

**Government Polytechnic, Tikarpada || Lesson Plan**

Discipline : MECHANICAL ENGG.		Semester: 6th Sem	Name of the Teaching Faculty : Anup Kumar Panda
Subject : Advanced Manufacturing Process		No. of Days / per week class allotted - 04	Semester From date : 22.12.2025 To Date : 18.04.2026
MONTH	Week	Day	Topics
DECEMBER	4th	1st	1.1 Introduction – comparison with traditional machining
		2nd	1.2 Ultrasonic Machining: principle, Description of equipment, applications.
		5th	1.3 Electric Discharge Machining: Principle, Description of equipment,
	5th	1st	Dielectric fluid, tools (electrodes), Process parameters, Output characteristics, applications.
		2nd	1.4 Wire cut EDM: Principle, Description of equipment, controlling parameters; applications.
JANUARY	1st	1st	1.5 Abrasive Jet Machining: principle, description of equipment,
		2nd	Material removal rate, application.
	2nd	2nd	1.5 Laser Beam Machining: principle, description of equipment,
		4TH	Material removal rate, application
		5TH	1.6 Electro Chemical Machining: principle, description of equipment
	3rd	1st	Material removal rate, application
		2nd	1.7 Plasma Arc Machining – principle, description of equipment,
		4TH	Material removal rate, Process parameters,
	4th	5TH	1.8 Electron Beam Machining - principle, description of equipment,
		1st	Material removal rate, Process parameters,
		2nd	performance characterization, Applications.
		4TH	2.1 Processing of plastics.
		5th	2nd
	4th		Compression moulding, Transfer moulding.
	5TH		2.3 Extruding; Casting; Calendering.
FEBRUARY	1ST	1st	2.4 Fabrication methods-Sheet forming,
		2nd	Blow moulding,
		4TH	Laminating plastics (sheets, rods & tubes), Reinforcing.
	2ND	5TH	2.5 Applications of Plastics.
		1st	3.1 Introduction, Need for Additive Manufacturing
		2nd	3.2 Fundamentals of Additive Manufacturing, AM Process Chain
	3RD	4TH	<b>Class Test -1</b>
		1st	3.3 Advantages and Limitations of AM, Commonly used Terms,
		2nd	3.4 Classification of AM process, Fundamental Automated Processes,
		4TH	Distinction between AM and CNC, other related technologies
		5TH	<b>INTERNAL ASSESSMENT</b>
	4th	1st	3.5 Application –Application in Design,
		2nd	Aerospace Industry, Automotive Industry
		4TH	Jewelry Industry, Arts and Architecture. RP Medical and Bioengineering Applications.
		5TH	3.6 Web Based Rapid Prototyping Systems
1st		3.7 Concept of Flexible manufacturing process,	
MARCH	1st	4th	rapid prototyping processes.
		5TH	concurrent engineering
		1st	production tools like capstan and turret lathes,
	2nd	2nd	4.0 Special Purpose Machines (SPM):
		4TH	4.1 Concept, General elements of SPM,
		5TH	Productivity improvement by SPM, Principles of SPM design.
		6th	5.0 Maintenance of Machine Tools: Introduction
	3rd	1st	5.1 Types of maintenance, Repair cycle analysis
		2nd	Repair complexity, Maintenance manual,
		4th	Maintenance records, Housekeeping.
	4th	5TH	Introduction to Total Productive Maintenance (TPM).
		1st	Revision of chapter 01
		2nd	Revision of chapter 01
		4th	Revision of chapter 02
		1st	Revision of chapter 02
5TH	2nd	Revision of chapter 03	
	1st	<b>ClassTest -2</b>	
APRIL	2nd	1st	Revision of chapter 04
		2nd	Revision of chapter 04
		4TH	Revision of chapter 05
		5TH	Revision of chapter 05
	3rd	1st	Previous year Question Discussion
		4TH	Previous year Question Discussion
		5TH	Previous year Question Discussion