

LESSON PLAN

SESSION	SUMMER 2023
SEMESTER	6TH
BRANCH	MECHANICAL ENGINEERING
SECTION	A&B
THEORY NO.	4
SUBJECT	ADVANCE MANUFACTURING PROCESSES
LECTURER	Er. ABHISHEK JENA & Er SURANJAN MOHANTY

SL NO.	MONTH	CHAPTER NO.	DATE	TOPICS TO BE COVERED	NO. OF ACADEMIC DAYS AVAILABLE FOR THE SUBJECT	% COVERED
1	FEB		23.2.23	1.1 Introduction – comparison with traditional machining.	5	9%
			24.2.23	1.2 Ultrasonic Machining: principle, Description of equipment, applications.		
			25.2.23	1.2 Ultrasonic Machining: principle, Description of equipment, applications.		
			27.2.23	1.3 Electric Discharge Machining: Principle, Description of equipment,		
			28.2.23	Dielectric fluid, tools (electrodes), Process parameters, Output characteristics, applications.		
		1	1.3.23	1.4 Wire cut EDM: Principle, Description of equipment, controlling parameters; applications.		
			2.3.23	1.4 Wire cut EDM: Principle, Description of equipment, controlling parameters; applications.		
			3.3.23	1.5 Abrasive Jet Machining: principle, description of equipment, Material removal rate, application		
			4.3.23	1.5 Abrasive Jet Machining: principle, description of equipment, Material removal rate, application		
			6.3.23	1.5 Laser Beam Machining: principle, description of equipment, Material removal rate, application.		
			9.3.23	1.5 Laser Beam Machining: principle, description of equipment, Material removal rate, application.		
			10.3.23	1.6 Electro Chemical Machining: principle, description of equipment, Material removal rate, application		
			11.3.23	1.6 Electro Chemical Machining: principle, description of equipment, Material removal rate, application		

2	MARCH	13.3.23	1.7 Plasma Arc Machining – principle, description of equipment, Material removal rate, Process parameters, performance characterization, Applications.	24	43%	
		14.3.23	1.7 Plasma Arc Machining – principle, description of equipment, Material removal rate, Process parameters, performance characterization, Applications.			
		15.3.23	1.8 Electron Beam Machining - principle, description of equipment, Material removal rate, Process parameters, performance characterization, Applications.			
		16.3.23	1.8 Electron Beam Machining - principle, description of equipment, Material removal rate, Process parameters, performance characterization, Applications.			
		2	17.3.23			2.1 Processing of plastics.
			18.3.23			2.2 Moulding processes: Injection moulding,
			20.3.23			Compression moulding
			21.3.23			Transfer moulding
			22.3.23			2.3 Extruding; Casting;
			23.3.23			Calendering.
	24.3.23		2.4 Fabrication methods-Sheet forming, Blow moulding, Laminating plastics (sheets, rods & tubes), Reinforcing.			
	25.3.23		2.4 Fabrication methods-Sheet forming, Blow moulding, Laminating plastics (sheets, rods & tubes), Reinforcing.			
	27.3.23	2.4 Fabrication methods-Sheet forming, Blow moulding, Laminating plastics (sheets, rods & tubes), Reinforcing.				
	28.3.23	2.5 Applications of Plastics.				
	3	APRIL	29.3.23	3.1 Introduction, Need for Additive Manufacturing	15	27%
			31.3.23	3.2 Fundamentals of Additive Manufacturing, AM Process Chain		
			3.4.23	3.3 Advantages and Limitations of AM, Commonly used Terms		
			4.4.23	3.3 Advantages and Limitations of AM, Commonly used Terms		
			5.4.23	3.4 Classification of AM process, Fundamental Automated Processes		
			6.4.23	Distinction between AM and CNC, other related technologies.		
8.4.23			Distinction between AM and CNC, other related technologies.			
10.4.23			3.5 Application –Application in Design, Aerospace Industry, Automotive Industry, Jewelry Industry, Arts and Architecture. RP Medical and Bioengineering Applications.			

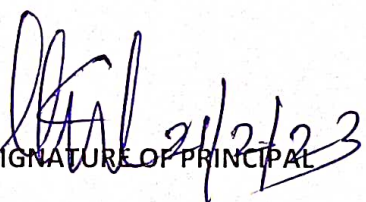
4	MAY	4	11.4.23	3.5 Application –Application in Design, Aerospace Industry, Automotive Industry, Jewelry Industry, Arts and Architecture. RP Medical and Bioengineering Applications.	11	21%
			12.4.23	3.6 Web Based Rapid Prototyping Systems		
			13.4.23	3.7 Concept of Flexible manufacturing process		
			24.4.23	concurrent engineering		
			25.4.23	production tools like capstan		
			26.4.23	turret lathes		
			27.4.23	rapid prototyping processes.		
			28.4.23	4.1 Concept, General elements of SPM		
		5	29.4.23	Productivity improvement by SPM		
			1.5.23	Principles of SPM design.		
			2.5.23	5.1 Types of maintenance		
			3.5.23	, Repair cycle analysis		
			4.5.23	Repair complexity, Maintenance manual		
			6.5.23	Maintenance records, Housekeeping		
			8.5.23	. Introduction to Total Productive Maintenance (TPM)		
			9.5.23	. Introduction to Total Productive Maintenance (TPM)		
			10.5.23	REVISION		
11.5.23	REVISION					
12.5.23	REVISION					
13.5.23	REVISION					

BRIEF SUMMARY OF THE PLAN

SL. NO.	MONTH	UNIT/CHAPTER TO BE COVERED	% COVERAGE
1	Feb-23	CH-1.3	9%
2	Mar-23	CH-1,CH-2,CH-3.2	43%
3	Apr-23	CH-3,CH-4.1	27%
4	May-23	CH-5	21%


21.2.23
SIGNATURE OF FACULTY


21/2/23
SIGNATURE OF HOD


21/2/23
SIGNATURE OF PRINCIPAL