B.Tech.	1	Semester	1/2	Teaching Scheme				Evaluation Scheme	
Subject Name	Engineering Graphics and Design			**L**	**T**	**P**	**Credits**	**CCE**	**SEE**
Subject Code	BTME22101			1	-	-	1	25	25
Type of course	Engineering Science Course (ESC)			CCE : Continuous and Comprehensive Evaluation SEE : Semester End Evaluation					
Prerequisite	No prerequisites								
Rationale	Using Engineering Graphics as a visual language is a standard practice for all engineers. This course will train the students to master the fundamental ideas of technical drawing and computer graphics. Students will be able to enhance their visual skills and imagination skills as well as they will be able to convey their ideas through a variety of techniques.								

Course Outcomes (COs): At the end of the course, students will be able to		Marks % Weightage
CO-1	Recognize the standards and procedures used for technical drawings.	15
CO-2	Explain the importance of visualization.	20
CO-3	Construct basic engineering drawings and models using fundamental projection techniques and drafting instruments.	20
CO-4	Apply the principles of projections to construct various geometries.	15
CO-5	Develop technical communication skill in the field of engineering.	15
CO-6	Illustrate ideas into products using visualization and drafting skills.	15

Course Contents

Unit	Content	Tentative Teaching Hours	Tentative Unit Weightage
1.	**Introduction to Engineering Graphics and Scales:** Importance of engineering graphics & design in the field of engineering, BIS-SP 46 & other ISO conventions, types & application of lines, types of dimensioning system, scale, size of the scale, types of scale: plain scales and diagonal scales.	4	30%

Unit	Content	Tentative Teaching Hours	Tentative Unit Weightage
2.	**Engineering Curves:** Classification engineering curves, conics curves: ellipse (directrix-focus method, rectangular method, concentric circle method, parabola (directrix-focus method, rectangular method), hyperbola (directrix-focus method, rectangular method), cycloid, involutes (circle and polygon), Archimedean spiral.	5	30%
3.	**Projections of Points & Lines:** Introduction to principal planes of projections, projections of the points, projections of line inclined to one reference plane and both reference planes.	6	40%

Suggested Specification Table of Marks as per Revised Bloom's Taxonomy					
% Distribution of Marks					
R Level	U Level	A Level	N Level	E Level	C Level
15	20	50	15	0	0

Legends: R: Remembrance, **U:** Understanding; **A:** Application, **N:** Analyze, **E:** Evaluate, **C:** Create and above Levels

Recommended Reference Books

1. B. Agrawal & C. M. Agrawal, Engineering Drawing, Tata McGraw Hill, 2019.
2. N.D. Bhatt, Engineering Drawing, Charotar Publishing House Pvt Ltd, 2014.
3. P.S.Gill, Engineering Graphics & Drafting, S.K.Kataria & sons, 2016.
4. P.J. Shah, Engineering Graphics & Design by, S. Chand & Company Ltd, 2008.
5. Engineering Drawing Practice for Schools & College (SP 46), Bureau of Indian Standards (BIS), National Drawing Code, 1998.

Mapping of Course Outcomes (CO's) with Program Outcomes (PO's)												
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO-1	3	1	2	1	2	1	-	1	1	3	1	1
CO-2	3	3	3	2	3	2	1	1	2	3	1	3
CO-3	2	1	2	-	1	-	1	-	1	2	1	1
CO-4	3	2	1	1	3	2	1	1	2	3	1	3
CO-5	2	2	2	1	2	3	1	2	2	3	3	3
CO-6	3	2	3	1	3	2	1	1	3	3	2	3

List of Open Source/learning website/Other Details if any
1. https://nptel.ac.in/courses/112103019
2. https://nptel.ac.in/courses/112105294