



Department of Mechanical Engineering

Lesson Plan & Work-done Diary for AY:2025-26, Odd Semester

Course with Code: Introduction to Non-Traditional Machining -BME755A			Faculty: Mr. HEMANTH B R				Semester & Section: 7 th sem	
Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Class No.	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
MODULE-1								
1		Introduction to the subject – Non-traditional machining process, Discussion on syllabus, Course outcome and Evaluation methods	PPT, Chalk and Talk					
2		Introduction to Non-traditional machining, Need for Non-traditional machining process	PPT					
3		Comparison between traditional and non-traditional machining	PPT					
4		General classification Non-traditional machining processes	PPT					
5		Classification based on nature of energy employed in machining	PPT					
6		Selection of non-traditional machining processes	PPT					
7		Specific advantages, limitations of non-traditional machining processes	PPT					
8		Applications of non-traditional machining processes	PPT					
		QUIZ on Module 1	MS Forms					



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MODULE-2								
9		Ultrasonic Machining (USM): Introduction, Equipment and material process	PPT					
10		Effect of process parameters: Effect of amplitude and frequency, Effect of abrasive grain diameter, effect of slurry, tool & work material	PPT					
11		Process characteristics: Material removal rate, tool wear, accuracy, surface finish	PPT					
12		Applications, advantages & limitations of USM	PPT					
13		Abrasive Jet Machining (AJM): Introduction, Equipment and process of material removal	PPT					
14		Process variables: carrier gas, type of abrasive, work material, stand-off distance (SOD)	PPT					
15		Process characteristics-Material removal rate, Nozzle wear, accuracy & surface finish.	PPT					
16		Applications, advantages & limitations of AJM	PPT					
		Assignment -1	Write-up/ Seminar					



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MODULE-3								
17		Electrochemical Machining (ECM) Introduction, Principle of electro chemical machining: ECM equipment, elements of ECM operation, Chemistry of ECM	PPT					
18		ECM Process characteristics: Material removal rate, accuracy, surface finish, Process parameters	PPT					
19		ECM Tooling, Electrochemical grinding and electrochemical honing process. Advantages, disadvantages and application of ECG, ECH	PPT					
20		Chemical Machining (CHM): Elements of the process: Resists (maskants), Etchants	PPT					
21		Types of chemical machining process chemical blanking process, chemical milling process	PPT					
22		Process characteristics of CHM	PPT					
23		Material removal rate, accuracy, surface finish	PPT					
24		Advantages, limitations and applications of chemical machining process	PPT					
		Assignment -2	Write-up/ Seminar					



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MODULE-4								
25		Electrical Discharge Machining (EDM): Introduction, mechanism of metal removal	PPT					
26		EDM equipment: spark erosion generator (relaxation type), dielectric medium-its functions & desirable properties, electrode feed control system	PPT					
27		Flushing types; pressure flushing, suction flushing, side flushing, pulsed flushing	PPT					
28		EDM process parameters, Advantages, limitations & applications of EDM, Electrical discharge grinding, Traveling EDM	PPT					
29		Plasma Arc Machining (PAM) Introduction, non-thermal generation of plasma	PPT					
30		PAM equipment & Mechanism of metal removal	PPT					
31		Plasma torch, Process Parameters Process characteristics	PPT					
32		Safety precautions, Applications, Advantages and Limitations	PPT					
		Assignment -3	Write-up/ Seminar					



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MODULE-5								
33		Laser Beam Machining (LBM): Introduction	PPT					
34		Generation of LASER	PPT					
35		Equipment and Mechanism of metal removal	PPT					
36		LBM parameters and characteristics	PPT					
37		Applications, Advantages, limitations of LBM	PPT					
38		Electron Beam Machining (EBM) -Introduction, Principle and working of EBM	PPT					
39		Equipment and Mechanism of metal removal	PPT					
40		Applications, Advantages & limitations of EBM	PPT					
		QUIZ on Module 5	M S Forms					



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	Activity	Planned	Actual	Remarks
1	Theory Classes	40		
2	Assignments/ Quizzes/ Self-study	03/02		
3	Tutorials/ Extra classes	00		
4	Internal Assessments	03		
5	ICT based Teaching (% of usage in Curriculum)	100		
Planning			Execution	
Faculty Signature :			Faculty Signature :	
HoD Signature :			HoD Signature :	