

# BASIC ENGINEERING DRAWING

<b>Subject Code</b> <b>00203</b>	<b>Theory</b>			<b>No of Period in one session : 120</b>		
	<b>No. of Periods Per Week</b>			<b>Full Marks</b>	<b>:</b>	<b>100</b>
	<b>L</b>	<b>T</b>	<b>P/S</b>	<b>Annual Exam.</b>	<b>:</b>	<b>80</b>
	<b>12</b>	<b>—</b>	<b>—</b>	<b>Internal Exam.</b>	<b>:</b>	<b>20</b>

**Rationale and Objective:**

Drawing is said to be the language of engineers. All material objects have a shape and form, which can be represented by a combination of known geometrical figures. A thorough grounding in drawing to represent these objects on a plane is considered very essential for Diploma holders. Any construction or fabrication be it be a building, a factory or a machine has to begin with a drawing which forms the basis and guide to get the work done.

Drawing is commonly used mode of communication in the engineering industry. Proper exposure to drawing helps the students to translate different ideas into practice. Acquisition of skill will produce a drawing to represent a given object with sufficient knowledge to understand and interpret. As such drawing is regarded a pre-requisite for technician engineer.

With these objectives in view the following topics have been prescribed.

S.No.	Topic	Periods	No. of Plates
1.	Introduction	(06)	
2.	Lettering, Numbering & Dimensioning	(12)	01
3.	Conic Section	(24)	01
4.	Orthographic Projection	(39)	04
5.	Section views	(12)	01
6.	Isometric	(15)	01
7.	Development of Surfaces	(12)	01
		<b>(120)</b>	<b>9 sheets</b>

**CONTENTS:**

**TOPIC: 01 - Introduction:**

[06]

- 01.01 Importance of Engineering Drawing as graphic communication. Link between engineering drawing and other subjects of study in diploma course.
- 01.02 I. S. specification for preparation of drawings.
- 01.03 Use of drawing instruments and materials. Basic Tools- classification and brief description.
- 01.04 Special tools- Mini-drafter. Drafting Machine.
- 01.05 Scales, Recommended, reduced & enlarged scale.
- 01.06 Lines, Types of lines, Selection of line thickness.
- 01.07 Selection of Pencils.
- 01.08 Drawing sheets, different sheet sizes and standard layouts. Title block as per I. S. specification.
- 01.09 Care and maintenance of drawing material

**TOPIC: 02 - LETTERING, NUMBERING & DIMENSIONING:**

[12]

- 02.01 Importance of lettering. Different types of lettering as per B.I. S. code. Capital and small letters of vertical & slanting type as per B.I. S. code.
  - 02.02 Numerical figures of vertical and slanting type as per B.I. S. code. Single stroke and double stroke, advantages.
  - 02.03 Necessity of dimensioning. Principles and method of dimensioning and dimensioning practice as per I. S. I. code.
  - 02.04 Making of centre line, Section line, dimensioning lines etc.
  - 02.05 Drawing of plain and diagonal scales and dimensioning practice.
- Tutorial & test (02)

**TOPIC: 03 - CONIC SECTION:**

[24]

- 03.01 Concept of Drawing and concept of conic section and its simple properties.
  - 03.02 Concept of ellipse and its construction by various methods. Drawing of tangent & normal on ellipse.
  - 03.03 Concept of parabola and its construction by various methods. Drawing of tangent & normal to parabola.
  - 03.04 Concept of hyperbola and its construction by various methods. Drawing of tangent & normal to hyperbola.
- Tutorial & Test (06)

**TOPIC: 04 - ORTHOGRAPHIC PROJECTIONS :**

[39]

- 04.01 Principles of orthographic projection. Concept of horizontal, vertical and auxiliary planes. 1<sup>st</sup> angle and 3<sup>rd</sup> angle projection.
- 04.02 Projection of points on horizontal, vertical and auxiliary planes and its implication.
- 04.03 Projection of lines on different planes, Length of line and its true inclination with different planes and its traces.
- 04.04 Concept of orthographic projection of planes.
- 04.05 Projection of solids (Prism, Cone, Pyramids, Cylinder, Cube and tetrahedron etc.).

Tutorial & Test

- Projection of Point and straight line 01 sheet
- Projection of Planes and straight line 01 sheet
- Projection of solids and straight line 02 sheet
- 04 sheet

**TOPIC: 05 - SECTION VIEWS & AUXILIARY VIEWS :**

[12]

- 05.01 Concept of sectioning and drawing section lines, Need for drawing sectional views.  
05.02 Section of simple geometrical solids-cases involving different types of cutting planes, single plane only  
Tutorial & test

(2)

**TOPIC: 06 - ISOMETRIC, PICTORIAL**

[15]

- 06.01 Introduction to pictorial drawing. Brief description of different types of pictorial drawing viz Isometric, and their applications.  
06.02 Concept of Isometric views. Isometric Projection and Isometric Scale.  
06.03 Isometric Projection of simple solids, frustum of solids, truncated solids and sets of simple solids.  
Tutorial & test

(03)

**TOPIC: 07 - DEVELOPMENT OF SURFACE:**

[12]

- 07.01 Development of surfaces of Cylinders, Prisms, Pyramids, cones and their frustum only.  
Tutorial & test

(02)

**Books Recommended:**

- |                                            |                                               |
|--------------------------------------------|-----------------------------------------------|
| 1. Descriptive Geometry                    | - Abbot                                       |
| 2. Elementary Engineering Drawing          | - N. D. Bhatt                                 |
| 3. Elementary Engineering Drawing          | - S. C. Sharma                                |
| 4. Gyameetic Aarekhan (Hindi)              | - Dadan, Ravindra, Daya Shankar<br>Srivastava |
| 5. I.S.I. Specification on drawing         | -                                             |
| 6. Engineering Drawing                     | - R. K. Dhawan                                |
| 7. Engineering Drawing                     | - P. S. Gill                                  |
| 8. Engineering Drawing                     | - Parkinson                                   |
| 9. I. S.M. & S. S. M. on Technical Drawing | - T. T. T. I., Madras                         |