Course Code	Course Name	Hours per Week			Total	Total
		L	T	P	Hrs.	Credits
EN3ES02	Engineering Graphics	3	0	2	5	4

Unit -I

Drawing scales**:** Engineering scale, graphical scale, plain scale, diagonal scale, comparative scale, scale of chord.

Geometric Constructions and Engineering Curves: Division of lines, curves, angles and other simple construction elements. Conic sections parabola, ellipse and hyperbola. Spiral, involute and helix. Cycloidal curves.

Unit-II

Projections of points : Including points in all four quadrants

Projections of lines: Line parallel to reference plane, perpendicular to reference plane, inclined to one reference plane, inclined to both reference planes, traces of line.

Orthographic Projections: Reference planes, types of orthographic projections–First angle projections, Third angle projections.

Unit-III

Auxiliary Projections: Auxiliary planes, Auxiliary Vertical Plane (AVP), Auxiliary Inclined Plane (AIP), symmetrical auxiliary view, unilateral auxiliary view, bilateral auxiliary view.

Projection of Solids: Classification of solid. Projections in simple and complex positions of the axis of the solid. Combination of solids.

Sections of Solids: Sectional views and true shape of the section.

Development of Surfaces: Methods of developments, development of various solids, transition pieces, spheres.

Unit-IV

Isometric Projections: Isometric view, Isometric scale to draw Isometric projection, Non-Isometric lines, construction of isometric view from given orthographic views and to construct Isometric view of a Pyramid, Cone, Sphere.

Free hand sketching**:** Prerequisites for freehand sketching, sketching of regular and irregular figures

UNIT V

Computer Aided Drawing (CAD): Points, Lines planes and Solids and their projections, intersections Sectional views, Developments.

Text Books:

1. N.D. Bhatt, Elementary Engineering Drawing, Chartor Publishing House.
2. D. N. Johle, Engineering Drawing, Tata Mcgraw-hill Publishing Co. Ltd.
3. P.S. Gill, Engineering Graphics, S.K. Kataria and Sons.
4. Warren J. Luzzader, Fundamentals of Engineering Drawing, Prentice Hall of India, New Delhi.
5. F. E. Giesecke, A. Mitchell & others, Principles of Engineering Graphics, Maxwell McMillan Publishing.
6. K.C. John, Engineering Graphics for Degree, PHI Learning Pvt. Ltd.

Laboratory: Preparation of drawing sheets containing the drawings for topics covered in theory.