	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	**V**

Course Code	Course Name	Credit Structure				Marks Distribution		
		L	T	P	C	Continuous evaluation	Quiz	Total
ME 351	**Non-Traditional Machining Lab**	**0**	**0**	**2**	**1**	**70**	**30**	**100**

Course Objectives	This course familiarizes students with the use of various non-traditional machining process that experienced during manufacturing processes To develop the student's ability to operate the advanced engineering equipment such as Die-sinking EDM, Wire-EDM, Micro-machining set up, surface roughness tester etc.	Course Outcomes	CO1	Explain about traditional and non-traditional machining process. Demonstrate and explain the working principle of Die-sinking EDM, Powder material compact machine and surface roughness tester (Understanding). Design and fabrication of green compact tool using powder materials with compact machine for reverse-EDM process (Apply).
			CO2	Application of Reverse-EDM process for surface modification by material deposition process using Die-sinking EDM (Apply).
			CO3	Demonstrate and explain the working principle of Wire-EDM process (Understanding). Analyze the surface roughness and burr formation of the machine product using single pass with WEDM process (Apply).
			CO4	Apply the multi-pass process to analyze the surface roughness and burr formation of the machine product with WEDM process (Apply).
			CO5	Demonstrate and explain the working principle of micro-EDM process and analyze effect of different input parameters. (Understanding / Apply)

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	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**
2	CO2	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**
3	CO3	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**
4	CO4	**3**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**
5	CO5	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**

SYLLABUS

No.	Content	Hours	COs
I	Demonstrate and explain working principle of Die-sinking EDM, Wire-EDM process, Powder material compact machine and Micro-machining process. (NTM-1)	02	All COs
II	Design and fabrication of green compact tool using powder materials. (NTM-2)	02	CO1
III	Application of Reverse-EDM process for surface modification by material deposition process using Die-sinking EDM (Application). Analyze the surface pattern and finishing after material deposition. (NTM-3)	02	CO2
IV	Machining of cylindrical/rectangular block using single pass wire electro discharge machining (WEDM) process. Analyze the surface finish and burr formation of the machined product. Repeat the experiment at least for 3 times. (NTM-4)	02	CO1, CO3
V	Machining of cylindrical/rectangular block using multi-pass (2 pass) with WEDM process. Analyse the surface finish and burr formation of the machined product. Repeat the experiment at least for 3 times. (NTM-5)	02	CO4
VI	Machining of cylindrical/rectangular block using multi-pass (3 pass) with WEDM process. Analyse the surface finish and burr formation of the machined product. Repeat the experiment at least for 3 times. (NTM-6)	02	CO4
VII	Making of micro features using micro-EDM and investigating the effect of different input parameters on MRR. (NTM-7)	02	CO1, CO5
	Total Hours =	14	

Supplementary Readings

1. J. P. Holman, "Experimental Methods for Engineers", McGraw Hill.
2. A. Ghosh and A.K. Mallik, "Manufacturing Science", Affiliated East-West Press Private Limited.
3. P.C. Pandey and H.S. Shan, "Modern Machining Processes", TMH.