Nirma University
Institute of Technology
Bachelor of Technology
(A.Y. 2018 – 19)

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Course Code	ME103
Course Title	**Engineering Graphics**

Course Learning Outcomes (CLO):
After successful completion of the course, students will be able to-

1. explain the fundamental principles of engineering graphics and related drawing standards,
2. illustrate the various methods of producing and presenting graphic information,
3. make use of engineering graphics for communication using traditional means and the computer aided tools,
4. develop capability to visualize and represent geometry in two dimensions and in three dimensions,
5. summarize the role of engineering graphics in various engineering disciplines.

Syllabus: **Teaching hours: 30**

UNIT - I   **02 hours**
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

UNIT-II   **04 hours**
Engineering Curves
Construction of Conics by different methods, construction of cycloid, epicycloid and hypocycloid, construction of involutes, constructions of archimedean spiral and helix.

UNIT-III   **14 hours**
Solid Geometry
Principle of Orthographic Projections, projections of points, projections of straight lines, projections of planes, projections of regular solids and sections of regular solids.
Developments of Surfaces
Development of lateral surfaces of regular solids (prism, pyramid, cone, cylinder) by parallel line method / radial line method.

UNIT-IV   **05 hours**
Orthographic Projections
Conversion of pictorial views into orthographic projections including sectional orthographic projections.
Isometric Projections
Conversion of orthographic views into isometric projections / views.

UNIT-V   **05 hours**

Computer Aided Drafting

Understanding of GUI (Graphical User Interface) of drafting software, demonstration of use of available Drawing Commands, Modifying / Editing commands, Annotation and Dimensioning Commands, Concepts of Layers, demonstration of various line styles and construction of drawings in soft form using drafting software.

Conventional representation

Symbols for standard machinery components such as nuts, bolts, locking devices, riveted and welded joints, foundation bolts. Symbols used in electrical, electronics and civil engineering

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:

Laboratory work will be based on the above syllabus with equal emphasis on use of drafting software and drawing sheets.

Suggested Readings:

1. Bhatt, N. D., Engineering Drawing, Charotar publication
2. John, K. C. Engineering Graphics, PHI Publication.
3. Luzzader, W. J. and Duff, J. M. Fundamentals of Engineering Drawing, PHI publication.
4. Bethune, J. D. Engineering Graphics with AutoCAD®, PHI Publication.
5. IS SP 46: 2003. Engineering Drawing Practices for Schools and Colleges.

L = Lecture, T = Tutorial, P = Practical, C = Credit