

1/4 B.Tech. FIRST SEMESTER

ME1T5

ENGINEERING DRAWING

Credits: 4

Lecture: 2 periods/week

Internal assessment: 30 marks

Tutorial: 6 period /week

Semester end examination: 70 marks

Objectives:

1. Explain about conics, curves and orthographic projection of geometrical Entities
2. Transform orthographic to isometric projections and isometric to orthographic projections.

Learning outcomes:

At the end of course the student will be able to draw:

1. Regular polygons and construct scales
2. Various conics sections and curves.
3. Orthographic projections of geometrical entities
4. Orthographic views of sectioned solids
5. Isometric projections and orthographic projections.

Pre Requisites:

Mathematics

UNIT-I

INTRODUCTION TO ENGINEERING DRAWING:

Use of Drawing instruments, Dimensioning, Representation of various type lines - Geometrical Constructions. Polygons-Construction of Regular Polygons using given length of a side.

SCALES: Construction and use of plain and diagonal scales.

UNIT-II

CONIC SECTIONS:

conic sections - general construction method for ellipse, parabola and hyperbola. Special methods for conic sections.

CURVES: Curves used in Engineering practice - Cycloidal curves Cycloid, Epicycloid and Hypocycloid; In volute of circle.

UNIT – III

PROJECTION OF POINTS AND PROJECTION OF STRAIGHT LINES:

Principles of Orthographic Projections – Conventions – First Angle Projections. Projections of Points and Lines inclined to both planes, True lengths, traces.

UNIT – IV

PROJECTIONS OF PLANES:

Projections of regular Planes, auxiliary planes and Auxiliary projection inclined to both planes.

UNIT-V

PROJECTIONS OF SOLIDS:

Projections of simple solids such as, Cubes, Prisms, Pyramids, Cylinders and Cones with varying positions. Projections of Regular Solids inclined to both planes – Auxiliary Views.

UNIT – VI

SECTION OF SOLIDS:

Sections of solids such as Cubes, Prisms, Pyramids, Cylinders and Cones. True shapes of sections. (Limited to the Section Planes perpendicular to one of the Principal Planes).

UNIT –VII

TRANSFORMATION OF PROJECTIONS:

Conversion of Isometric Views to Orthographic Views – Conventions.

UNIT – VIII

ISOMETRIC PORJECTIONS:

Principles of Isometric Projection – Isometric Scale – Isometric Views– Conventions – Isometric Views of Lines, Plane Figures, (treatment limited to simple objects)

Learning resources

Text books :

1. Engineering Drawing, by N.D. Bhat V.M. Panchal, ,(48thEdition), Charotar publishers, 2005.
2. Engineering graphics with Auto CAD”, by R.B. Choudary, Anuradha Publishes, 2002.
3. Engineering Drawing, by Narayana and Kannaiah Sciotech publishers, 2009.

Reference books :

1. Engineering Drawing and Graphics, by Venugopal, New age publications, 2007.
2. Engineering Drawing, by Johle, Tata Macgraw Hill.2004.
3. Computer Aided Engineering Drawing, (3^{ed} edition), by Trymbaka Murthy, ,I.K. International publications.