PaperCode: ICT153	Paper: Engineering Graphics-I		L	p	C
PaperID: 164153			-	2	1

Marking Scheme:
1. Teachers Continuous Evaluation: 40 marks
2. Term end Theory Examinations: 60 marks

Course Objectives:	
1:	The students will learn the introduction of Engineering graphics, various equipment used, various scales, dimensions and BIS codes used while making drawings for various streams of engineering disciplines.
2:	The students will learn theory of projections and projection of points.
3:	The students will learn projection of lines and projection of planes.
4:	The students will learn the projection of solid and development of surfaces

Course Outcomes (CO):	
C01	To understand the theory of projections and projection of points.
CO2	Ability to do line projections.
C03	Ability to do plane projections.
C04	Ability to do solid projections and development of surfaces

Course Outcomes (CO to Programme Outcomes PO) MaoDing (scale 1: low 2: Medium 3: High												
CO/P0	P001	P002	POOJ	P004	POOS	P006	P007	POOB	P009	P010	P011	P012
C01	3	3	3	3	2	-	-	-	1	2	1	2
CO2	3	3	3	3	2	-	.	.	1	2	1	2
COJ	3	3	3	3	2		.	.	1	2	1	2
C04	3	3	3	3	2		.	.	1	2	1	2

Unit I

Introduction: Engineering Graphics/Technical Drawing, Introduction to drawing equipments and use of instruments, Conventions in drawing practice. Types of lines and their uses, BIS codes for lines, technical lettering as per BIS codes, Introduction to dimensioning, Types, Concepts of scale drawing, Types of scales Theory of Projections: Theory of projections, Perspective, Orthographic, System of orthographic projection: in reference to quadrants, Projection of Points, Projection in different quadrants, Projection of point on auxiliary planes. Distance between two points, Illustration through simple problems.

Unit II

Projection of Lines: Line Parallel to both H.P. and V.P., Parallel to one and inclined to other, Other typical cases: three view projection of straight lines, true length and angle orientation of straight line: rotation method, Trapezoidal method and auxiliary plane method, traces of line.

Unit III

Projection of Planes: Projection of Planes Parallel to one and perpendicular to other, Perpendicular to one and inclined to other, Inclined to both reference planes, Plane oblique to reference planes, traces of planes.
Planes Other than the Reference Planes: Introduction of other planes (perpendicular and oblique), their traces, inclinations etc., projections of points and lines lying in the planes, conversion of oblique plane into auxiliary plane and solution of related problems.

Unit IV

Projection of Solids: Projection of solids in first or third quadrant, Axis parallel to one and perpendicular to other, Axis parallel to one inclined to other, Axis inclined to both the principal plane, Axis perpendicular to profile plane and parallel to both H.P. and V.P., Visible and invisible details in the projection, Use of rotation and auxiliary plane method.
Development of Surface: Purpose of development, Parallel line, radial line and triangulation method, Development of prism, cylinder, cone and pyramid surface for both right angled and oblique solids, Development of surface.

Note: The sheets to be created shall be notified by the concerned teacher in the first week of teaching.

Textbooks:
1. *Engineering Drawing* by N.D. Bhatt, 53rd Ed., Charotar Publishing House Pvt. Ltd., Gujarat,2017.

References:
1. *Engineering Drawing* by P.S. Gill, S.K Kataria & Sons, New Delhi, 2013.
2. *Technical Drawing with Engineering Graphics* by Frederick E. Giesecke, Shawna Lockhart, ar a and Cindy M. Johnson, 15th Ed., Prentice Hall, USA, 2016
3. *Engineering Drawing* by M.B. Shah and B.C. Rana, 3rd Ed., Pearson Education, New De

Approved by BoS of USICT:31/10/2021,   Approved by AC sub-committee: 22/11/2021
Applicable from Batch Admitted in Academic Session 2021-22 Onwards

Page 26 of89