

ENGINEERING DRAWING

I Semester: ME								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
AME001	Core	L	T	P	C	CIA	SEE	Total
		2	-	3	4	30	70	100
Contact Classes: 30	Tutorial Classes: 0	Practical Classes: 45			Total Classes: 75			
<p>OBJECTIVES:</p> <p>The course should enable the students to:</p> <p>I. Understand the basic principles of engineering drawing and construction of curves used in engineering field.</p> <p>II. Apply the knowledge of interpretation of projection in different quadrants</p> <p>III. Understand the projections of solids, when it is inclined to both planes simultaneously</p> <p>IV. Convert the pictorial views into orthographic view and vice versa..</p> <p>COURSE LEARNING OUTCOMES (CLOs):</p> <ol style="list-style-type: none"> Understand the BIS conventions of engineering drawing with basic concepts, ideas and methodology Recognize the need of single stroke lettering in defining the components. Understand the different line types according to BIS standards to engineering drawings. Sketch the various types of polygons for applying in solid modeling. Discuss the various types of scales for engineering application like maps, buildings, bridges. Visualize parabolic and elliptical profiles in buildings and bridges. Visualize cycloidal and involute profiles in developing new products like gears and other engineering applications Solve specific geometrical problems in plane geometry involving points and lines. Understand the theory of projection in planes located in various quadrants and apply in manufacturing processes. Understand the orthographic projection concepts in solid modeling and apply the concepts in the areas of design Apply the terminology of development of surfaces in the area of chimneys and chutes.. Visualize the components by isometric projection by representing three dimensional objects in two dimensions in technical and engineering drawings.. Interpret plumbing drawings typically found in construction by using transformation of projection. Convert the orthographic views into pictorial views by using transformation of projection. Convert the pictorial views into orthographic views by using transformation of projection. 								
UNIT-I	FUNDAMENTALS OF ENGINEERING DRAWING, SCALES AND CURVES						Classes: 09	
Introduction to engineering drawing: Drawing instruments and accessories, types of line, lettering practice and rules of dimensioning, geometrical constructions, basic geometrical shapes; Scales: Types of scales, units of length and their conversion, construction of scales, plain scale, diagonal scale, vernier scale; Curves used in engineering practice and their constructions; Conic sections, construction of ellipse parabola and hyperbola, special curves, construction of cycloid, epicycloids, hypocycloid and involutes.								
UNIT -II	ORTHOGRAPHIC PROJECTION, PROJECTION OF PLANES						Classes: 09	
Orthographic projection: Principles of orthographic projections, conventions, first and third angle projections, projection of points, projection of lines, lines inclined to single plane, lines inclined to both the planes, true lengths and traces; Projection of planes: Projection of regular planes, planes inclined to one plane, planes inclined to both planes, projection of planes by auxiliary plane projection method.								

UNIT -III	PROJECTION OF SOLIDS	Classes: 09
Projection of solids: Projections of regular solid, prisms, cylinders, pyramids, cones. Solids inclined to one plane, solids inclined to both planes, projection of solid by auxiliary plane projection method.		
UNIT -IV	DEVELOPMENT OF SURFACES, ISOMETRIC PROJECTIONS	Classes: 09
Development of surfaces: Development of lateral surface of right regular solids, prisms, cylinders, pyramids and cones; Isometric projections: Principle of isometric projection, isometric scale, isometric projections and isometric views, isometric projections of planes, prisms, cylinders, pyramids, and cones.		
UNIT -V	TRANSFORMATION OF PROJECTIONS	Classes: 09
Transformation of projections: Conversion of isometric views to orthographic views and conversion of orthographic views to isometric views.		
Text Books:		
<ol style="list-style-type: none"> 1. N. D. Bhatt, "Engineering Drawing", Charotar Publications, 49th Edition, 2012. 2. C. M. Agrawal, Basant Agrawal, "Engineering Drawing", Tata McGraw Hill, 2nd Edition, 2013. 		
Reference Books:		
<ol style="list-style-type: none"> 1. K. Venugopal, "Engineering Drawing and Graphics", New Age Publications, 2nd Edition, 2010. 2. K. C. John, "Engineering Drawing", PHI Learning Private Limited", 2nd Edition, 2009. 3. Dhananjay. A. Johle, "Engineering Drawing", Tata McGraw Hill, 1st Edition, 2008. 		
Web References:		
<ol style="list-style-type: none"> 1. https://nptel.ac.in/courses/112103019/ 2. https://nptel.ac.in/courses/112103019/14 		
E-Text Books:		
<ol style="list-style-type: none"> 1. https://books.google.co.in/books/about/Engineering_Drawing.html?id=_hdOU8kRb2AC 		