Machine Drawing

L T P   **Total Theory Hrs 42**
3   2

Subject Code:- MEC303

1. Auxiliary views   **2+4**

    1.1   Study of auxiliary planes,
    1.2   Projection of objects on auxiliary planes.
    1.3   Completing the regular views with the help of give an auxiliary views
   Sectional Views.
    1.4   Types of sections
    1.5   Conversion of pictorial view into sectional orthographic views (Simple Machine Parts)

2. Conversion of Projections   **3+6**

   2.1 Introduction to Orthographic & Isometric projections.
   2.2 Conversion of isometric view into Ortho graphic Views(Simple Machine Parts)
   2.3 Draw missing view from the given Ortho graphic views-simple components
   2.4 Conversion of orthographic views into is metric Views(Simple Machine Parts)

3. Fasteners, Rivet and Riveted Joints   **2+4**

   3.1 Introduction and classification
      (Types of threads, nuts, bolts, assembly of bolts and nuts with washers)
   3.2 Shape of Rivet heads
   3,3 Types of Riveted joints

4. Conventional Representation   **3+6**

   4.1 Standard convention using SP–46(1988)
    (a) Materials C.I., M.S, Brass, Bronze, Aluminum, wood, Glass, Concrete and Rubber
    (b) Long and short break in pipe, rod and shaft.
    (c) Ball and Roller bearing, pipe joints, cocks, valves, internal/External threads.
    (d) Various sections-Half, removed, revolved, offset, partial and aligned sections.
    (e) Knurling, serrated shafts, splinted shafts, and chain wheels.
    (f) Springs with square and flat ends, Gears, sprocket wheel
    (g) Counter sunk& counter bore.
    (h) Tapers
  4.2 Conventional Representation of holes, bolts, nuts and rivets.

5. Limits, Fits and Tolerances: **2+4**

    5.1 Characteristics of surface roughness-Indication of machining symbol showing direction of lay, roughness grades, machining allowances, manufacturing methods.
    5.2 Introduction to ISO system of to lerance, dimensional tolerances, elements of inter change able system, hole & shaft based system, limits, fits & allowances. Selection of fit.
    5.3 Geometrical to lerances, to lerances of form and position and its geometric representation.

6.   Details to Assembly   **7+14**
   6.1   Introduction
   6.2   Bearing–Foot Step Bearing & Pedestal Bearing
   6.3   Lathe tool Post
   6.4   Keys, Knuckle Joint and Cotter Joint
   6.5   Screw Jack
   6.6   Steam Stop Valve
   6.7   Pipe Joints (Union Joint, Expansion Joint &Spigot & Socket Joint)

7.   Assembly to Details   **7+14**
   7.1   Introduction–
   7.2   Pedestal Bearing
   7.3   Lathe Tail Stock
   7.4   Drilling Jig
   7.5   Automotive parts (Piston & connection rod)
   7.6   Couplings–Flange Couplings, Flexible Couplings Universal couplings & Oldham's coupling
   7.7   Fast & loose pulley
   7.8   Valve– Not more than eight parts

8.   Study of Production Drawing (Minimum 02 sheets)   **2+4**

Resource Book:-

01	N.D. Bhatt	Machine Drawing	Charotar Publication, Anand
02	IS Code SP46 (1988)	Code of practice for general engineering drawing	Engineering Drawing PracticeforSchooland colleges
03	L.K. Narayanan, P. Kannaich, K.Venkat	Production Drawing	New Age International Publication
04	P.S. Gill	Machine Drawing	S.K. KatariaandSons
05	M.L. Dabhade	Engineering Graphics(For Topicon Auxiliary Views)	--
06	Sidheshwar	Machine Drawing	Tata Mc Graw Hill
07	R K Dhawan	Machine Drawing	S Chand

Machine Drawing Lab :

Subject Code : MEC307

List of Experiments:-

(Use first angle method of projection)

1. Auxiliary Views

   One sheet containing three problems on Auxiliary views.

2. Conversion of projection

   i) One sheet containing orthographic to isometric.

   ii) One sheet containing isometric to orthographic.

   iii) One sheet containing missing view.

3. Rivet and Riveted joints, Conventional Representation as per SP–46 (1988) –one sheet

4. Limit, Fit, Tolerances and Machining Symbols– one sheet

5. Details to Assembly

   (i) One sheet covering any one assembly and its details.

   (ii) Solve at least two problems as home assignment.

6. Assembly to detailed drawings of components including conventional representation of Tolerances and surface finish symbols:

   (i) One sheet covering any one assembly and its details
   (ii) At least two problems as home assignment.

7. Solve at least two problems on production drawing.

8. Two problems on assembly drawings using any AutoCAD Package.