

COMPUTER AIDED MACHINE DRAWING (USING ANY STANDARD PACKAGE)

Course Code: 15ME1116

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Pre requisites:

Engineering Drawing

Course Outcomes:

At the end of the course, the student will be able to

- CO 1** Draw the basic proportionate drawings for bearings, fasteners, various joints etc.
- CO 2** Create part modeling of various components
- CO 3** Combine parts to form an assembly of mechanical components such as stuffing box, screw jack and connecting rod
- CO 4** Create the assembly of tail stock and valve etc.
- CO 5** Draft the sectional views of assembled components

I: COMPUTER AIDED DRAWING OF COMPONENTS

- ❖ Introduction to Machine Drawing conventions: Need for drawing conventions – Introduction to ISI conventions
- ❖ Introduction to computer aided drafting; advantages and applications of CAD, concepts of computer aided 2D drafting using any drafting software , basic draw and modify commands, making 2D drawings of simple machine parts
- ❖ Introduction to Geometrical Dimensioning and Tolerances

Note: First angle projection to be adopted.

List of exercises:

- 1) Conventional representation of materials, common machine elements and parts such as screws, nuts, bolts, keys, gears,

webs, ribs, dimensioning types, lines and rules of dimensioning.

- 2) Types of sections – selection of section planes and drawing of sections and auxiliary sectional views. Parts not usually sectioned.
- 3) Popular forms of Screw threads, bolts, and nuts.
- 4) Cotter joint and knuckle joint.
- 5) Riveted joints for plates
- 6) Spigot and socket pipe joint.
- 7) Journal bearing and foot step bearing.

II: COMPUTER BASED SOLID MODELING

- Introduction to assembly drawing, steps in making of assembly drawing
- Introduction to any 3D modeling software, basic commands, and development of 3D drawings of simple machine parts and assemblies.

LIST OF EXERCISES:

8. Part modeling & views
- 9) Assembly of stuffing box
- 10) Assembly of screw jack
- 11) Assembly of engine connecting rod and piston assembly
- 12) Assembly of lathe tailstock.
- 13) Assembly of feed check valve
- 14) Drafting of assembled components showing various views and sections

SOFTWARE PACKAGES:

AutoCAD, CATIA, UG-NX, Pro-E etc.

TEXT BOOK:

1. K.L.Narayana, P.Kannaiah and K. Venkata Reddy, “Machine Drawing”, 3rd Edition, New Age Publishers, 2007.

2. Goutam Pohit and Ghosh, “*Machine Drawing with AutoCAD*”, Pearson Education, 2007.

REFERENCES:

1. N D Bhatt, “*Machine Drawing*”, 44th Edition, Charotar Publishers, 2009.
2. Dhawan, “*Machine Drawing*,” S.Chand Publications, 2005.
3. P.S.Gill. “*Machine Drawing*,” S.Chand Publications, 2005