CC151: ENGINEERING GRAPHICS

CREDITS - 6 (L=2, T=0, P=4)

Course Objective:

To enable students to acquire and use engineering drawing skills as a means of accurately and clearly communicating ideas, information and instructions.

Teaching and Assessment Scheme:

Teaching Scheme			Credits	Assessment Scheme				
L	T	P	C	Theory		Practical		Total Marks
				ESE	CE	ESE	CE	
2	0	4	6	70	30	30	20	150

Course Contents:

Unit No.	Topics	Teaching Hours
1	**Introduction to Engineering Graphics:** Drawing instruments and accessories, BIS – SP 46. **Scales:** Use of plain scales & diagonal scale.	03
2	**Orthographic Projections:** Principles of projection and its classification, Projections from the pictorial view of an object on the principal planes for view from front, top and sides using first angle projection method and third angle projection method. Sectional views. **Isometric Projections:** Isometric Scale, Conversion of orthographic views into isometric projection and views.	05
3	**Engineering Curves:** Classification and applications of Engineering Curves, Construction of Conic curves, Cycloidal Curves, Involutes and Spirals along with normal and tangent to each curve.	04

Unit No.	Topics	Teaching Hours
4	**Projections of Points and Straight Lines:** Projections of the points located in different quadrants. Projections of lines inclined to both the reference planes and its applications in the actual field. True length and inclinations of the line with the reference planes.	04
5	**Projections of Planes:** Projections of planes (polygons, circle and ellipse) with its inclination to both the reference planes. Concept of auxiliary plane method for projections of the planes. True shape and inclinations of the plane with the reference planes. **Projections of Solids**: Classification of solids. Projections of solids (Cylinder, Cone, Pyramids and Prisms) along with their frustums having their axis inclined to both the reference planes.	08
6	**Sections of solids:** Sections of Cylinder, Cone, Pyramid and Prism. True shape of the sections. **Development of surfaces**: Development of surfaces of prism, pyramid, cylinder and cone.	06

List of References:

1. N.D.Bhatt, *"Engineering Drawing*", 53rd Edition, 2014, Charotar Publishing house Pvt. Ltd, Anand, Gujarat.
2. P.J.Shah, *"A Text Book of Engineering Graphics"* S.Chand & Company Ltd. New Delhi.
3. P.S.Gill, *"A Text Book of Engineering Drawing, S*.K.Kataria & Sons, Delhi.

Course Outcomes (COs):

At the end of this course students will be able to …

1. Interpret standard conventions used in engineering drawing and construction of plain and diagonal scales.
2. Construct orthographic and isometric projections.
3. Construct various engineering curves and identify its various applications.
4. Construct projections of points and straight lines.
5. Interpret different planes and solids and construct their projection.
6. Create sections of solids and develop surfaces.