



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	Total	
ME 351	Non-Traditional Machining Lab	0	0	2	1	100	100	
Course Objectives	<p>This course familiarizes students with the use of various non-traditional machining process that experienced during manufacturing processes</p> <p>Students will do in-hand practice to operate various advanced non-traditional equipment such as Die-sinking EDM, Wire-EDM, Micro-machining set up, surfaceroughness tester etc. Thus, they will apply and analyse their skill in industrial production house after graduation.</p>	Course Outcomes	CO1	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 (Application).				
			CO2	Application of Reverse-EDM process for surface modification by material deposition process using Die-sinking EDM (Application).				
			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	0	3	0	0
2	CO2	3	0	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	0	3	0	0
4	CO4	3	0	0	0	2	0	0	0	0	0	0	0	0	3	0	0
5	CO5	3	2	0	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.	03	All COs
II	Design and fabrication of green compact tool using powder materials (Application).	03	CO1
III	Application of Reverse-EDM process for surface modification by material deposition process using Die-sinking EDM (Application). Analyze the surfacepattern and finishing after material deposition.	06	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.	06	CO1, CO3
V	Machining of cylindrical/rectangular block using multi-pass (both 2 pass and 3 pass) with WEDM process. Analyse the surface finish and burr formation of the machined product.Repeat the experiment at least for 3 times.	12	CO4
VI	Making of micro features using micro-EDM and investigating the effect of different input parameters on MRR.	06	CO1, CO5
Total Hours		36	

Essential Readings

1. A. Ghosh and A.K. Mallik, "Manufacturing Science", Affiliated East-West Press Private Limited.

Supplementary Readings

1. J. P. Holman, "Experimental Methods for Engineers", McGraw Hill.
2. P.C. Pandey and H.S. Shan, "Modern Machining Processes", TMH.