Academic Lesson Plan for ADVANCE MANUFACTURING PROCESSES (Summer-2026)

Discipline: Mechanical Engineering	**Semester: 6TH**	**Name of Faculty: Sabitarani Sahoo**
Subject: Advance Manufacturing Process	**No. of days/per week Class Allotted: 4**	**Semester from: 22/12/2025** **No. of weeks:17**
Week	**Class Day**	**Theory Topics**
1st	1st	**1.0 ModernMachiningProcesses:**
	2nd	Introduction– comparison with traditional machining.
	3rd	UltrasonicMachining:principle,Descriptionof equipment, applications.
2nd	1st	Electric Discharge Machining: Principle, Descriptionofequipment,Dielectricfluid,tools (electrodes)
	2nd	Process parameters, Output characteristics, applications.
	3rd	Wire cut EDM: Principle, Description of equipment, controlling parameters; applications.
	4th	Abrasive Jet Machining: principle, description of equipment, Material removal rate, application.
3rd	1st	Laser Beam Machining: principle
	2nd	Material removal rate, application.
	3rd	Electro Chemical Machining: principle
4th	1st	description of equipment, Material removal rate, application.
	2nd	lasma Arc Machining – principle
5th	1st	description of equipment, Material removal rate,
	2nd	Process parameters, performance characterization, Applications.
6th	1st	Electron Beam Machining - principle, description of equipment, Material removal rate,
	2nd	Process parameters, performance characterization, Applications.
	3rd	2.0 Plastic Processing Processing of plastics.
7th	1st	Moulding processes: Injection moulding, Compression moulding, Transfer moulding.
	2nd	Extruding; Casting; Calendering.
	3rd	Fabricationmethods-Sheetforming
	4th	blow moulding, laminating plastics
	1st	Rainforcing and application of plastics

8th	2nd	3.0 Additive Manufacturing Process Introduction, Need for Additive Manufacturing
	3rd	Fundamentals of Additive Manufacturing
9th	1st	AM Process Chain
	2nd	Advantages and Limitations of AM, Commonly used Terms
	3rd	Classification of AM process
	4th	Fundamental Automated Processes
10th	1st	Distinction between AM and CNC, other related technologies.
	2nd	Application –Application in Design, Aerospace Industry,
	3rd	Automotive Industry, Jewelry Industry, Arts and Architecture.
11th	1st	RP Medical and Bioengineering Applications.
	2nd	Web Based Rapid Prototyping Systems.
	3rd	4.0 Special purpose machines Concept of Flexible manufacturing process
12th	1st	Concurrent engineering, production tools like capstan and turret lathes
	2nd	Rapid prototyping processes.
	3rd	Class test-1
13th	1st	Concept, General elements of SPM
	2nd	Productivity improvement by SPM
	3rd	Principles of SPM design.
	1st	Class test-3

14th	2nd	5.0 Maintenance of machine tools Types of maintenance
15th	1st	Repair cycle analysis
	2nd	Repair complexity
16th	1st	Maintenance manual
	2nd	Maintenance records
	3rd	Housekeeping.
17th	1st	Introduction to Total Productive Maintenance (TPM).
	2nd	Revision
	3rd	Revision
	4th	Revision