

1/4 B.Tech. FIRST SEMESTER

CE1T6

ENGINEERING DRAWING

Credits: 4

Lecture : 2 periods/week

Internal assessment: 30 marks

Practice: 6 periods/week

Semester end examination: 70 marks

Objectives:

- To visualize and communicate all geometrical elements and also understand the fundamentals of geometry like engineering curves, planes, solids, sections, developments & isometric views and its applications in the daily life.

Learning outcomes:

At the end of the course the students will have drawing ability to:

- Represent various conics and curves.
- Construction of orthographic projections of Lines, Planes, and Solids, isometric projections and views.
- Sectioning of various Solids and their representation.

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, Epicycloids and Hypocycloid; Involute 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

PROJECTION 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 PROJECTIONS:

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 Bhatt, N.D. (49th edition), Anand Chartor Publications, 2007.
2. Engineering Graphics with Auto CAD 2008, (2nd edition) by Choudary, R.B., Anuradha Publishers, 2008.
3. Engineering Drawing, (2nd edition) by Narayana, K.L. and Kannaiah. Science tech publishers, 2007.

Reference books:

1. Engineering Drawing and Graphics, (1st edition) by Venugopal, K., New age Publication, 2012.
2. Engineering Drawing, (2nd edition) by Johle, D.A., Tata Mcgraw-Hill, 2008.
3. Computer Aided Engineering Drawing, (3rd edition) by Murthy Trymbaka, I.K. International, 2006.

Web Reference:

1. http://www.youtube.com/watch?v=XCWJ_XrkWco
2. <http://www.me.umn.edu/courses/me2011/handouts/drawing/blanco-tutorial.html#isodrawing>