

21GEN01	ENGINEERING GRAPHICS & DESIGN	L	T	P	C
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<p><b><u>Course Objectives:</u></b></p> <ul style="list-style-type: none"> <li>• Understand and appreciate the importance of basic concepts and principles of Engineering Drawing (components, sections, views, and graphical representation).</li> <li>• Enable the students with various concepts like dimensioning, conventions and standards related to working drawings in order to become professionally efficient.</li> <li>• Students will be able to draw orthographic projections and sections.</li> <li>• To know projection of points, straight lines, solids etc.</li> <li>• To know development of different types of surfaces and isometric projection.</li> <li>• Develop the ability to communicate with others through the language of technical drawing and sketching. And the ability to read and interpret engineering drawings created by others.</li> </ul>					
<b>UNIT I</b>	<b>CONIC SECTIONS, SPECIAL CURVES &amp; ORTHOGRAPHIC PROJECTION</b>	<b>10 Hours</b>			
Basics of Drawing & Dimensioning - Conic Sections - Eccentricity Method - Cycloids & Involute Representation of Three-Dimensional objects & Layout of views - Orthographic Projections & Free hand sketching					
<b>UNIT II</b>	<b>PROJECTION OF POINTS, LINES &amp; PLANES</b>	<b>10 Hours</b>			
Four Angles of Projection - Projection of Points in different quadrants - Projection of straight lines inclined to both the principal planes - Determination of true lengths and true inclinations - Projection of planes (polygonal and circular surfaces) inclined to both the principal planes					
<b>UNIT III</b>	<b>PROJECTION OF SOLIDS</b>	<b>10 Hours</b>			
Classifications of Solids - Projection of prisms & pyramids - Projection of Cylinders & Cones - Projection of Truncated Solids					
<b>UNIT IV</b>	<b>SECTION OF SOLIDS &amp; DEVELOPMENT OF SURFACES</b>	<b>10 Hours</b>			
Reason for sectioning - Sectioning of solids in simple vertical position - Obtaining true shape of the section - Development of lateral surfaces of simple and sectioned solids					
<b>UNIT V</b>	<b>ISOMETRIC PROJECTION</b>	<b>10 Hours</b>			
Isometric scales - Isometric projections of simple and truncated solids					
<b>Demonstration Only</b>	<b>INTRODUCTION TO COMPUTER AIDED DRAFTING</b>	<b>10 Hours</b>			
2D Drafting activities such as Drawing, Editing, Dimensioning, Layering & Hatching - Detailed Drawing practice of Prisms, Pyramids, Cylinders & Cones - Modelling the regular solids and section it to obtain the sectional views					

**Course outcomes:**

On completion of the course the students will be able to

- gain knowledge on international standards of drawings and to draw the different types of projections for points, lines and planes.
- draw the different projections of primitive 3D objects like cylinder, cube, cone etc.
- draw sections of solids including prisms, cylinders, pyramids, and cones.
- understand the concepts of development of surfaces of simple and truncated solids
- draw the isometric projections for the given object

**Text Books:**

1. Venugopal K and Prabhu Raja V, “Engineering Graphics”, New AGE International Publishers, 2015.
2. Natarajan K. V., “A text book of Engineering Graphics”, 28<sup>th</sup> Ed., Dhanalakshmi Publishers, Chennai, 2015.
3. Jeyapooan, T., “Engineering Drawing and Graphics using AutoCAD”, Vikas Publishing House Pvt. Ltd., New Delhi, 2010.
4. Bethune, J.D., “Engineering Graphics with AutoCAD 2013”, PHI Learning Private Limited, Delhi, 2013.

**Reference Books:**

1. Bhatt, N. D. and V. M. Panchal. “Engineering Drawing” Charotar Publishing house, 2012.
2. Gopalakrishna, K. R. “Engineering Drawing” Subas Publications, 2010.