Faculty of Engineering & Technology
Bachelor of Technology (B. Tech)
(W. E. F.: 2023-24)

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Name of Faculty	:	Faculty of Engineering & Technology
Name of Program	:	Bachelor of Technology (B. Tech)
Course Code	:	1BME01
Course Title	:	Engineering Drawing & Workshop
Type of Course	:	Basic Engineering (BE)
Year of Introduction	:	2023-24

Prerequisite	:	Zeal to learn the subject
Course Objective	:	Engineering Drawing is an effective language of engineers. It is the foundation block which strengthens the engineering & technological structure. Workshop practice is the backbone of the real industrial environment which helps to develop and enhance relevant technical hand skills required by the technician working in the various engineering industries and workshops. Irrespective of branch, the use of workshop practices in day to day industrial as well domestic life helps to dissolve the problems.
Course Outcomes	:	At the end of this course, students will be able to:
	CO1	Know and understand the conventions and the methods of engineering drawing.
	CO2	Construct basic and intermediate geometry.
	CO3	Improve their visualization skills so that they can apply these skills in developing new products.
	CO4	Improve their technical communication skill in the form of communicative drawings.
	CO5	Use of AutoCAD software for the drawing.
	CO6	Understand various manufacturing processes in machine shop and perform basic operations of welding, fitting, tin smithy and carpentry work, Perform basic operations of welding, fitting, tin smithy and carpentry work, Explain various manufacturing processes in machine shop

Teaching and Examination Scheme

Teaching Scheme (Contact Hours)			Credits	Examination Marks				
				Theory Marks		Practical Marks		Total Marks
L	T	P	C	SEE	CIA	SEE	CIA	
2	0	4	4	70	30	30	20	150

Legends: ***L****-Lecture;* ***T****–Tutorial/Teacher Guided Theory Practice;* ***P*** *– Practical,* ***C*** *– Credit,* ***SEE*** *– Semester End Examination,* ***CIA*** *- Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.)*

Course Content

Unit No.	Topics	Teaching Hours	Weightage	Mapping with COs
1	**Introduction to Engineering Graphics:** Drawing instruments and accessories, Engineering Scales, Reduced scale, Full scale, enlarged scale, Plane scale, Diagonal scale.	01	5%	CO1
2	**Engineering Curves:** Classification of curves, Conics, Cycloids, Involutes and Spiral.	10	15%	CO1 CO2
3	**Orthographic Projections:** Fundamental of projection along with classification, First angle and third angle projection method, Front, side and top views, Sectional orthographic projections.	08	15%	CO1 CO2 CO4
4	**Isometric Projections:** Construction of Isometric object from orthographic views.	06	15%	CO1 CO2 CO4
5	**Computer Aided Drawing:** Introduction to AutoCAD, Draw and Modify commands, Annotations.	02	5%	CO3 CO5
6	**Introduction to Workshop:** Introduction to workshop facility, Different types of shops in mechanical Engineering workshop and their processes, Workshop layout, importance of various sections/shops of workshop, types of jobs done in each shop, General safety rules and work procedure of work shop	04	5%	CO4 CO6
7	**Carpentry Shop:** Introduction to different tools of carpentry shop, Marking and measurement in Carpentry, drawing of the job to be made, Manufacture of job as per drawing made from wood	06	10%	CO4 CO6
8	**Fitting Shop:** Introduction to different tools of fitting shop, drawing of the job to be made, Manufacture of job as per drawing	06	10%	CO4 CO6
9	**Welding Shop:** Introduction to different tools of welding shop, Different processes of welding, drawing of the job to be made, Demonstration of job as per drawing	04	10%	CO4 CO6
10	**Tin Smithy:** Introduction to Tin smithy tools like hammers, stakes, scissors etc, sheet metal operations such as shearing, bending, safety precaution, demonstration of various operation	04	5%	CO4 CO6
11	**Introduction to Machine Tools:**	06	5%	CO4

	Introduction to Machine Tools, Demonstration of job on Lathe machine, shaping machine, drilling machine, Grinding machine, Milling machine			CO6

Suggested Distribution of Theory Marks Using Bloom's Taxonomy						
Level	Remembrance	Understanding	Application	Analyse	Evaluate	Create
Weightage	**25**	**30**	**30**	**5**	**5**	**5**

NOTE: This specification table shall be treated as a general guideline for the students and the teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Suggested List of Experiments/Tutorials

Sr. No.	Name of Experiment/Tutorial	Teaching Hours
1	Practice Sheet	02
2	Engineering Scales	02
3	Engineering Curves 1	04
4	Engineering Curves 2	04
5	Orthographic Projections	04
6	Isometric Projections	04

Major Equipment/ Instruments and Software Required

Sr. No.	Name of Major Equipment/ Instruments and Software
1	Autodesk AutoCAD

Suggested Learning Websites

Sr. No.	Name of Website
1	http://nptel.iitm.ac.in/courses.php

Reference Books

Sr. No.	Name of Reference Books
1	Elementary Engineering Drawing by N.D.Bhatt Charotar Publishing House, Anand
2	A text book of Engineering Drawing by P.S.Gill, S.K.Kataria & sons, Delhi
3	A Text Book of Engineering Graphics by P.J.Shah S.Chand & Company Ltd., New Delhi
4	Engineering Drawing by B. Agrawal and C M Agrawal, Tata McGraw Hill, New Delhi
5	Hajra Choudhury S.K., Hajra Choudhury A.K. and Nirjhar Roy S.K., "Elements of Workshop Technology", Vol. I 2008 and Vol. II 2010, Media promoters and publishers private limited, Mumbai
6	Rao P.N., "Manufacturing Technology", Vol. I and Vol. II, Tata McGraw Hill House, 2017