

Subject Code: 1ET4000210	Subject Title: Mechanical Drafting
Pre-Requisite	--

Rationale:

The students of mechanical engineering are mainly involved in drafting, manufacturing, inspection and planning activities in industries. For all such activities, the students have to draw, read and understand these drawings correctly for production of components and assemblies accurately and precisely. The industrial practices of drafting are also important for the students to make them aware of drafting practices, symbols, codes, norms and standards generally used in industries. Development of sketching ability make the students strengthen effectively in engineering communication & presentation.

Course Objective:

1. Prepare engineering drawings using codes, norms and standards
2. Interpret basic engineering drawings for various planning, inspection and manufacturing activities.

TEACHING AND EXAMINATION SCHEME:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				Total (Marks)
Lecture	Tutorial	Practical	Credit	Theory		Practical		
				University Assessment	Continuous Assessment	University Assessment	Continuous assessment	
2	-	8	6	60	40	40	60	200

Subject Contents			
SR. NO	TOPIC	TOTAL HOURS	WEIGHTAGE (%)
1.	Projections of Solids Types of solids (prism, pyramid, cylinder, cone), Projections of solids - in various positions with respect to the reference planes. (Parallel, perpendicular and inclined to HP and / or VP)	04	15
2.	Sections of Solids Sectional views of different solids in given various positions. True shape of section. (prism, pyramid, cylinder, cone)	04	15

3.	Development of Surface Importance of development of surfaces, Drawing of development of surfaces of prism, pyramid, cylinder and cone.	05	15
4	Sectional Ortho graphics & Multi views Representation Need of sections, Section lines and cutting plane, Rules for sectioning and section lines, Types of sections- full section, First & third angle projection methods and positions of six views, Multi view drawings (all six views) from given isometric drawing / physical object.	06	20
5	Details & Assembly Detail & Assembly drawings from given assembly, Assembly drawings from given details, Preparing bill of material (part list).	06	20
6	Welded Joints, Piping and Drafting Symbols Weld symbols as per BIS-813 / ASME (Primary Symbols & Supplementary Symbols). Weld nomenclature. Weld dimensions. Pipe - types, standards and designation methods. Pipe line symbol as per passing fluid, air, gas, water etc. Piping fitting symbols. Pipe line diagram. Machining symbol(surface roughness symbol) and its interpretation. Geometrical symbols and its interpretation.	03	15

Course Outcome:

After completions of this course, students will able to:

1. Understand the different sections of solids.
2. Prepare the development of any given surface.
3. Draw the different sectional views of an object.
4. Interpret multi views drawings & sectional views.
5. Draw the detail and assembly drawing.

List of Practical/Experiments:

1. **PROJECTIONS OF SOLID:** Draw the projection of solids for Prism, Pyramid, Cylinder and Cone
2. **SECTIONS OF SOLIDS:** Draw the sectional elevation, Top view and true shape of Prism, Pyramid, Cylinder and Cone.
3. **SURFACE DEVELOPMENT:** Draw development of surface of prism, pyramid, cylinder and cone
4. **SECTIONAL VIEWS:** Draw the sectional views for given two problems.
5. **DETAILS:** Draw the details of all parts for two given assembly
6. **ASSEMBLY:** Draw the assembly drawing of all parts for given two details and also draw the parts list.
7. **MULTIVIEWS:** Draw multi views of the given pictorial view (Multi views include Elevation, Plan, Rear view, Bottom view, Right hand side view and Left hand side view).

8. Draw Welded Joints, Piping Joints, Fasteners & Drafting Symbols.

9 USE AUTOCAD

- (1) AutoCAD commands for preparation of production drawings.
- (2) Production drawing of one component including zone and fold mark, limits, fits and tolerances (with the help of computer).
- (3) Assembly production drawing of machine components.
(with the help of computer).

List of References:

1. Engineering Drawing, N.D.Bhatt, Charotar Publishing House, Anand.
2. Engineering Drawing, K.R.Gopalakrishna, Subhash Publications, Bangalore.
3. Engineering Drawing, P.J.Shah, S.Chand, New Delhi.
4. Engineering Graphics, M.B.Shah, B.C.Rana, Pearsons