skill of visualizing, interpreting and drawing the development of solids and components - projection of solids – section of solids and isometric views.

**Procedure**

Read, understand, visualize, interpret and draw development of surfaces - projection of solids – section of solids and isometric views

**Principles**

Development of surfaces - Projection of solids – sectional views - Isometric projection.

**Concept**

Reference planes (HP,VP) - locus of points - convention of lines - polygon as per IS Code.

**Facts**

Various objects, geometric entities, line, arc, circles, drawing instruments

Board Examination – Question Pattern**Time: 3 Hrs.****Max.Marks: 75****Part A** (Answer any three questions. Each questions carries fifteen marks.)**3 X 15 = 45**

1. One question from development of surfaces.
2. Two questions form projection of solids.
3. One question from section of solids.

Part B**30**

4. Draw isometric view of the component (The object must have inclined and curved parts).

Internal Marks**25**

Class work - submission of drawing file -	10
Test (including model examination) -	10
Attendance -	5
Total -	25

ENGINEERING GRAPHICS - II
MODEL QUESTION PAPER - 1

Time : 3Hours

Max. Marks : 75

[N.B. (1) First angle projection is to be followed. (2) All the questions are to be answered in drawing sheet supplied. (3) All dimensions are in mm. (4) Credit will be given for neatness.]

PART-A (Answer any three questions. Each question carries fifteen marks.) 3 X 15 = 45

1. Draw the development of Duct shown in Fig. 1.

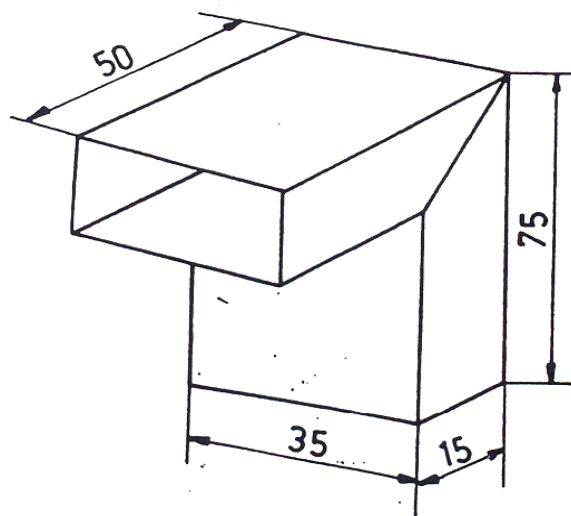


Fig. 1

2. Draw the projection of a pentagonal prism of base side 20 mm, axis 35 mm when it is resting on the HP on its base with one of the edges of the base inclined at 30° to the VP.

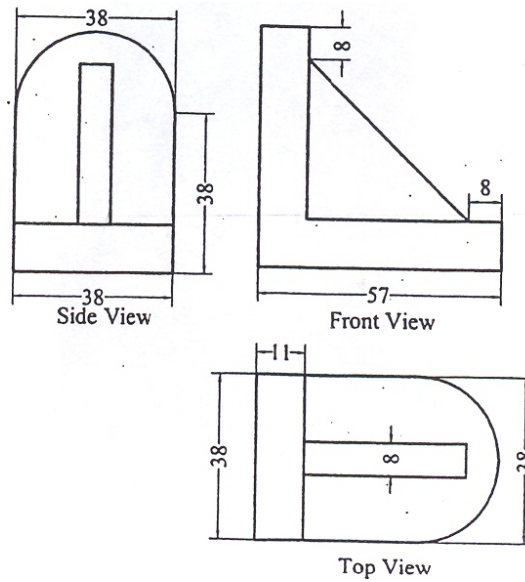
3. A cone of base diameter 60 mm and altitude 80 mm rests on the HP with its axis inclined to the HP and parallel to the VP. Draw its front and top views.

4. A hexagonal prism of base side 40 mm and axis length 80 mm is lying on the HP on one of its rectangular faces with its axis inclined at 60° to the VP. It is cut by a plane which makes 45° with the xy. The cutting plane nearest to the HP is 14 mm above it. Draw the front view, sectional top view and the true shape of the section.

PART-B

30

5. Draw the isometric view for the orthographic views shown in Fig. 2.

**Fig. 2**

ENGINEERING GRAPHICS - II
MODEL QUESTION PAPER - 2

Time : 3Hours

Max. Marks : 75

[N.B. (1) First angle projection is to be followed. (2) All the questions are to be answered in drawing sheet supplied. (3) All dimensions are in mm. (4) Credit will be given for neatness.]

PART-A (Answer any three questions. Each question carries fifteen marks.) 3 X 15 = 45

1. A triangular pyramid of side of base 30 mm and height 60 mm is resting on its base on HP such that a triangular face is parallel to VP. It is cut by a plane perpendicular to VP, inclined at 30° to HP and passing through a point on the axis 25 mm from the base. Develop the lateral surface of the truncated triangular pyramid.
2. Draw the projection of a cone of base diameter 50 mm and axis length 70 mm when it lies on the ground on one of its generators with the axis parallel to the VP.
- 3.. A triangular pyramid of base edge 40 mm and altitude 60 mm is resting on the HP on one of its base edges with its axis parallel to both the HP and VP. Draw its front and top view.
4. A cylinder of diameter 40 mm and height 60 mm rests on its base on the HP. It is cut by a plane perpendicular to the VP and inclined at 30° to the HP. The plane bisects the axis. Draw the front view, sectional top view, end view and true shape of the section.

PART-B

30

5. Draw the isometric view for the orthographic views shown in Fig. 1.

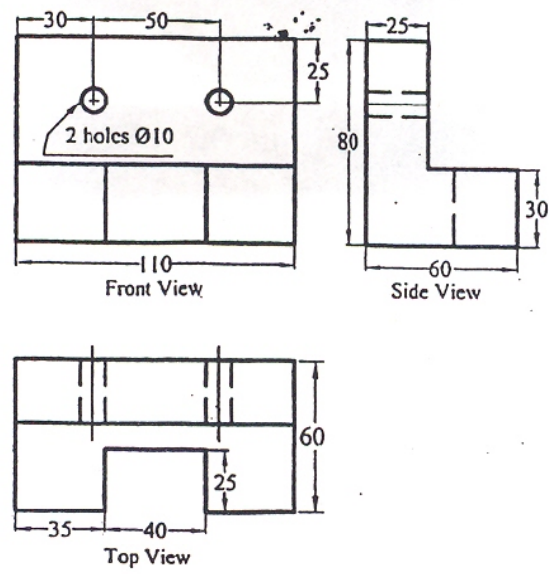


Fig. 1