Semester I

Engineering Graphics and Computer Aided Drawing

Course Code	Teaching hours per week				Credits	Exam Hours	Course Type	CIE Marks	ESE Marks
	L	T	P	R					
26ABMES101	2	0	2	0	3	2 Hrs. 30 Mins	Theory + Lab	40	60

1. **Preamble:** The Engineering Graphics course aims to develop students' skills in dimensioning, preparation, and interpretation of engineering drawings. It enhances visualization of 2D and 3D objects through orthographic and isometric projections and provides basic knowledge of CAD software for modern engineering drafting applications.

2. **Pre-requisites**: Nil

Syllabus

Module No.	Syllabus Description	Contact Hours
1	Introduction: Relevance of technical drawing in engineering field. Types of lines, Dimensioning, BIS code of practice for technical drawing. **Construction of Conic Sections**: Parabola and Ellipse -Rectangular Method **Projection of points in different quadrants** **Projection of straight lines**: Inclined to both planes in different quadrants, Midpoint problems. Locate Traces of a line.	**12**
2	**Projection of Simple solids** such as Triangular, Square, Pentagonal and Hexagonal Prisms, Pyramids, Cone, Cylinder and Cube. Projection of solids with axis inclined to both reference planes and resting on horizontal plane & Vertical plane. (Exclude Suspended solids)	**12**

Module No.	Syllabus Description	Contact Hours
3	**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. **Development of Surfaces**: Development of surfaces of the solids and solids cut by different section planes. Trace the shortest distance between two points on the surface of Cone and Cylinder.	**12**
4	**Isometric Projection**: Isometric View and Projections of Prisms, Pyramids, Cone, Cylinder, Sphere, Hemisphere and their combinations with axis perpendicular to HP. **Computer Aided Drawing (CAD):** Introduction, Role of CAD in design and development of new products, Advantages of CAD. Familiarizing various Tools: move, copy, rotate, scale, mirror, offset and array, trim, extend, fillet, chamfer. Dimensioning and text editing. Exercises on basic drafting principles, to create technical drawings. Creation of orthographic views of simple solids from pictorial views.	**12**
	Total hours	**48**

3. **Course Assessment Method**
   (CIE: 40 marks, ESE: 60 marks)

   Continuous Internal Evaluation Marks (CIE):

Attendance	Assignment/ Micro project	Internal Examination- 1 (Written)	Internal Examination- 2 (Written)	Total
5	**15**	**10**	**10**	**40**

   End Semester Examination Marks (ESE):

   Students can choose any one full question out of two questions from each module.

	Total
2 Questions from each module. Total 8 Questions, each question carries 15 marks **(15x4 =60marks)**	**60**

4. Course Outcomes

At the end of the course students should be able to:

Course Outcomes		Blooms Taxonomy Level
CO1	Develop the ability to construct conic sections and plot the projections of points and lines located in different quadrants.	K3
CO2	Prepare Multiview orthographic projections of objects by visualizing them in different positions	K3
CO3	Plot sectional views and develop surfaces of a given object	K3
CO4	Prepare pictorial drawings using principles of isometric projection and create simple engineering drawings using CAD tools.	K3

Note: K1- Remember, K2- Understand, K3- Apply, K4- Analyse, K5- Evaluate, K6- Create

5. Mapping of Course Outcomes with Program Outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3	2	1	-	-	-	-	-	-	-	-
CO2	3	2	2	1	-	-	-	-	-	-	-
CO3	3	2	2	1	-	-	-	-	-	-	-
CO4	3	2	3	-	3	-	-	-	1	2	-

Note: 1: Slight (Low), 2: Moderate (Medium), 3: Substantial (High), - : No Correlation

6. Text Books

Sl. No	Title of the Book	Name of the Author/s	Name of the Publisher	Edition and Year
1	Engineering Graphics	Varghese, P. I.	V I P Publishers	1/e, 2012
2	Engineering Graphics,	Benjamin, J.	Pentex Publishers	5/e, 2017
3	Engineering Graphics for degree	John, K. C.	Prentice Hall India Publishers	1/e, 2009
4	Engineering Graphics	Anilkumar, K. N.	Adhyuth Narayan Publishers	10/e, 2016

7. Reference Books

Sl. No	Title of the Book	Name of the Author/s	Name of the Publisher	Edition and Year
1	Engineering Graphics with AutoCAD	Kulkarni D M, Rastogi A P and Sarkar A K	Prentice Hall India Publishers	2/e, 2009

Sl. No	Title of the Book	Name of the Author/s	Name of the Publisher	Edition and Year
2	Engineering Drawing & Graphics	Venugopal K.	New Age International Publishers	4/e, 2007
3	Engineering Drawing	Parthasarathy N. S., And Murali V.	Oxford University Press	1/e, 2015

8. Video Links or any other Reference Materials

Sl No	Weblink, Publication Details	Module
1	https://archive.nptel.ac.in/courses/112/102/112102304/	1, 2, 3, 4
2	Virtual labs https://eg-dei.vlabs.ac.in/	4

9. Model Question Paper

MODEL QUESTION PAPER

FEDERAL INSTITUTE OF SCIENCE AND TECHNOLOGY(FISAT)
(Autonomous)
FIRST SEMESTER B. TECH DEGREE EXAMINATION (2026 Scheme)

Course Code : 26ABMES101

Course Name : Engineering Graphics and Computer Aided Drawing

Programme : CSE/CSD/ECE/EEE/EIE/ME

Max. Marks: 60 | **Duration: 2 hours 30 minutes**

Instructions: Retain Construction lines. Show necessary dimensions. Answer any ONE question from each module. Each question carries 15 marks

	Module 1	**CO**	**Marks**
1	The plan of a 75 mm long line AB measures 65 mm while the length of its elevation is 50 mm. Its end A lies on HP and 15 mm in front of VP. Draw its projection, find the true inclinations and locate its traces.	CO1	(15)
2	One end of a line AB 60mm long is 15mm above HP and 20mm in front VP. Draw its projection if the line is 30° inclined to HP and 45° inclined to xy in top view.	CO1	(15)
	Module 2	**CO**	**Marks**
3	A pentagonal pyramid of base edge 30 mm and axis 60 mm long is resting on HP on one of its base corners such that the slant edge containing that corner is inclined 50º to HP. Draw its projections if the top view of the axis is inclined 30º to XY line.	CO2	(15)
4	A pentagonal pyramid of sides 25mm and height 60mm long is resting on one of its base edges on HP in such a way that the triangular face containing the resting edge is perpendicular to HP and parallel to VP.	CO2	(15)

	Module 3	CO	Marks
5	A Pentagonal pyramid of sides 30mm and height 60mm is resting on HP in such a way that one of its base edges is parallel to VP. It is cut by an auxiliary inclined plane 30° inclined to HP and meets the axis at a distance 20 mm from its base. Draw its sectional top view, front view and true shape of the section.	CO3	(15)
6	A Hexagonal pyramid of sides 25mm and height 60 mm is resting on HP in such a way that two of its base sides are perpendicular to VP. It is cut by a section plane 40° inclined to HP, perpendicular to VP and bisects the axis. Draw the development of its lateral surface if its axis is perpendicular to HP.	CO3	(15)
	Module 4	**CO**	**Marks**
7	A sphere of 40 mm diameter is placed centrally over the top of a cylinder of 50 mm base circle diameter and 60 mm height. Draw its isometric projection.	CO4	(15)
8	A cone of 40 mm base circle diameter 60 mm height is placed centrally over the top of a square prism of 60 mm side of base and 40 mm height. Draw its isometric view.	CO4	(15)

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