# 17ME11P2 - COMPUTER AIDED ENGINEERING DRAWING

(Common to EEE, ECE, CSE and IT)

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| **Course Category:** | Professional Core | **Credits:** | 3 |
| **Course Type:** | Theory | **Lecture - Tutorial - Practical:** | 0-0-6 |
| **Prerequisite:** | Knowledge of basic math concepts and different types of shapes, angles, symmetry, scaling and unit measurement systems | **Sessional Evaluation:****Univ. Exam Evaluation:****Total Marks:** | 4060100 |
| **Objectives** | Students undergoing this course are expected to understand:* To enable the students with various concepts like dimensioning, construction of conic sections, polygons, cycloids and involutes.
* To impart and inculcate proper understanding of AutoCAD fundamentals.
* To apply the knowledge of AutoCAD for the projections of points, lines and solids.
* To know about sections and development of solids.
* To improve the visualization skills with isometric projections.
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| **Course Outcomes** | After completing the course the student will be able to |
| CO1 | Apply the conventions and the methods of engineering drawing. |
| CO2 | Create geometric constructions, conics with hand tools to draw lines, polygons, circle, tangencies, conic sections and irregular arcs. |
| CO3 | Sketch the solutions to the problems on projection |
| CO4 | Use the sectioning and developments concepts of solids in actual applications. |
| CO5 | Visualize the objects that they can apply these skills in developing new products. |
| **Course Content** | UNIT-I**Introduction:** Importance of Drawing, Drawing Instruments, Sheet layout, BIS Conventions, Types of lines, Lettering, and dimensioning methods. **Geometrical Constructions:** Regular Polygons (Triangle, Square, Pentagon, Hexagon)**Conic Sections:** Introduction, Construction of Ellipse, Parabola and Hyperbola using Eccentricity method and Rectangular/ Oblong methods.**Special Curves:** Introduction, Construction of Cycloids and Involute curves.UNIT-II**Introduction:** Importance of Computer Aided Drawing, software tool environment, drawing size and scale, main menu, tool bar and menus, co-ordinate system, drafting settings.**Creation and Editing:** Points, Lines, Poly lines, Polygons, Splines, circle, ellipse, text, move, copy, off-set, pan, mirror, rotate, trim, extend, break, chamfer, fillet, curves, block, layers, line representations, dimensioning and hatching.UNIT-III**Projections of Points:** Principles of projections, Planes of projection, Points in four quadrants.**Projections of Lines:** Line inclined to both the principal planes (first angle projection only).UNIT-IV**Projections of Planes:** Plane (triangle, square, rectangle, pentagon, hexagon and circular) inclined to both the principal planes.**Projections of Solids:** Solids such as Prisms, Pyramids, Cylinders and Cones.UNIT-V**Sections of Solids:** Solids such as Prisms, Pyramids, Cylinders and Cones resting on their bases on HP.**Development of Surfaces:** Lateral surfaces of solids such as Prisms, Pyramids, Cylinders and Cones (cut by a plane inclined to HP).UNIT-VI**Orthographic Projections:** Conversion of Pictorial views into Orthographic Views, Isometric Projections of simple objects. |
| **Text Books and References** | Text Books:1. Engineering Drawing, N.D. Bhat / Charotar Publishing House, Gujarat, 51st edition, 2013.
2. Sham Tickoo, AutoCAD 2 0 13 For Engineers and Designers, Dream tech Press, 2013.
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| Reference Books:1. Engineering Drawing and Graphics, Venugopal K, New Age International Pvt. Ltd.New Delhi, 2001.
2. D.M. Kulkarni, A.P. Rastogi and A.K. Sarkar, Engineering Graphics with Auto CAD, PHI Learning Private Limited, Revised Edition, August 2010.
3. T Jeyapoovan, Engineering Drawing and Graphics UsingAutocad, Vikas Publishing House, 3rdEdition, 2010.
4. A Textbook on Engineering Drawing, P.Kannaiah, K.L.Narayana, K.Venkata Reddy, Radiant Publishing House, 2012.6.Jolhe, Engineering Drawing, Tata McGraw Hill Education Private Limited, 1st Edition, 2007.
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