

COMPUTER AIDED ENGINEERING DRAWING

II Semester: AE / ME / CE								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P		CIA	SEE	Total
AMEC03	Foundation	1	-	2	1.5	30	70	100
		Contact Classes: 15		Tutorial Classes: Nil		Practical Classes: 45		Total Classes: 60
Prerequisite: There are no prerequisites to take this course.								
I. COURSE OVERVIEW:								
<p>One of the best ways to communicate one's idea is through some form of picture or drawing. Engineering Drawing is the accurate technique that develops the ability to visualize any object with all physical and dimensional configurations. During the process of design, the designer may have to carry out a large amount of computations to generate optimum design and develops engineering drawings for manufacturing a product using interactive computer graphics. The computer aided engineering drawing assists in preparation of 3D and 2D drawings to carry out sophisticated design and analysis. This course forms the foundation for the development of computer graphics and CAD/CAM technologies in the era of digital manufacturing.</p>								
II. COURSE OBJECTIVES:								
The students will try to learn:								
<p>I. The basic knowledge about engineering drawing as a communicative language of engineers in ideation.</p> <p>II. The ability to visualize, create and edit any object with all the physical and dimensional configurations using computer aided drawing tools.</p> <p>III. The code of engineering drawing practice as per the Bureau of Indian Standards and International practices.</p>								
III. COURSE OBJECTIVES:								
MODULE – I: INTRODUCTION TO ENGINEERING DRAWING AND OVERVIEW OF COMPUTER GRAPHICS								
<p>Principles of Engineering Graphics and their significance, usage of Drawing instruments, lettering. Listing the computer technologies that impact on graphical communication, Demonstrating knowledge of the theory of CAD software.</p>								
MODULE – II: CONIC SECTIONS AND SCALES								
<p>Conic sections including the Rectangular Hyperbola (General method only); Cycloid, Epicycloid, Hypocycloid and Involute; Scales-Plain, Diagonal and Vernier Scales.</p>								
MODULE – III: PROJECTION OF POINTS AND LINES								
<p>Principles of Orthographic Projections-Conventions-Projections of Points and lines inclined to both planes. Projections of planes, Planes inclined to both the planes.</p>								
MODULE – IV: PROJECTION OF REGULAR SOLIDS								
<p>Draw the orthographic views of geometrical solids of Prism, Pyramid, Cylinder and Cone.</p>								
MODULE – V: ISOMETRIC AND ORTHOGRAPHIC PROJECTIONS								
<p>Principles of Isometric projection-Isometric Scale, Isometric Views, Conventions; Isometric Views of lines, Planes, Simple and compound Solids; Conversion of Isometric Views to Orthographic Views and Vice-versa.</p>								
IV. TEXT BOOKS:								
<p>1. N. D. Bhatt, "Engineering Drawing", Charotar Publications, New Delhi, 49th Edition, 2010.</p> <p>2. C.M. Agarwal, Basant Agarwal, "Engineering Drawing", Tata McGraw Hill, 2nd Edition, 2013.</p>								
V. REFERENCE BOOKS:								
<p>1. K. Venugopal, "Engineering Drawing and Graphics". New Age Publications, 2nd Edition, 2010.</p> <p>2. Dhananjay. A. Johle, "Engineering Drawing", Tata McGraw Hill, 1st Edition, 2008.</p> <p>3. S.Trymbaka Murthy, "Computer Aided Engineering Drawing", I.K. International Publishers, 3rd Edition, 2011.</p> <p>4. A.K.Sarkar, A.P Rastogi, "Engineering graphics with Auto CAD", PHI Learning, 1st Edition, 2010.</p>								

VI. WEB REFERENCES:

1. <http://nptel.ac.in/courses/112103019>
2. <http://www.autocadtutorials.net/>
3. <http://gradcab.com/questions/tutorial-16-for-beginner-engineering-drawing-I>