

NIRMA UNIVERSITY

Institute:	Institute of Technology
Name of Programme:	B.Tech.
Course Code:	
Course Title:	Engineering Drawing and Workshop
Course Type:	Vocational Course
Year of introduction:	2022-23

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Course Learning Outcomes (CLOs):

After successful completion of the course, the student will be able to: -

- 1 relate the applications of engineering drawing and drawing standards with various disciplines of engineering, and construct the basic engineering curves, (BL1)
- 2 apply the principles of orthographic and isometric projections for various solid geometries, (BL3)
- 3 make use of computer aided drafting tools for preparing engineering drawings. (BL3)
- 4 summarize the understanding of workshop practices and make use of various tools for given jobs. (BL2)

Syllabus:

Total Teaching Hours: 15

Unit	Syllabus	Teaching Hours
Unit I	Introduction to Engineering Drawing Importance and applications of engineering drawing for various branches of engineering, drawing instruments, BIS code of practice, lines, lettering and dimensioning, scales, basic geometrical construction, sheet layout.	02
Unit II	Engineering Curves Construction of cycloid, epicycloid and hypocycloid, involutes, Archimedean spiral, and helix.	04
Unit III	Introduction to Orthographic and Isometric Projections Principle of orthographic projections, projections of points, straight lines, planes and regular solids. Conversion of pictorial views into orthographic projections including	09




sectional orthographic projections.

Conversion of orthographic views into isometric projections / views.

Self - Study: The self-study contents will be declared at the commencement of semester. Around 10% of the questions will be asked from self-study contents.

Laboratory Work: The laboratory work will be based on:
Engineering Drawing: Orthographic and Sectional Orthographic Projection, Isometric Projection, Computer Aided Drafting (CAD).
Workshop: Each student is required to prepare a job for Welding, Fitting, Sheet metal work and Carpentry. Demonstration will be given for Plumbing, Black smithy and use of conventional and NC Machine Tools.

Suggested Readings/References:

1. N D Bhatt, Engineering Drawing, Charotar Publication.
2. J D Bethune, Engineering Graphics with AutoCAD[®], PHI Publication.
3. IS SP 46: 2003. Engineering Drawing Practices for Schools and Colleges.
4. H S Bawa, Workshop Practice -I and II, TMH Publication.

List of experiments

Sr No.	Title of the experiment	Hours
	Engineering Drawing:	
1.	To prepare a drawing sheet on Engineering curves.	4
2.	To draw a sheet involving projection of lines and planes.	6
3.	To prepare a drawing sheet on Orthographic Projection.	6
4.	To draw a sheet involving Isometric Projection.	4
5.	To create basic objects using Computer Aided Drafting tool.	2
6.	To create precise drawing, dimensions and editing using Computer Aided Drafting tool.	4
7.	To create advanced drawing using Computer Aided Drafting tool	4
	Workshop:	
8.	To prepare a practice job in carpentry shop.	6
9.	To prepare a Butt Joint in welding shop.	4
10.	To prepare a practice job in fitting shop.	8
11.	To prepare an utility article in sheet metal shop.	4
12.	Demonstration of smithy and plumbing processes.	4
13.	Demonstration of conventional and CNC machine tools.	4

