Engineering Drawing and Graphics

Code	Credit Hours
AE-103	1-1

COURSE DESCRIPTION:

This course introduces students to the use of technical drawing in an effective way for communicating and integrating with engineering concepts. Students should be able to apply the skill and knowledge of engineering drawing to interpret design, using graphics methods such as geometric drawing, orthographic projection, isometric, detailed drawing, and basic CAD software. Principles of part assembly are also introduced.

TEXT AND MATERIAL

Textbooks:

1. Engineering Drawing and Design by David A. Madsen and David P. Madsen Latest Available Edition

Reference Material:

1. Engineering Drawing and Design by Cecil Jensen, Jay Helsel, et al.
2. Fundamentals of Modern Drafting by Paul Ross Wallach
3. Technical Drawing with Engineering Graphics by Frederick E. Giesecke, et al.
4. Fundamentals of Graphics Communication by Gary Bertoline
5. Manual of Engineering Drawing by Colin H. Simmons and Dennis E Maguire

ASME STANDARDs:

1. ASME Y14.100 Engineering Drawing and Practices
2. ASME Y14.1/ Y14.1M Drawing Sheet Size and Format
3. ASME Y14.2 Line Conventions and Letterin
4. ASME Y14.3 Multiview and Sectional-View Drawings
5. ASME Y14.4 Pictorial Drawings
6. ASME Y14.5/ Y14.5M Dimensioning and Tolerancing
7. ASME Y14.6 Screw-Thread Representation
8. ASME Y14.24 Types and Applications of Engineering Drawings
9. ASME Y14.34 Associated Lists

SOFTWARE

AutoCAD

PREREQUISITE:

Nil

ASSESSMENT SYSTEM FOR THEORY PART

Quizzes	10%
Assignments	10%
Mid Terms	40%
ESE	40%

ASSESSMENT SYSTEM FOR LAB

Quizzes	10%-15%
Lab Assignments	5% - 10%
Lab Work and Report	70-80%
Lab ESE/Viva	20-30%

TOPICS COVERED
THEORY:

Week No	Description
1	Fundamentals of engineering drawing
2	Drafting equipment and supplies
3	Symbolic lines and lettering
4	Geometrical construction
5	Drafting conventions and formats
6	Multiview orthographic projections
7	Dimensioning, tolerancing and geometric tolerancing
8	Sectional and isometric views
9	**MID TERM EXAM**
10	Projection of points and lines
11	Fasteners and Springs
12	Development of surfaces
13	Working drawings

14	Tool design drafting
15	Precision sheet metal drafting
16	Assembly drawings
17	Assembly drawings
18	**FINAL EXAM**

LAB:

Week No	Description
1	Write lettering and numbering using the drawing equipment according to the ASME standard
2	Make some drawings (geometrical construction) using the drawing equipment
3	Draw orthographic views of the given object / machine parts by first and third angle projection methods
4	Draw the development of lateral surfaces of cylinder / truncated
5	Draw the development of lateral surfaces of cone / Lampshade
6	Draw the detail drawing of fasteners
7	Draw the detail drawing of fasteners
8	Draw the assembly drawing of a mechanical product
9	Make some drawings (geometrical construction) using Auto-CAD
10	Draw orthographic views of the given object / machine parts by first and third angle projection methods using Auto-CAD
11	Draw orthographic views of the given object / machine parts by first and third angle projection methods using Auto-CAD
12	Draw orthographic views of the given object / machine parts by first and third angle projection methods using Auto-CAD
13	Draw detail drawing of the given object / machine part using geometric dimensioning and tolerancing principles
14	Draw sectional view of a product using Auto-CAD
15	Draw an isometric view of a mechanical product using Auto-CAD
16	Draw the assembly drawing of a mechanical product using Auto-CAD