2/4 B.Tech. THIRD SEMESTER

ME3L1   COMPUTER AIDED MACHINE DRAWING PRACTICE   Credits: 2

Lecture:-   **Internal assessment: 25marks**
Tutorial: - 3 periods/week   **Semester end examination: 50 marks**

 Objectives:
   1. Acquire the knowledge of CAD software and its features.
   2. Assess/Represent the IS conventions and Standards of Machine Drawing.
   3. Assess the various views and machine components.
   4. Plan to assemble and disassemble important parts used in major mechanical engineering applications.

Learning Outcomes:

   At the end of this course the student will be able to:
   1. Apply the CAD Software to represent various mechanical parts.
   2. Use IS convention in representing various machine components and materials.
   3. Draw/select sectional views to represent the inner details of the machine components.
   4. Develop detailed drawings of machine elements, parts fasteners and thread profiles.
   5. Prepare assembly drawings from detailed drawings.
   6. Gain complete knowledge in drafting software.

Pre-Requisites
   Engineering Drawing, Introduction to Computer.

INTRDUCTION: Need for drawing conventions – introduction to IS conventions Methods of dimensioning, general rules for sizes and placement of dimensions for holes, centers, curved and tapered features.

DRAWING CONVENTIONS (using CAD Software):
   a) Conventional representation of materials, common machine elements, Notes.
   b) Types of sections – selection of section planes and drawing of sections and Auxiliary sectional views. Parts not usually sectioned.
DRAWING OF MACHINE ELEMENTS AND SIMPLE PARTS (using CAD Software):

Selection of Views, additional views for the following machine elements and parts with every drawing proportions.

a) Thread profiles, Hexagonal nut and bolt (General method),Other forms of bolts,
b) machine screws and cap screws , Foundation bolts, Other forms of nuts.
c) Cottered joint (any one) and knuckle joint.
d) Riveted joints (one lap joint and one butt joint)
e) Shaft couplings (any two).
f) Pedestal bearing (Plummer Block).
g) Involute tooth profile

ASSEMBLY DRAWINGS (using CAD Software):
a) Stuffing box   b) Petrol engine piston   c) Screw jack   d) Petrol engine connecting rod

Learning resources

Text books:

1. Machine Drawing, (3rd Edition) by K.L.Narayana, P.Kannaiah & K. Venkata Reddy, New Age International Pvt.Ltd, New Delhi, , 2006.
2. Machine Drawing with Auto CAD, (1st edition) by Gowtham Pohit and Goutam Ghosh, Pearson Education, Delhi, 2004.

Reference books:

1. Machine Drawing, by R.K.Dhawan, S.Chand Publications, New Delhi, 1996.
2. Machine Drawing by K.C.John, PHI Learning Pvt.Ltd.,New Delhi, 2009.