



**Semester – I**

**Subject Name: Engineering Drawing**

**Subject Code: 09ME1101**

**Diploma Branches in which this subject is offered:** Civil Engineering, Chemical Engineering, Computer Engineering, Electrical Engineering, Mechanical Engineering.

**Objective:** Engineering Drawing is language of Engineer through which they can communicate with other person and transfer their ideas. Engineers are able to read and understand the drawing and able to use of drawing instruments. The curriculum aim is to develop the skill to draw and read several drawing, curves and projections.

Main goal of this subject is to develop thoughts & explaining concepts. Developing of diagram order & practice of drawing apparatus well.

**Credits Earned:** 4 Credits

**Course Outcomes:** After completion of this course, student will be able to

- Construct fundamental and intermediate geometry.
- To expand their technical communication skill.
- Understand engineering drawings using fundamental technical mathematics.
- To recognize and know the resolutions and the methods of engineering drawing.
- To move ahead their visualization skills so that they can apply these skills in emerging novel products.
- Understand the theory of projection.

**Pre-requisite of course:** NA.

**Teaching and Examination Scheme**

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE (E)	IA	(CSE)	Viva (V)	Term work (TW)	
2	0	4	4	50	30	20	25	25	150

**Contents:**

sr.	Topics	Teaching hrs.	weightage
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no.			
1	<b>Overview to Engineering Graphics:</b> Drawing instruments and accessories, utilize drawing instruments and materials effectively. Follow and apply standard practice as per B.I.S. for planning and outline, select appropriate scale factor for the drawing as per given condition; Write remarks on a drawing where ever necessary. select suitable line & dimensioning style for a given geometrical object; improved the skill to draw polygons, circles and lines with different geometric situations: Use of plane scales and R. F.	-	10
2	<b>Engineering Curves:</b> Types & application of Engineering Curves, Construction of Conics, Cycloidal Curves, and Involutives & Spirals the length of with normal and tangent to each curvature.	08	20
3	<b>Projections of Points and Lines:</b> Introduction: Principal Planes of Projections, Projections of the points positioned in same quadrant and different quadrants, Projections of line with inclination to one reference plane and with two reference planes, True length and its inclination with the reference planes.	07	20
4	<b>Projections of Planes:</b> Projections of planes: - polygons, circle and ellipse with its inclination to one orientation plane and with two reference plane; idea of auxiliary plane method for projections of the plane.	07	15
5	<b>Orthographic Projections:</b> Fundamental of projection with classification; Principal planes of projection, Projections from the graphic view of the entity on the principal planes for observation from front, top & sides by means of first angle and third angle projection technique, full sectional view.	06	20
6	<b>Isometric Projections and Isometric View or Drawing:</b> Isometric Scale, transformation (redefine) of orthographic views into isometric projection, isometric view or drawing.	-	15

Note: Topic No. 1 & 6 of the above mentioned syllabus to be covered in Practical Hours.

**References:**

1. Engineering Graphics by P. J. Shah
2. Engineering Drawing by N D Bhatt
3. Engineering Graphics by Arunoday Kumar
4. Engineering Graphics by Mahajan Publications
5. Engineering Graphics by Books India Publications

**Suggested Theory distribution:**



The suggested theory distribution as per Bloom's taxonomy is as per follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyse	Evaluate	Create
20%	20%	30%	15%	10%	5%

**Suggested List of Drawing Sheets:**

**1. Practice Sheet**

- **Use of Drawing Instruments:**
- Faculty will demonstrate-
  - a: Practice of drawing instruments.
  - b: Planning and layout as per IS.
  - c: Scaling method.
- Draw Following.
  - a: Draw horizontal, vertical, 30 degree, 45 degree, 60 & 75-degree line using Tee & Set square/drafter.
  - b: Different Types of line.
  - c. Draw equilateral triangle and square
  - d. Types of dimensioning.
  - e. Alphabets and numerical (Vertical & inclined as Per IS).
  - f. Draw Polygon using universal method
  - g. Dimensioning methods.
  - h. Draw Title Block using stencil.
  - i. Draw plain scale and diagonal scale.

**2. Engineering Curves**

- 2 Problems of Conical Curves,
- 1 Problem of Cycloid,
- 1 Problem of Involute,
- 1 Problem of spiral.

**3. Projections of Points & line**

- To draw a projection of points for 10 different conditions.
- To draw projections of lines with different conditions. (4 Problems)

**4. Projections of Planes**

- To draw projections of different plane with different conditions(4 Problems)

**5. Orthographic Projections**

- To draw orthographic projections of different objects (2 Problems)

**6. Isometric Projections**

- To draw isometric projections for given orthographic views. (2 Problems)

➤ **Drawing Instruments to purchase:**

1. Mini Drafter
2. Set square (45, 30-60)
3. Lead Pencil (2H and 4H grade only for any Engg. Drawing.)



4. Circle master
5. Compass
6. Drawing clips
7. Eraser
8. Sheet Container
9. Drawing Sheet (A2 Size)

**Instructional Method:**

- a. The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.
- b. The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room.
- c. Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.
- d. Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory