

**Engineering Graphics**  
(For Civil, ME, IT, CSE (AI & ML) and CSE (DS) branches)

<b>Course Code</b>	23ES1104	<b>Year</b>	I	<b>Semester</b>	I
<b>Course Category</b>	Engineering Science	<b>Branch</b>	CSE (DS)	<b>Course Type</b>	Theory
<b>Credits</b>	3	<b>L-T-P</b>	1-0-4	<b>Prerequisites</b>	Nil
<b>Continuous Internal Evaluation</b>	30	<b>Semester End Evaluation</b>	70	<b>Total Marks</b>	100

**Course Outcomes**

Upon successful completion of the course, the student will be able to

CO1	Construct regular polygons, conic sections, curves and scales used in Engineering practice.
CO2	Construct orthographic projections of an object when its position is defined with respect to the reference planes.
CO3	Develop the orthographic projections for the given isometric view.
CO4	Develop the lateral surfaces of solids.
CO5	Identify the appropriate commands that are used to prepare the given drawing in CAD environment

**Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:High, 2: Medium, 1:Low)**

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	2							2	2	2			
CO2	3	3							3	3	3			
CO3	2	2							2	2	2			
CO4	2	2							2	2	2			
CO5	2				2				2	2	2			

**Syllabus**

<b>Unit No.</b>	<b>Syllabus</b>	<b>Mapped CO's</b>
1	<b>Introduction:</b> Lines, Lettering and Dimensioning, Geometrical Constructions And Constructing regular polygons by general method. <b>Curves:</b> construction of ellipse, parabola and hyperbola by general method Cycloids, Involute, Normal and tangent to the Curves. <b>Scales:</b> Plain scales and diagonal scales.	CO1
2	<b>Orthographic Projections:</b> Reference plane, importance of reference lines or Plane, Projections of a point situated in any one of the four quadrants. <b>Projections of Straight Lines:</b> Projections of straight lines parallel to both reference planes, perpendicular to one reference plane and parallel to other reference plane, inclined to one reference plane and parallel to the other reference plane. Projections of Straight Line Inclined to both the reference planes.	CO2
3	<b>Projections of Planes:</b> Regular planes only, Plane perpendicular to both reference planes, Plane parallel to one reference plane and perpendicular to the other reference plane, Plane inclined to one reference plane and perpendicular to the other reference plane, plane inclined to both the reference planes. <b>Projections of Solids:</b> Types of solids: Polyhedra and Solids of revolution. Projections of solids in simple positions: Axis perpendicular to horizontal plane,	CO2

	Axis perpendicular to vertical plane and Axis parallel to both the reference planes, Projection of Solids with axis inclined to one reference plane and parallel to other plane	
4	<b>Sections of Solids:</b> Perpendicular and inclined section planes, Sectional views and True shape of section, Sections of solids in simple position only. <b>Development of Surfaces:</b> Methods of Development: Parallel line development and radial line development. Development of a cube, prism, cylinder, pyramid and cone.	CO3
5	<b>Conversion of Views:</b> Conversion of isometric views to orthographic views.	CO4
	<b>Computer graphics:</b> Creating 2D&3D drawings of objects including PCB and Transformations using Auto CAD (Not for end examination).	CO5

### Learning Resources

#### Text Books

1. N.D. Bhatt, Engineering Drawing, 53/e, Charotar Publishers, 2016.

#### Reference Books

1. Engineering Drawing, K.L.Narayana and P.Kannaiah, Tata McGraw Hill, 2013.
2. Engineering Drawing, M.B.Shah and B.C.Rana, Pearson Education Inc, 2009.
3. Engineering Drawing with an Introduction to Auto CAD, Dhananjay Jolhe, Tata Mc Graw Hill, 2017.
4. K. Venugopal, Engineering Drawing and Graphics, 6/e, New Age Publishers, 2011.

#### e- Resources & other digital material

1. <http://www.youtube.com/watch?v=XCWJXrkWco>, Accessed on 01-06-2017.
2. <http://www.me.umn.edu/courses/me2011/handouts/drawing/blanco-tutorial.html#isodrawing>, Accessed on 01-06-2017.
3. <http://www.slideshare.net>, Accessed on 01-06-2017.
4. <http://edpstuff.blogspot.in>, Accessed on 01-06-2017.