

19ME205

MACHINE DRAWING

Hours Per Week :

L	T	P	C
-	-	3	2

Total Hours :

L	T	P	W/RA	SSH/HSB	CS	SA	S	BS
-	-	45	-	15	-	5	-	-



Source:

<https://cellcode.us/quotes/autocad-mechanical-drawings-practice.html>

PRE-REQUISITE COURSE: Engineering Graphics and Design

COURSE DESCRIPTION AND OBJECTIVES:

This course is an introduction to technical graphics and computer-aided design. The course includes sketching, production drawing, and a significant amount of hands-on experience on a CAD system. The production drawing portion covers topics like multi-view drawings, section views, auxiliary views and dimensioning. The objectives of this course is to enable students to draw orthographic projections and section views of objects with dimensions using standard specifications and practices. Learn to use CAD systems using AutoCAD and Autodesk Inventor for Parametric Solid Modeling Produce engineering drawings and models using AutoCAD and Autodesk Inventor.

COURSE OUTCOMES:

Upon completion of the course, the student will be able to achieve the following outcomes:

COs	Course Outcomes	POs
1	Understand the industry drawings along with machining and surface roughness symbols.	1
2	Identify bill of materials.	2
3	Understand the limits and fits to the basic size in the manufacture of components.	1
4	Develop orthographic projections using AutoCAD software.	3,5

SKILLS:

- ✓ Specify the surface roughness symbols.
- ✓ Apply the limits and fits to the hole basis /shaft basis systems.
- ✓ Create bill of materials.
- ✓ Create industrial drawings with required standards.

LABORATORY EXPERIMENTS

LIST OF EXPERIMENTS

Total hours: 45

1. To study the classification of drawings, Graphics language, Principles of drawing, IS codes for machine drawing, Lines, Scales, Sections, Dimensioning, Standard abbreviations.
2. To draw orthographic projections, principles of first and third angle projections, drawing and sketching of machine elements in orthographic projections, spacing of views.
3. To study & draw screwed (Threaded) fasteners, Screw thread nomenclature, forms of threads, Thread series, Thread designation, Representation of threads, Bolted joints, Locking arrangement for nuts, Foundation bolts.
4. To study & calculate limits, fits and tolerances for shaft based or hole based systems.
5. To study & draw Keys and cotter joints.
6. To study & draw the symbols of surface roughness for different surfaces.
7. To study & draw Shaft couplings, Rigid and flexible coupling.
8. To study & draw Riveted Joints, Rivets and riveting, Rivet heads, Classification of riveted joints.
9. To draw Assembly drawing like Engine parts, Stuffing box etc.
10. To draw Cotter Joint by using AUTOCAD/SOLIDWORKS.
11. To draw Knuckle Joint by using AUTOCAD/SOLIDWORKS.
12. To draw wall bracket by using AUTOCAD/SOLIDWORKS.
13. To draw plumber block by using AUTOCAD/SOLIDWORKS.
14. To draw stuffing box by using AUTOCAD/SOLIDWORKS.
15. To draw single point cutting tool's tool post by using AUTOCAD/SOLIDWORKS.

TEXT BOOKS:

1. K.L. Narayana & P. Kannaiah, "Production and Drawing", 3rd edition, New Age, 2006.
2. Pohit and Ghosh, "Machine Drawing with Auto CAD", 1st edition, Pearson India, 2004.

REFERENCE BOOKS :

1. P.S. Gill, "Geometric dimensioning and tolerancing", S.K. Kataria & Sons, 2013.
2. R.K. Jain, "Engineering Metrology", 20th edition, Khanna Publications, 2004.