ME4L1   COMPUTER AIDED MACHINE DRAWING PRACTICE   Credits: 3

Lecture:-   **Internal assessment: 30marks**
Practical: - 6 periods/week   **Semester end examination: 70 marks**

Course Objectives:

- To acquire the knowledge of drafting software.
- To provide hands on experience to develop 2D models of machine components.

Course Outcomes:
        Upon the completion of this course the student will be able to:

1.   Develop engineering drawings for the machine components as per Indian Standard Code of practice using a drafting software.
2.   Prepare assembly drawings from part drawings.

Pre-Requisites: Engineering Drawing, Introduction to Computer.

List of Tasks:

S. No	Name of the task	No.of periods	Cumulative no. of periods
1.	Drawing commands	03	03
2.	Editing commands	03	06
3.	Dimensioning commands, Layers	03	09
4.	Principles of Drawing: Title block, Borders, scales and their specifications	03	12
5.	Lines and sections and Dimensioning principles	03	15
6.	Conventional Representation of Materials	03	18
7.	Conventional Representation of Machine components-I	03	21
8.	Conventional Representation of Machine components-II	03	24
9.	Thread Profiles	03	27
10.	single and multi-start threads, left and right hand threads	03	30
11.	Bolts and Nuts: Hexagonal and square headed nuts and bolts;	03	33
12.	Flanged Nut, Dome Nut, Ring Nut, Washer,	03	36

S. No	Name of the task	No.of periods	Cumulative no. of periods
	Lock Nut, Castle Nut, Eye Foundation Bolt		
13.	Cotter Joint with socket and Spigot Ends	03	39
14.	Cotter Joint with Gib	03	42
15.	Knuckle joint	03	45
16.	Riveted Joints: Rivet heads; Double strap diamond butt Joint	03	48
17.	Double riveted chain Lap joint; double riveted double strap zig-zag butt joint	03	51
18.	Keys: Taper Key, Sunk Taper Key, Round Key, Saddle Key, Feather Key, Splined Shaft, Woodruff Key	03	54
19.	Shaft Couplings: Bushed pin type flange coupling	03	57
20.	Universal Coupling	03	60
21.	Oldham's Coupling.	03	63
22.	Involute tooth profile of a spur gear	03	66
23.	Assembly Drawings:Any **four** of the following Stuffing Box of Steam Engine, Eccentric of Steam Engine, Connecting Rod of an IC Engine, Screw Jack, Plumber Block, Tool Post of Lathe Machine.	12	78/3=26 lab sessions per semester

Note:
1) The above Mechanical Components can be Drawn using Mechanical Drafting packages like AutoCAD/IronCad.
2) Drawings as per IS.
3) All Drawings are in 2-D

Learning Resources

Text Books:

1. Machine Drawing by K.L.Narayan, P.Kannaiah and K.Venkata Reddy, 3rd edition, New Age publications 2006.
2. Machine Drawing with Auto CAD, (1st edition) by GowthamPohit 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.