

ENGINEERING DRAWING

I B. Tech. - II Semester
Course Code: A3ME05

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1 1 3 3

COURSE OVERVIEW:

One of the best ways to communicate one's ideas is through some form of picture or drawing. This is especially true for the engineer. An engineering drawing course focuses on usage of drawing instruments, lettering, construction of geometric shapes, etc. Students study use of dimensioning, shapes and angles or views of such drawings. Dimensions feature prominently, with focus on interpretation, importance and accurate reflection of dimensions in engineering drawing. Other areas of study in this course may include projected views and development of surfaces.

COURSE OBJECTIVES:

1. To have the knowledge of interpretation of dimensions of different quadrant projections.
2. To understand the basic principles of engineering drawing
3. To have the knowledge of generating the pictorial views
4. To understand the development of surfaces

COURSE OUTCOMES:

On completion of this course students will be able to:

1. Prepare and understand drawings.
2. Identify various D curves used in Engineering Drawing and their applications.
3. Use the principles of orthographic projections.
4. By studying about projections of solids students will be able to visualize three dimensional objects and that will enable them to design new products.
5. Design and fabricate surfaces of different shapes.
6. Represent the objects in three dimensional appearances.

SYLLABUS

UNIT - I

INTRODUCTION TO ENGINEERING DRAWING: Principles of engineering graphics and their significance – drawing instruments and their use – conventions in drawing – lettering – BIS conventions. Dimensioning rules, geometrical construction.

CURVES USED IN ENGINEERING PRACTICE AND THEIR CONSTRUCTIONS: Conic Sections, Special Curves-Cycloids, Epicycloids, Hypocycloids.

UNIT - II

ORTHOGRAPHIC PROJECTION IN FIRST ANGLE PROJECTION ONLY: Principles of orthographic projections – conventions – first and third angle projections. Projections of points and lines inclined to both the planes.

UNIT - III

PROJECTIONS OF PLANES AND SOLIDS: Projections of regular planes, inclined to both planes. Projections of regular solids inclined to both planes.

UNIT – IV

DEVELOPMENT OF SURFACES: Development of surfaces of right, regular solids – development of prisms, cylinders, pyramids, cones and their parts.

UNIT – V

ISOMETRIC PROJECTIONS: Principles of Isometric Projections-Isometric Scale- Isometric Views-Conventions-Plane Figures, Simple and Compound Solids.

TRANSFORMATION OF PROJECTIONS: Conversion of isometric Views to Orthographic Views. Conversion of orthographic views to isometric projections vice-versa.

TEXT BOOKS:

1. Engineering Drawing- Basant Agarwal, TMH
2. D. M. Kulkarni, A. P. Rastogi, and A. K. Sarkar (2009), Engineering Graphics with AutoCAD, PHI Learning Private Limited, New Delhi.
3. Jolhe, Dhananjay (2006), Engineering Drawing: With an Introduction to CAD, Tata Mc Graw Hill, India.

REFERENCE BOOKS:

1. N. D. Bhat (2006), *Engineering Drawing*, Charotar Publications, New Delhi.
2. Venugopal (2010), *Engineering Drawing and Graphics*, 2nd edition, New Age Publications, New Delhi.
3. Johle (2009), *Engineering Drawing*, Tata Mc Graw Hill, New Delhi, India.
4. Trymbaka Murthy (2007), *Computer Aided Engineering Drawing*, I.K. International Publishers, New Delhi. R.B. Choudary (2005), *Engineering graphics with Auto CAD*, Anuradha Publishers, New Delhi