

INSTITUTE	DIPLOMA STUDIES
PROGRAM	DIPLOMA ENGINEERING (MECHANICAL ENGINEERING)
SEMESTER	1
COURSE TITLE	ENGINEERING DRAWING
COURSE CODE	09ME1101
COURSE CREDITS	4

Objective:

- 1 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.

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

- 1 Construct basic and intermediate geometry.
- 2 To expand their technical communication skill.
- 3 Interpret engineering drawings using fundamental technical mathematics.
- 4 To recognize and know the resolutions and the methods of engineering drawing.
- 5 To advance their visualization skills so that they can apply these skills in emerging new products.
- 6 Understand the theory of projection.

Pre-requisite of course:NA

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
2	0	4	50	30	20	25	25

Contents : Unit	Topics	Contact Hours
1	Engineering Curves Overview to Engineering Graphics and Introduction of engineering curves, Classification & application of Engineering Curves, Construction of Conics-Construction of Ellipse by arc of circle method, Concentric Circle Method, Rectangle Method, Oblong Method, PARABOLA-Rectangle Method, Method of Tangents (Triangle Method), HYPERBOLA-Rectangular Hyperbola, Directrix – focus Method for Ellipse, Parabola and Hyperbola with tangent and normal, Cycloidal Curves- Cycloid with tangent and normal, Epi Cycloid and Hypo Cycloid with tangent and normal, Involute & Spirals along with normal and tangent	8
2	Projection of Points and Lines Introduction to principal planes of projections & Projections of the points located in same quadrant and different quadrants, Projections of line with its inclination to one reference plane, Projections of line with its inclination to two reference planes, Problems of line inclined to two reference planes, True length and inclination with the reference planes, True length and inclination with the reference planes - Problems, True length and inclination with the reference planes - Problems	7
3	Projection of planes Introduction of different types of plane and overview of projection of plane, Projections of planes (polygons, circle and ellipse) with its inclination to one reference plane, Problems of projection of planes inclined to one reference plane, Projections of planes (polygons, circle and ellipse) with its inclination to one reference plane, Problems, Concept of auxiliary plane method for projections of the plane, Problems	7
4	Orthographic Projections Fundamental of projection with classification, Principal planes of projection,, Projections from the pictorial view of the object on the principal planes for view from front, top and sides using first angle projection method and third angle projection method, Problems of orthographic projections, Problems of orthographic projections, Full sectional view., Problems of sectional view	6
5	Overview to Engineering Graphics Drawing instruments and accessories, Use drawing instruments and materials effectively, Follow and apply standard practice as per B.I.S. for planning and layout, choose appropriate scale factor for the drawing as per given situation, Write annotations on a drawing where ever necessary. Choose appropriate line and dimensioning style for a given geometrical entity, Develop the skill to draw polygons, circles and lines with different geometric situations. Use of plane scales and R. F.	0
6	Isometric Projections and Isometric View or Drawing Isometric Scale, Conversion of orthographic views into isometric projection, isometric view or drawing	0
Total Hours		28

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	Practice Sheet Use of Drawing Instruments, Practice of drawing instruments, Planning and layout as per IS., Scaling method. Draw Following: a. Different Types of line. b. Draw equilateral triangle and square c. Types of dimensioning. d. Alphabets and numerical (Vertical & inclined as Per IS). e. Draw Polygon using universal method f. Dimensioning methods. g. Draw Title Block using stencil. h. Draw plain scale and diagonal scale	6
2	Engineering Curves[L] 1 Problems of Conical Curves, 2 Problem of Cycloid, 3 Problem of Involute, 4 Problem of spiral.	8
3	Projections of Points & line[L] To draw a projection of points for 10 different conditions. To draw projections of lines with different conditions. (4 Problems)	10
4	Projections of Planes[L] To draw projections of different plane with different conditions(4 Problems)	10
5	Orthographic Projections[L] To draw orthographic projections of different objects (2 Problems)	16
6	Isometric Projections[L] To draw isometric projections for given orthographic views. (2 Problems)	6
Total Hours		56

Textbook :

- 1 Basic Engineering Drawing & Graphics, P. J. Shah, Atul Prakashan, 2022

References:

- 1 Engineering Graphics, Engineering Graphics, Ramdevsinh Jhala, Mc Graw Hill Education, 2018
- 2 Engineering Graphics, Engineering Graphics, P. J. Shah, S. Chand Publishing, 2008

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as 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 / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking
28.00	32.00	40.00	0.00	0.00	0.00

Instructional Method:

- 1 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.
- 2 The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room
- 3 Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.
- 4 Students will use supplementary resources such as online videos, NPTEL videos, e-courses, Virtual Laboratory

Supplementary Resources:

- 1 <https://nptel.ac.in/courses/112/103/112103019/>