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| **B. TECH 1st SEMESTER** | **L** | **T** | **P** | **C** |
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| **16ME1T01: Engineering Drawing** |

**COURSE OBJECTIVE**

 Engineering drawing is the principle method of communication for engineers. The objective to introduce the students, the techniques of constructing the various types of polygons and curves. The objective is also to visualize and represent the 3D objects in 2D planes with proper dimensioning, scaling etc.

**COURSE OUTCOMES**

1. Usage of drawing instruments and construct polygons.

2. Understand the orthographic projections of points, lines and planes in different positions.

3. Understand the orthographic projections of Solids.

4. Convert the Orthographic projections into Isometric and vice versa.

**UNIT - I**

INTRODUCTION: Engineering Drawing and Plane Curves, Use of Drawing Instruments and Conventions.

GEOMETRICAL CONSTRUCTIONS: Constructions of Polygons using General Method.

CONICS: Construction of Ellipse, Parabola and Hyperbola by Eccentricity Method.

CYCLOIDAL CURVES: Construction of Cycloid, Epi-Cycloid and Hypo-Cycloid.

**UNIT - II**

PROJECTIONS OF POINTS AND LINES: Introduction to Orthographic Projections - Projection of Points.

PROJECTION OF STRAIGHT LINES: Parallel to both the Planes, Parallel to One Plane and Inclined to Other Plane, Inclined to Both the Planes.

**UNIT – III**

PROJECTIONS OF PLANES: Introduction to Perpendicular Planes, Perpendicular to both the Reference Planes, Perpendicular to One Plane and Parallel to Other Plane, Perpendicular to One Plane and Inclined to Other Plane, Inclined to Both the Reference Planes.

**UNIT – IV**

PROJECTIONS OF SOLIDS: Projections of Simple Solids like Prism, Cylinder, Pyramids and Cones. Projections of Solids with Axis Perpendicular to one Plane, Projections of Solids with Axis Parallel to Both the Planes.

**UNIT – V**

PROJECTIONS OF SOLIDS – AXIS INCLINED TO ONE PLANE: Projections of Solids with Axis inclined to one plane and parallel to other Plane (Axis inclined to the VP and Parallel to the HP, Axis Inclined to the HP and Parallel to the VP).

**UNIT – VI**

ISOMETRIC PROJECTIONS: Principles of Isometric Projections - Isometric Scale, Isometric Projections of Planes, Simple Solids, Conversion of Isometric to Orthographic Views and Vice Versa.

**Text Books:**

1. Engineering Drawing by N.D. Bhatt, Charotar Publishers.

2. Engineering Drawing by K.L. Narayana & P. Khannaiah., SCIETECH Publishers.

**Reference Books:**

1. Engineering Drawing by M.B. Shah & B.C. Rana., Pearson’s Publishers.

2. Engineering Drawing by K. Venugopal., NEW AGE Publications.