BMEE206P	Machine Drawing Lab	L	T	P	C
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Pre-requisite	**BMEE102P**	**Syllabus version**			
		1.0			

Course Objectives

1. To provide the knowledge of design practices for common machine elements.
2. To train students to excel in part and assembly drawing of mechanical components.
3. To impart skills in applying CAD tools for conceptualizing product.

Course Outcome

At the end of the course, the student will be able to
1. Use CAD tools efficiently to design machine elements.
2. Demonstrate the use of ISO/BIS standards in machine drawing.
3. Apply the concepts of conventional tolerancing and GD&T principles.
4. Illustrate the relative motion among parts in mechanical assembly.

Indicative Experiments

1.	**Introduction to Machine Drawing:** Study of Drawing Sheet Layout and Drawing Standards. Use of software packages for machine drawing and drafting.
2.	**Basics of Machine Drawing:** Study of basic specifications and conventional representation of standard components i.e.Bolts, Screw, Rivets, Keys, Pins, Washers; Surface Roughness and Welding symbols in machine drawing.
3.	**Basic of Limits, Fits and Tolerances:** Study of fundamental of Deviations, Shaft and Hole Terminology, Method of placing limit dimensions. Study of different types of Fits and Tolerances. Reading of machining grade. Use of tolerance tables.
4.	**Introduction to Limits, Fits and Tolerances in Machine Drawing:** Incorporating Geometrical Tolerance and Dimensioning, GD&T Symbols, LMC, MMC, concept in engineering drawing.
5.	**Part Modeling of machine components:** 3D Modeling of standard machine components i.e. Shaft, Pulley, Springs, Plummer-Block, Bracket.
6.	**Detailed Drawing of Part:** Drafting of standard machine part components into production drawing-Orthographic Projection and Isometric Projection.
7.	**Modeling and Assembly of machine elements:** 3D Modeling of standard machine elements i.e.Universal Coupling, Bench Vice, Radial Engine.
8.	**Detailed Drawing of Assembly:** Drafting of standard assembly elements into Orthographic, Isometric and Section view. Applying Bill of Material concept.
9.	**Exploded Assembly Drawing:** Understanding step of assembly of components.
10.	**Motion Study of Assembly:** Applying motion among components in assembly. Understanding Constraints Relations and Degree of Freedom.
	Total Laboratory Hours **60 hours**

Text Books

1.	Bhatt N. D, Machine Drawing, 2008, Charotar Publishing House Pvt. Limited, India.
2.	French, T. E, Vierch, C. J, and Foster, R. J., Engineering Drawing and Graphic Technology.
3.	Lab Manual prepared by course faculty members.

Reference Books

1.	Narayana K.L., Kannaiah, P., and Venkata Reddy K, Machine Drawing, 2016, 5th Ed., New Age International Publishers, India.
2.	John K. C., Text Book of Machine Drawing, 2009, PHI Learning Pvt. Ltd.
3.	Lockhart, S., Giesecke, F. E., Dygdon, J., Spencer, H., Mitchell, A., Johnson, C., Good man, M., Technical Drawing with Engineering Graphics, 2016, Prentice Hall, United Kingdom.
4.	Lakshminarayanan, V., and Mathur, M. L., Text Book of Machine Drawing (with

	Computer Graphics), 2007, 12th Ed, Jain Brothers, India.			
5.	SP 46: 1988 Engineering Drawing Practice for Schools and Colleges, 1988, Bureau of Indian Standards.			
6.	Design Data: Data Book of Engineers by PSG College, 2019, 4th Ed., Kalaikathir Achagham Coimbatore publication, India**.**			
Mode of assessment: Viva-voce examination, Lab performance & FAT				
Recommended by Board of Studies		09-03-2022		
Approved by Academic Council		No. 65	Date	17-03-2022