

21ME101 ENGINEERING GRAPHICS AND DESIGN

Hours Per Week :

L	T	P	C
2	-	2	3

Total Hours :

L	T	P
30	-	30

Source: www.gettyimage.in

COURSE DESCRIPTION AND OBJECTIVES:

Engineering graphics is the language of engineers and is the most effective way of communicating and sharing technical ideas in the form of pictures/drawings. The objective of this course is to familiarize the students with the conventional concepts of engineering drawing and computer aided drawing.

COURSE OUTCOMES:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes
1	Communicate the technical ideas in the form of drawings.
2	Apply the drawing skills in representing various geometrical features.
3	Develop orthographic projections and isometric views of various objects.
4	Estimate the lateral surface area of regular geometrical solids.
5	Sketch simple objects and their pictorial views using AutoCAD.

SKILLS:

- ✓ *Convert isometric views of objects into orthographic views and vice versa.*
- ✓ *Visualize the shape of the 3D components.*
- ✓ *Create pictorial views by using AutoCAD.*
- ✓ *Understand projections by visualization.*

UNIT - I

L-6, P-6

ENGINEERING CURVES: Types of lines; Lettering; Dimensioning; Geometric construction - lines, polygons (Angle, ARC, General and Inscribe in circle method), Conical curves (General method), Ellipse by Oblong method.

UNIT - II

L-6, P-6

ORTHOGRAPHIC PROJECTIONS OF POINTS & LINES: Principles of projection; Projections of points; Projection of straight lines - Inclined to one plane, Inclined to both planes.

UNIT - III

L-6, P-6

PROJECTION OF PLANES: Projection of planes inclined to one reference plane - Triangle, Square, circle, Regular pentagon and hexagon.

PROJECTIONS OF SOLIDS: Projection of solids axis inclined to one reference plane - Prism, Pyramid, Cylinder and cone.

UNIT - IV

L-6, P-6

DEVELOPMENT OF SURFACES: Development of lateral surfaces of simple solids - Prisms, Pyramids, Cylinder and cone.

ORTHOGRAPHIC VIEWS: Conversion of pictorial views into orthographic views.

UNIT - V

L-6, P-6

DRAFTING USING COMPUTER PACKAGE: Introduction to 2D modelling software - AutoCAD; Conversion of Isometric view into Orthographic views of simple castings; Conversion of Orthographic views into Isometric view of simple solids - Prisms, Pyramids, Cylinders and cones.

TEXT BOOKS:

1. N D Bhatt, "Engineering Drawing", 53rd edition, Charotar Publication, 2014.
2. Basant Agrawal and C.M.Agrawal "Engineering Drawing", 2nd edition, Tata McGraw-Hill, 2014.

REFERENCE BOOKS:

1. J Hole, "Engineering Drawing", 2nd edition, Tata McGraw-Hill, 2008.
2. K L Narayana, "Engineering drawing", 2nd edition, Scitech Publications, 2008.