

Engineering Drawing II | BE First Year Second Part | Syllabus

ENGINEERING DRAWING II

ME 451

Lecture: 1

Year: 1

Tutorial: 0

Part: II

Practical:3

COURSE OBJECTIVE:

To make familiar with the conventional practices of sectional views. To develop basic concept and skill of pictorial drawing and working drawings. Also to make familiar with standard symbols of different engineering fields.

COURSE OUTLINE:

1. Conventional Practices for Orthographic and Sectional Views (12hours)

1.1 Conventional Practices in Orthographic views: Half Views and Partial Views, Treatment of Unimportant Intersections, Aligned Views, Treatment for Radially Arranged Features, Representation of Fillets and Rounds

1.2 Conventional Practices in Sectional views: Conventions for Ribs, Webs and Spokes in Sectional View, Broken Section, Removed Section, Revolved Section, Offset Section, Phantom Section and Auxiliary Sectional Views

1.3 Simplified Representations of Standard Machine Elements

2. Pictorial Drawings (20 ours)

2.1 Classifications: Advantages and Disadvantages

2.2 Axonometric Projection: Isometric Projection and Isometric Drawing

2.2.1 Procedure for making an isometric drawing

2.2.2 Isometric and Non-isometric Lines; Isometric and Non-isometric Surfaces

2.2.3 Angles in Isometric Drawing

- 2.2.4 Circles and Circular Arcs in Isometric Drawing
- 2.2.5 Irregular Curves in Isometric Drawing
- 2.2.6 Isometric sectional Views
- 2.3 Oblique Projection and Oblique Drawing
 - 2.3.1 Procedure for making an Oblique drawing
 - 2.3.2 Rules for Placing Objects in Oblique drawing
 - 2.3.3 Angles, Circles and Circular Arcs in Oblique drawing
- 2.4 Perspective Projection
 - 2.4.1 Terms used in Perspective Projection
 - 2.4.2 Parallel and Angular Perspective
 - 2.4.3 Selection of Station Point

3. Familiarization with Different Components and Conventions (8 hours)

- 3.1 Limit Dimensioning and Machining Symbols
 - 3.1.1 Limit, Fit and Tolerances
 - 3.1.2 Machining Symbols and Surface Finish
- 3.2 Threads, Bolts and Nuts
 - 3.2.1 Thread Terms and Nomenclature, Forms of Screw Threads
 - 3.2.2 Detailed and Simplified Representation of Internal and External Threads
 - 3.2.3 Thread Dimensioning
 - 3.2.4 Standard Bolts and Nuts: Hexagonal Head and Square Head
 - 3.2.5 Conventional Symbols for Bolts and Nuts
- 3.3 Welding and Riveting
 - 3.3.1 Types of Welded Joints and Types of Welds, Welding Symbols
 - 3.3.2 Forms and Proportions for Rivet Heads, Rivet Symbols, Types of Riveted Joints:
Lap Joint, Butt Joint
- 3.4 Familiarization with Graphical Symbols and Conventions in Different Engineering Fields
 - 3.4.1 Standard Symbols for Civil, Structural and Agricultural Components
 - 3.4.2 Standard Symbols for Electrical, Mechanical and Industrial Components
 - 3.4.3 Standard Symbols for Electronics, Communication and Computer Components
 - 3.4.4 Topographical Symbols
- 3.5 Standard Piping Symbols and Piping Drawing

4. Detail and Assembly Drawings (20 hours)

4.1 Introduction to Working Drawing

4.2 Components of Working Drawing: Drawing Layout, Bill of Materials, Drawing Numbers

4.3 Detail Drawing

4.4 Assembly Drawing

4.5 Practices of Detail and Assembly Drawing: V-block Clamp, Centering Cone, Couplings, Bearings, Antivibration Mounts, Stuffing Boxes, Screw Jacks, etc

Practicals: 3 hrs/week

1. Conventional Practices for Orthographic and Sectional Views (Full and Half Section)
2. Conventional Practices for Orthographic and Sectional Views (Other Type Sections)
3. Isometric Drawing
4. Isometric Drawing (Consisting of Curved Surfaces and Sections)
5. Oblique Drawing
6. Perspective Projection
7. Familiarization with Graphical Symbols (Limit, Fit, Tolerances and Surface Roughness Symbols)
8. Familiarization with Graphical Symbols (Symbols for Different Engineering Fields)
9. Detail Drawing
10. Assembly Drawing I
11. Assembly Drawing II
12. Building Drawing

References:

1. "Fundamentals of Engineering Drawing", W. J. Luzadder, Prentice Hall, 11th Edition.
2. "Engineering Drawing and Graphic Technology", T. E. French, C. J. Vierck, and R. J. Foster, Mc Graw Hill Publishing Co, 1992.
3. "Technical Drawing", F. E. Giescke, A. Mitchell, H. C. Spencer and J. T. Dygdone, Macmillan Publishing Co, 10th Edition.

4. "Machine Drawing", N. D. Bhatt, Charotar Publishing House, India, 1991.
5. "Machine Drawing", P. S. Gill, S. K. Kataria and Sons, India, 7th Edition, 2008.
6. "Machine Drawing", R. K. Dhawan, S. Chand and Company Limited, India, 1992.

Evaluation Scheme

The questions will cover all the chapters in the syllabus. The evaluation scheme will be as indicated in the table below:

Chapter	Hours	Mark Distribution*
1	12	6 to 8
2	20	13 to 15
3	8	5
4	20	13 to 15
Total	60	40

*There may be minor deviation in mark distribution.