SARVAJANIK UNIVERSITY

SARVAJANIK COLLEGE OF ENGINEERING AND TECHNOLOGY

BACHELOR OF TECHNOLOGY

B.Tech.	1	Semester	1/2	Teaching Scheme				Evaluation Scheme	
Subject Name	Engineering Graphics and Design Lab			**L**	**T**	**P**	**Credits**	**CCE**	**SEE**
Subject Code	BTME22102			-	-	4	2	50	50
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.	10
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.	20
CO-5	Develop technical communication skill in the field of engineering.	10
CO-6	Illustrate ideas into products using drafting software.	20

Course Contents

Unit	Content	Tentative Teaching Hours
1.	**Introduction to Engineering Graphics:** Importance of engineering graphics & design in the field of engineering, use of drawing instruments and accessories for manual drawings, Bureau of Indian Standards (BIS) Engineering Drawing Practice for Schools & College (SP 46) & other ISO conventions, types & application of lines, numbering & lettering, types of dimensioning system, basic Geometric drawing.	4

Unit	Content	Tentative Teaching Hours
2.	**Projections of Planes:** Projections of planes with it's inclined to one reference plane and two reference planes.	10
3.	**Projections of Solids, Section of Solids:** Projection of solids inclined to one reference plane, Classification of solids, section of solids and the true shape of the section. **Development of Surfaces:** Concept of development of the different surfaces, parallel line development, radial line	14
4.	**Orthographic Projections:** Introduction to orthographic projections, projections from the pictorial view of the object on the principal planes for view from front, top and sides using first angle projection method and third angle projection method, full sectional view.	14
5.	**Isometric Projections and Isometric View or Drawing:** Isometric scale, conversion of orthographic views into Isometric projection, isometric view or drawing.	14
6.	**Computer Aided Drawing (CAD):** Introduction to CAD, drawing commands, modifying/editing commands, annotation and dimensioning commands, concepts of layers, demonstration of various line styles, demonstration of a simple team design project that illustrates geometry and topology of engineered components.	4

List of Practicals:
1. Construct projection of planes.
2. Construct projection of solids,
3. Construct section of solid.
4. Construct development of surfaces.
5. Construct orthographic views of the given object.
6. Construct orthographic sectional views of the given object.
7. Construct isometric views of given object.
8. Construct isometric projections of given object.
9. Perform drawing commands using given cad software.
10. Create 3d objects using given cad software.

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
10	20	50	0	0	10

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

List of Open Source Software

1. Free CAD
2. Blender