COURSE TITLE : ENGINEERING GRAPHICS
COURSE CODE : 2005
COURSE CATEGORY : F
PERIODS/WEEK : 4
PERIODS/SEMESTER : 60
CREDITS : 5

TIME SCHEDULE

MODULE	TOPIC	PERIODS
1	Orthographic Projection	15
2	Sectional views and auxiliary views	15
3	Pictorial drawing	15
4	Visualisation and Development of surfaces	15
TOTAL		**60**

COURSE OUTCOME

After the completion of the course student will be able to

- Understand the orthographic projections of various objects
- Appreciate the sectional views of objects
- Appreciate the auxiliary views of objects
- Identify the pictorial drawings of various objects
- Understand the visualisation
- Understand the development of surfaces

SPECIFIC OUTCOME

MODULE - I

1.1.0 Understand the orthographic projections of various objects

1.1.1 Apply principles of orthographic projection
1.1.2 Explain the principle of orthographic projection with simple sketches
1.1.3 Prepare an engineering drawing of a given simple engineering part in first angle projection only.
1.1.4 Sketch (free hand) the orthographic views of simple objects
1.1.5 Draw the orthographic views of an object, given its pictorial drawing
1.1.6 Select the minimum number of views needed to represent a given object fully
1.1.7 Identify the engineering part correctly from a number of orthographic drawings

MODULE - II

2.1.0 Appreciate the sectional views of objects

- 2.1.1 Recognize the need of sectional views
- 2.1.2 Explain the need to draw sectional views
- 2.1.3 Select the section place for a given component to reveal maximum information
- 2.1.4 Free hand sectional views of simple objects
- 2.1.5 Draw the sectional views of simple engineering components
- 2.1.6 Sketch simple sections (Full and half) for a range of simple engineering objects
- 2.1.7 Select the component from a given sectional view
- 2.1.8 Auxiliary views

2.2.0 Recognize the need of auxiliary views

- 2.2.1 State whether the auxiliary view is needed, given an engineering drawing
- 2.2.2 Draw the auxiliary views of a given engineering drawing

MODULE - III

3.1.0 Identify the pictorial drawing of various objects

- 3.1.1 Prepare pictorial drawing
- 3.1.2 Explain the need for and types of commonly used pictorial drawing
- 3.1.3 Prepare isometric drawing of simple objects using appropriate construction procedure, given their appropriate drawing
- 3.1.4 Sketch the isometric views of simple engineering objects given either[1] orthographic drawing or actual components
- 3.1.5 Prepare oblique drawing –Cavalier and cabinet –of simple engineering objects given either orthographic drawing or actual drawing
- 3.1.6 Understand the visualisation
- 3.1.7 Visualise and object in 3D, given its orthographic drawing
- 3.1.8 Compare an engineering part with its drawing
- 3.1.9 Identify surfaces with reference to orthographic drawing wing
- 3.1.10 Prepare a model of the part, given its orthographic drawing

MODULE - IV

4.1.0 Understand the development of surfaces

- 4.1.1 Prepare development of surfaces
- 4.1.2 State the need for preparing the development drawing
- 4.1.3 Prepare development of surfaces of simple engineering components

like tray, funnel, bucket and ducts(rectangular and squarehooper)

4.1.4 Prepare development of surfaces of surfaces of 90^0 elbow

4.2.0 Computer Aided Drafting

4.2.1 Introduction to CAD

4.2.3 Compare conventional drawing and CAD

4.2.4 Familiarisation of different CAD software

4.2.5 Application of CAD in engineering drawing

4.2.6 Opening of CAD

4.2.7 Setting of units and limits

4.2.8 Saving of drawing

4.2.9 Commands-draw commands- line, circle, arc, ellipse, polygon (2D primitives) hatch, modify, erase, move, rotate, copy, mirror, break ,trim, extent, scale, stretch, array fillet, chamfer, offset etc.

4.2.10 Dimensioning and text commands

4.2.11 Practice- Different methods of drawing lines

4.2.12 Absolute coordinate system

4.2.13 Relative coordinate system

4.2.14 Polar coordinate system

4.2.15 Direct distance entry

4.2.16 Rectangle, circle, ellipse,

4.2.17 Practice to draw orthographic views of simple objects and

4.2.18 familiarise with the above commands

CONTENT DETAILS

MODULE - I

1.1.0 Orthographic projection of objects

Explanation of the meaning of orthographic projection using a viewing box and a model-number views obtained need of only three views for displaying the object.

Concept front view - top view and side view-sketching these views for a number of engineering objects- explanation of the meaning of first angle and third angle projection – symbol of projection

MODULE - II

2.1.0 Sectional views of objects

Need for sectional drawing of an engineering object- selection of the section plane to reveal the maximum information – sectional views (full and half section) of simple engineering objects.

2.1.1 Auxiliary views

Need of auxiliary views – auxiliary views given engineering drawings

MODULE - III

3.1.0 Pictorial Drawing

Isometric projections-construction of isometric scale-isometric projection of simple engineering object Oblique-cavalier-and cabinet projections of simple engineering Object

3.1.1 Visualization

Preparation of pictorial view from a group of orthographic Drawing

MODULE - IV

4.1.0 Development of surfaces

Development of surfaces of simple engineering components tray, funnel, bucket, duct (rectangular, square hooper) and 90^0 elbow

4.1.1 Computer Aided Drafting –

Introduction to CAD, Importance of CAD in engineering drawing- Applications

4.1.2 Opening CAD- setting and saving of drawing- CAD commands

4.1.3 Visualization Drawing with CAD- method of drawing straight line and simple figures.

TEXT BOOKS

1. Engineering Graphics - K. C Jon, PHI Learning Private Limited
2. Engineering Graphics - P. I. Varghese, VIP Publishers

REFERENCE BOOKS

1. Engineering Drawing - N D Bhatt
2. Engineering Graphics - Sageer & Abu

3 Engineering Drawing - M. B. Shah and B.C.Rana, Pearson Publications

4. Engineering Drawing & Graphics using Autocad – T.Jayapoovan,Vikas publications