GANPAT UNIVERSITY

FACULTY OF ENGINEERING AND TECHNOLOGY (DIPLOMA PROGRAMMES)

Programme	DIPLOMA				Branch/Spec.	Mechanical Engineering		
Semester	II				Version	1.0.0.0		
Effective from Academic Year		2018-19			Effective for the batch Admitted in			June 2018
Subject code	1ES207		Subject Name		Mechanical Drafting			
Teaching scheme					Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)	Total		CE	SEE	Total
	L	TU	P	TW				
Credit	2	0	3	0	5	Theory	40	60	100
Hours	2	0	6	0	8	Practical	60	40	100

Pre-requisites:

Learning Outcome:

After completions of this course, students will able to:

1. Interpret sectional views of different solids.
2. Develop the surface requirement of given application.
3. Draw intersectional views of an object.
4. Interpret multi views drawings & sectional views.
5. Prepare and interpret detail and assembly drawing.
6. Draw & interpret weld joints, piping layout & Fasteners.

Theory syllabus

Unit	Content	Hrs
1.	**Projections of Solids** Types and dimensional specifications of solids (Prism, Pyramid, Cylinder, Cone). Projections of solids – in various positions with respect to the reference planes.(Parallel, Perpendicular and Inclined to H.P. and / or V.P.).	4
2.	**Sections of Solids** Sectional views of different solids in given various positions. True shape of Section.	3
3.	**Development of Surfaces** Importance of development of surfaces. Drawing of development of surfaces of Prism, Pyramid, Cylinder and Cone – independent, sectioned and combination.	3
4.	**Intersection of Solids** Importance and field use. Intersection curve for Intersection / penetration of Prism into Prism, Cylinder into Cylinder, Prism into Cylinder, Cylinder into Prism, Cone into Cylinder.	6
5.	**Multi views Representation & Sectional Orthographic** • First & Third angle projection methods and positions of six views. Multi view drawings (all six views) from given isometric drawing / physical object. • Missing view drawings from given adequate orthographic views. • Need of sections. Section lines and cutting plane. Rules for sectioning and section lines. Types of sections- full, half, revolved, removed, partial, off-set, aligned. Sectional view drawings from given isometrics drawing / physical object and cutting plane conditions.	6
6.	**Detail & Assembly** Importance and difference of these drawings. Detail drawing from given assembly. Assembly drawings from given details. Preparing bill of material (Part List).	3
7.	**Welded Joints, Piping Joints & Fasteners** • 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. • Detachable & Permanent fasteners. Sketches of Threads (Square, Acme, Knuckle, Internal -	3

	External threads, Single & Multi start threads). Sketches of Studs (Cap screws, Machine screws, Set screws). Sketches of Bolts & Nut (Hexagonal, Square). Sketches of Rivets (Snap, Pan, Countersunk, Conical). Sketches of keys.	
8.	**Drafting Symbols** Machining symbol and its interpretation. Geometrical symbols and its interpretation. Other drafting symbols like threading, dowels, pins, ribs, bearings, etc. Notes in drawing like heat treatment conditions, surface conditions, assembly notes, etc. (All symbols as per BIS).	2

Practical content

Practicals are based on above syllabus.

1. Draw Projections of Solids problems.
2. Draw Sections of Solids problems.
3. Draw Development of Surfaces problems.
4. Draw Intersection of Solids problems.
5. Draw Multiviews and Sectional orthographic problems.
6. Draw Detail and Assembly Problems.
7. Draw Welded Joints, Piping Joints, Fasteners & Drafting Symbols.

Text Books

1.	ATextbook of Machine Drawing by Dr.R.K.Dahwan, S.chand Publication
2.	Engineering Drawing, P. J. Shah, S. Chand Publication, New Delhi.

Reference Books

1.	Machine drawing by K.C.John
2.	Engineering Graphics, Arunoday Kumar, Tech-Max Publications, Pune.
3.	Elements of Engineering Drawing, N. D. Bhatt, Charotar Publishing House, Anand.