# JNTUA COLLEGE OF ENGINEERING (AUTONOMOUS):: PULIVENDULA DEPARTMENT OF MECHANICAL ENGINEERING

# (Common to all branches)

Subject Code	Title of the Subject	L	Т	P	C	
19A03102	Engineering Graphics	1	0	3	2.5	

-	COURSE OBJECTIVES							
1	To bring awareness that Engineering Drawing is the Language of Engineers.							
2	To familiarize how industry communicates technical information.							
3	To teach the practices for accuracy and clarity in presenting the technical information.							
4	To develop the engineering imagination essential for successful design.							
5	To instruct the utility of drafting & modeling packages in orthographic and isometric drawings.							
6	To train the usage of 2D and 3D modeling.							
7	To instruct graphical representation of machine components.							

COUR	SE OUTCOMES						
COI	Draw various curves applied in engineering.						
CO2	Show projections of Lines, planes and solids						
CO3	<b>Draw</b> the sections of solids and development of surfaces of solids.						
CO4	Use computers as a drafting tool.						
CO5	Draw isometric and orthographic drawings.						

# Mapping between Course Outcomes and Programme Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	POII	PO12
COI	3	3	1	3	1						1	i i
CO2	3	3	1	3	1						1	i
CO3	3	3	1	3	1						1	1
CO4	3	3	1	3	1						1	l I
CO5	3	2	1	3	1						1	1

## UNIT - I:

Introduction to Engineering Graphics: Principles of Engineering Graphics and their significance -Conventions in drawing – Lettering – BIS conventions.

- a) Conic sections including the rectangular hyperbola general method only.
- b) Cycloids, Epicycloids and Hypocycloids.
- c) Involutes

(2L + 6P hrs)

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#### UNIT - II:

**Projection of Points, Lines and Planes:** Projection of points in any quadrant, Lines inclined to one and both planes, Finding true lengths, Angle made by line. Projections of regular plane surfaces.

(2L + 6P hrs)

## UNIT - III:

**Projections of Solids:** Projections of regular solids inclined to one and both planes by rotational and auxiliary views method.

Sections of Solids: Section planes and sectional view of right regular solids – Prism, Cylinder, Pyramid and Cone. True shapes of the sections. (2L + 6P hrs)

# UNIT - V:

**Development of Surfaces:** Development of surfaces of right regular solids - Prism, Cylinder, Pyramid, Cone and their sectional parts. (1L + 6P hrs)

## UNIT - V:

Orthographic Projections: Systems of projections, Conventions and Application to Orthographic Projections.

**Isometric Projections:** Principles of Isometric Projection – Isometric scale, Isometric views – Lines, Planes, Figures, Simple and Compound Solids. (5L + 15P hrs)

#### Text Books:

- 1. K.L.Narayana & P.Kannaiah, Engineering Drawing, 3/e, Scitech Publishers, Chennai, 2012.
- 2. N.D.Bhatt, Engineering Drawing, 53/e, Charotar Publishers, 2016.

#### Reference Books:

- 1. Dhanajay A Jolhe, Engineering Drawing, Tata McGraw-Hill, Copy Right, 2009.
- 2. Shah and Rana, Engineering Drawing, 2/e, Pearson Education, 2009.
- 3. Venugopal, Engineering Drawing and Graphics, 3/e, New Age Publishers, 2000.
- 4. K.C.John, Engineering Graphics, 2/e, PHI, 2013.
- 5. Basant Agarwal & C.M.Agarwal, Engineering Drawing, Tata McGraw-Hill, Copy Right, 2008.