

Branch Name:	Electrical Engineering
Program Code:	ET109
Course Name:	ENGINEERING GRAPHICS
Course Code:	1ET1000112
Pre-requisite Course:	-

Course Objective:

1. Understand and appreciate the importance of Engineering Graphics in Engineering
2. Understand the basic principles of Technical/Engineering Drawing
3. Understand the different steps in producing drawings
4. Acquire fundamentals of Orthographic Projections

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)								
Lecture	Tutorial	Practical	Credit	Theory				Practical				Total
				University Assessment		Continuous Assessment		University Assessment		Continuous Assessment		
				Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
4	-	2	5	28	70	12	30	-	-	08	20	120

Course Contents:

Sr. No	Topic	Total Hours	Weightage (%)
1	Introduction to Engineering Graphics: Drawing instruments and accessories, BIS –SP 46. Use of plane scales, Diagonal Scales and Representative Fraction	03	20
2	Engineering Curves: Classification and application of Engineering Curves, Construction of Conics, Cycloidal Curves, Involute and Spirals along with normal and tangent to each curve	05	
3	Loci of Points: Path of the points moving on simple arrangements and simple mechanisms, slider crank mechanism, four bar chain mechanism etc.	05	10
4	Projections of Points and Lines: Introduction to principal planes of projections, Projections of the points located in same quadrant and different quadrants, Projections of line with its inclination to one reference plane and with two reference planes. True length and inclination with the reference planes	08	20

5	Projections of Planes: Projections of planes (polygons, circle and ellipse) with its inclination to one reference plane and with two reference planes, Concept of auxiliary plane method for projections of the plane	05	20
6	Projections of Solids and Section of Solids: Classification of solids. Projections of solids (Cylinder, Cone, Pyramid and Prism) along with frustum with its inclination to one reference plane and with two reference planes. Section of such solids and the true shape of the section	06	
7	Orthographic Projections: Fundamental of projection along with classification, Projections from the pictorial view of the object on the principal planes for view from front, top and sides using first angle projection method and third angle projection method, full sectional view	08	30
8	Isometric Projections and Isometric View or Drawing: Isometric Scale, Conversion of orthographic views into isometric projection, isometric view or drawing	08	

List of References:

1. A Text Book of Engineering Graphics by P.J.Shah S.Chand & Company Ltd., New Delhi
2. Elementary Engineering Drawing by N.D.Bhatt Charotar Publishing House, Anand
3. A text book of Engineering Drawing by R.K.Dhawan, S.Chand & Company Ltd., New Delhi
4. A text book of Engineering Drawing by P.S.Gill, S.K.Kataria & sons, Delhi
5. Engineering Drawing by Arunoday Kumar, Tech-Max Publication

List of Practical:

Students are required to prepare drawing sheets on the following topics. Minimum three problems must be given for sheet number 2 to 8.

1. Practice sheet (which includes dimensioning methods, different types of line, construction of different polygon, divide the line and angle in parts, use of stencil, Scale and its type)
2. Loci of points
3. Engineering curves
4. Projection of line
5. Projection of plane
6. Projection and section of solid
7. Orthographic projection
8. Isometric projection

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	To know and understand the conventions and the methods of engineering drawing.	2 Understanding
CLO2	To improve their technical communication skill in the form of communicative drawings.	1 Remembering
CLO3	Interpret engineering drawings using fundamental technical mathematics.	3 Applying 4 Analyze
CLO4	Construct basic and intermediate geometry.	2 Understanding 6 Creating
CLO5	To improve their visualization skills so that they can apply these skills in developing new products.	5 Evaluating
CLO6	Comprehend the theory of projection.	2 Understanding

Mapping of CLOs with POs & PSOs:

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes(PSOs)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CLO1	M	M	L			M	L				L			
CLO2			M	H	L	L							L	
CLO3		L			H			L	M				M	
CLO4		L	M		M			L	M	M			M	
CLO5		M		M	L		L							M
CLO6								M		M	L	L		L

H: High, M: Medium, L: Low