	National Institute of Technology Meghalaya An Institute of National Importance	CURRICULUM

Programme	**Bachelor of Technology in Mechanical Engineering**	Year of Regulation	**2018**
Department	**Mechanical Engineering**	Semester	**VI**

Course Code	Course Name	Credit Structure				Marks Distribution	
		L	T	P	C	Continuous Evaluation	Total
ME 352	**Advanced Mechanical Lab-I**	**0**	**1**	**2**	**2**	**100**	**100**

Course Objectives		Course Outcomes		
	To introduce basics of Computer Aided Design.		CO1	Able to utilize CAD modelling software to develop 3D models of machine components (Applying)
	To develop an ability to create CAD model of machine components.		CO2	Able to assemble different components to develop machine models (Applying)
	To develop an ability to create machine assembly using different components.		CO3	Able to develop assembly drawing with Bill of Materials table (Applying)
	To develop an ability to design and manufacture a machine component using CAD software, CNC and additive manufacturing.		CO4	Able to create 3D models using additive manufacturing (Analyzing)
			CO5	Able to generate CNC codes for machining (Analyzing)

No.	COs	Mapping with Program Outcomes (POs)												Mapping with PSOs		
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
1	CO1	**0**	**0**	**3**	**0**	**3**	**3**	**0**	**3**	**0**	**3**	**1**	**2**	**3**	**2**	**0**
2	CO2	**0**	**0**	**3**	**0**	**3**	**3**	**0**	**3**	**0**	**3**	**1**	**2**	**3**	**2**	**0**
3	CO3	**0**	**0**	**3**	**0**	**3**	**3**	**0**	**3**	**0**	**3**	**1**	**2**	**3**	**2**	**0**
4	CO4	**0**	**0**	**3**	**0**	**3**	**3**	**0**	**3**	**0**	**3**	**1**	**2**	**3**	**2**	**0**
5	CO5	**0**	**0**	**3**	**0**	**3**	**3**	**0**	**3**	**0**	**3**	**1**	**2**	**3**	**2**	**0**
6	CO6	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

SYLLABUS

No.	Content	Hours	COs
I	**Introduction to Computer Aided Design.** Introduction to solid modellers, solid modelling of various machine parts, development of 3D models from 2D sketch.	**09**	**CO1**
II	**Assembly** Assemble different components to develop complex machine models.	**09**	**CO2** **CO3**
III	**Drafting and Bill of material** Drafting of components and assembled systems with bill of material table.	**06**	**CO3**
IV	**CAM:** Introduction to Computer Aided Manufacturing, generation of CNC code using CAM software for machining, Additive manufacturing.	**09**	**CO4** **CO5**
V	**Project on design and development of a machine assembly.**	**09**	**All COs**
	Total Hours	**42**	

Essential Readings

1. M. P. Groover and Emory W. Zimmers, Jr., “CAD/CAM Computer Aided and Manufacturing”, 22nd impression,2018
2. P. Radhakrishan, S. Subramanyan, V. Raju, “CAD/CAM/CIM”, New Age International Publishers,3rd edition,2008

Supplementary Readings

1. P.N. Rao, “CAD/CAM Principles and Applications”, Tata McGraw Hill Publications,3rd edition,2012
2. D. L. Goetsch, “Fundamental of CIM technology”, Delmar publication,1988
3. B.S. Pabla and M. Adithan, “CNC Machines”, New Age International Publishers.,1st edition,1994, reprint 2005