GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Diploma in Engineering

Level: Diploma

Branch: Power Electronics /Automation & Robotics / Civil Engineering/ Environmental Engineering /Mining Engineering / Ceramic Technology / Chemical Engineering /Metallurgy Engineering/Plastics Engineering/Mechanical Engineering /Mechanical Engineering (CAD/CAM) /Automobile Engineering / Fabrication Technology / Mechatronics Engineering / Textile Processing Technology

Course / Subject Code : DI01000111

Course / Subject Name : Engineering Graphics

w. e. f. Academic Year:	2024-25
Semester:	1st
Category of the Course:	ESC-01

Prerequisite:	Zeal to learn the subject.
Rationale:	Engineering Drawing is language of engineers. It is the foundation block which strengthens the engineering structure. Moreover, it is the transmitting link between ideas and realization.

Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes	RBT Level
01	Apply the conventions and methods of engineering drawing.	Application
02	Construct engineering curves as per given dimensions.	Remember
03	Draw the projection of points, lines and planes under different conditions.	Analyze
04	Draw orthographic projection from isometric views of simple objects.	Application
05	Draw isometric views from orthographic projection of simple objects.	Application

Revised Bloom's Taxonomy (RBT)

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Teaching and Examination Scheme:

Teaching Scheme(in Hours)			Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
				Theory		Tutorial / Practical		
L	**T**	**PR**	**C**	ESE (E)	PA / CA (M)	PA/CA (I)	ESE (V)	
2	0	2	3	70	30	20	30	150

Course Content:

Unit No.	Content	No. of Hours	% of Weightage
1.	**Introduction to Engineering Graphics:** 1. Introduction to drawing instruments and accessories. 2. Types of lines, dimensioning and plane scale as per BIS–SP 46. 3. Draw polygons with various methods. *(In Exam, specific method not to be asked. Students can draw polygonby any method.)*	04	10
2.	**Engineering Curves:** 1. Applications of Engineering Curves, Construction of Conical curves. 2. Drawing of cycloidal Curves, Involutes and Spirals. *(In Exam, specific method not to be asked. Students can draw thesecurves by any method.)*	05	20
3.	**Projections of Points and Lines:** 1. Introduction to principal planes of projections, Projections of points. 2. Projections of line with its inclination to HP and VP, True length.	05	20
4.	**Projections of Planes:** 1. Inclination of square, hexagonal and circular plane with referenceplanes.	04	10

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5.	**Orthographic Projections:** 1. Projections from the pictorial view of the object. 2. Draw front, top and side views of simple objects. 3. Free hand sketches of simple geometrical shapes like square, triangle,circle, semi-circle, hexagon and pentagon.	06	20
6.	**Isometric view:** 1. Isometric view of simple objects and Isometric scale. 2. Free hand sketches of simple objects like prism, pyramid, cylinder andcone.	06	20
	Total	**30**	**100**

Suggested Specification Table with Marks (Theory):

Distribution of Theory Marks (in %)					
R Level	**U Level**	**A Level**	**N Level**	**E Level**	**C Level**
10	**20**	**40**	**30**		

Where R: Remember; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create (as per Revised Bloom's Taxonomy)

References/Suggested Learning Resources:
(a) Books:
1. A text book of Engineering Drawing by P.S.Gill, S.K.Kataria & sons, Delhi.
2. Elementary Engineering Drawing by N.D.Bhatt Charotar Publishing House, Anand.

(b) Open source software and website:
1. https://www.youtube.com/c/MechanicalEnggSubjectsGTU/playlists
2. https://youtube.com/playlist?list=PL5Rqb_WO7qVy2-6FluBrQcJh_rXvyOxe&si=pgqq5RO0ZLGU5J1G

Suggested Course Practical List:

1. Use of drawing instruments (Types of lines, dimensioning, scale as per BIS, Angles, polygons)
2. Drawing of Conical curves (Ellipse, parabola, hyperbola)
3. Drawing of spiral, involute and cycloidal curves

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4. Projections of points and line
5. Projections of plane
6. Draw orthographic projections of given isometric view
7. Draw Isometric view of given orthographic projection

All the problems must be draw in sketch book and then in drawing sheet of A2 size. Draw both sides, ifneeded.

List of Laboratory/Learning Resources Required:

Drawing paper, scale, 0.5 mm H and 2H lead pencil, angle protector, set square, etc.

Suggested Project List:

Student have to prepare a chart showing real applications of topics discussed in this subject.

Suggested Activities for Students:

Draw free hand sketch of any object around you. Draw isometric view and orthographic view, both.

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