

Engineering Drawing and Graphics

Course Code: ME-110	CreditHrs:0-2
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Text and Reference Books:

- N.D Bhatt, *Engineering Drawing and Graphics*
- B. Wiebe, M. Mohler, *Technical Graphics Communication*, McGraw-Hill
- Abbot, *Practical Geometry & Engineering Graphics*
- Craft, Meyers & Boyer, *Engineering Graphics*
- G. R. Bertoline, E. N. Wiebe, *Technical Graphics Communication*; McGraw-Hill
- D.F. Rogers, J.A. Adams; *Mathematical Elements for Computer Graphics*, McGraw-Hill
- A. C Parkinson, *A First Year Engineering Drawing*

Course Outline:

- Orthographic Projection: Principle and Methods of projection, Orthographic projection, Planes of projection, First and Third-angle projection, Reference line
- Projection of Points: A point is situated in the first, second, third and fourth quadrant.
- Projection of Straight Lines: Line parallel and perpendicular to one or both the planes, Line contained by one or both the planes, Projections of lines inclined to both the planes, True length of a straight line and its inclinations, Methods of determining traces of a line.
- Projection of Planes (2D): Types and Traces of planes, Projections of planes, Projections of oblique planes
- Projections on Auxiliary Planes (2D): Types of auxiliary planes and views, Projection of a point on an auxiliary plane, Projections of lines and planes.
- Projections of Solids (3D): Types of solids and their projections, Projections of solids with axes inclined.

- Section of Solids (3D): Section of planes, prisms, pyramids, cylinders, cones, spheres, Methods of development, Triangulation development, Developments of lateral surfaces of right solids
- Isometric Projections (3D): Isometric axes, lines, planes, and scale, Isometric drawing or isometric view, Isometric drawing of planes or plane figures, prisms and pyramids, cylinders, cones and sphere
- Introduction: Introduction to Engineering Drawing, I. S. specification for preparation of drawings, Use of drawing instruments and materials, Basic Tools, Lines: Types, configuration and application, Selection of line thickness.
- Lettering, Numbering and Dimensioning: Vertical and inclined single stroke letters, Lettering types and rules, Dimension lines, projection lines, leaders or pointer lines, Arrow heads, Dimensioning,
- Geometric Construction: Drawing simple geometric objects (polygon, pentagon and hexagons etc).
- Orthographic Projections of different Solids
- Orthographic Projections of Machine Elements: Rivets, Nut and bolts, Different kinds of threads, Lap and butt joints, Flange couplings, Journal bearing, Open bearing, Footstep bearing, Crankshaft, Bearings
- Practical: Select a machine and study its operation and machine elements detail, Draw the 3D model of the machine and draw 2D drawings