

COURSE CODE	COURSE NAME	L	T	P	CREDIT	YEAR OF INTRODUCTION
101908/ME900C	ENGINEERING GRAPHICS	2	0	2	3	2021

1. Preamble

To enable the student to effectively perform technical communication through graphical representation as per global standards.

2. Prerequisite

Nil.

3. Syllabus

SECTION A

Module 1: Orthographic projection of Points and Lines

Introduction: Relevance of technical drawing in engineering field. Types of lines, Dimensioning, BIS code of practice for technical drawing.

Orthographic projection of Points and Lines: Projection of points in different quadrants, Projection of straight lines inclined to one plane and inclined to both planes. Trace of line. Inclination of lines with reference planes. True length of line inclined to both the reference planes.

Module 2: Orthographic projection of Solids

Orthographic projection of Solids: Projection of Simple solids such as Triangular, Rectangular, Square, Pentagonal and Hexagonal Prisms, Pyramids, Cone and Cylinder. Projection of solids in simple position including profile view. Projection of solids with axis inclined to one of the reference planes and with axis inclined to both reference planes.

Module 3: Section & Development of Solids

Sections of Solids: Sections of Prisms, Pyramids, Cone, Cylinder with axis in vertical position and cut by different section planes. True shape of the sections. Also locating the section plane when the true shape of the section is given.

Development of Surfaces: Development of surfaces of the above solids and solids cut by different section planes. Also finding the shortest distance between two points on the surface.

Module 4: Isometric Projection

Isometric Projection: Isometric View and Projections of Prisms, Pyramids, Cone, Cylinder, Frustum of Pyramid, Frustum of Cone, Sphere, Hemisphere and their combinations.

Module 5: Perspective Projection & Conversion of Pictorial Views

Perspective Projection: Perspective projection of Prisms and Pyramids with axis perpendicular to the ground plane, axis perpendicular to picture plane.

Conversion of Pictorial Views: Conversion of pictorial views into orthographic views.

SECTION B

(To be conducted in CAD Lab)

Introduction to Computer Aided Drawing: Role of CAD in design and development of new products, Advantages of CAD. Creating two-dimensional drawing with dimensions using suitable software. (Minimum 2 exercises mandatory)

Introduction to Solid Modelling: Creating 3D models of various components using suitable modelling software. (Minimum 2 exercises mandatory)

4. Text Books

1. Anilkumar, K.N., *Engineering Graphics*, Adhyuth Narayan Publishers, 10th Edition, 2016
2. Varghese, P.I., *Engineering Graphics*, V I P Publishers, 5th Edition, 2001

5. Reference Books (Minimum 5)

1. Agrawal, B. And Agrawal, C.M., *Engineering Drawing*, Tata McGraw Hill Publishers, 3rd Edition, 2019
2. Benjamin, J., *Engineering Graphics*, Pentex Publishers- 3rd Edition, 2017
3. Bhatt, N.D., *Engineering Drawing*, Charotar Publishing House Pvt. Ltd., 53rd Edition, 2019
4. Duff, J.M. and Ross, W.A., *Engineering Design and Visualization*, Cengage Learning, 1st Edition, 2008
5. John, K.C., *Engineering Graphics*, Prentice Hall India Publishers, 1st Edition, 2009
6. Kulkarni, D.M., Rastogi, A.P. and Sarkar, A.K., *Engineering Graphics with*

AutoCAD, PHI Learning, 2nd Edition, 2010

7. Luzaddff, W.J. and Duff, J.M., *Fundamentals of Engineering Drawing*, Peachpit Press, 11th Edition, 1992
8. Venugopal, K., *Engineering Drawing and Graphics*, New Age International Publishers, 4th Edition, 2001

6. Course Outcomes

After the completion of the course the student will be able to

- C01: Draw the projection of points and lines located in different quadrants.
- C02: Prepare Multiview orthographic projections of objects by visualizing them in different positions.
- C03: Draw sectional views and develop surfaces of a given object.
- C04: Prepare pictorial drawings using the principles of isometric and perspective projections to visualize objects in three dimensions.
- C05: Convert 3D views to orthographic views.
- C06: Obtain Multiview projections and solid models of objects using CAD tools.

7. Mapping of Course Outcomes with Program Outcomes

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P010	P011	P012
C01	3											
C02	3											
C03	3	1										
C04	3									1		
C05	3									2		
C06	3				3					3		

8. Assessment Pattern

Learning Objectives	Continuous Internal Evaluation (CIE)		End Semester Examination (ESE out of 100)
	Internal Examination 1 (50)	Internal Examination 2 (50)	

Remember			
Understand			
Apply	50	50	100
Analyse			
Evalaute			
Remember			

9. Mark Distribution

Total	CIE				ESE
	Attendance	Internal Examination	Assignment/Quiz/ Course Project	Total	
150	10	25 (15 marks for Test 1 & 10 marks for Test 2)	15 (10 marks for Section A class work & 5 marks for Section B class work)	50	100

Continuous Internal Evaluation Pattern:

CIA for section A carries 25 marks (15 marks for 1 test and Class work 10 marks) CIA for section B carries 15 marks (10 marks for 1 test and Class work 5 marks)

10. End Semester Examination Pattern

ESE will be of 3-hour duration on A4 size answer booklet and will be for 100 marks. The question paper shall contain two questions from each module of Section A only. Student has to answer any one question from each module. Each question carries 20 marks.
