Discipline MECHANICAL ENGG.	Semester:6th (SUMMER-2025)	Name of the Faculty: Mrs Sabitarani Sahoo Senior Lecturer, Mechanical Engg.
Subject: (TH 4b) ADVANCE MANUFACTURING PROCESSES	No. of days/per week class allotted: (4 P/W)	Semester from Date: 04.02.2025 to Date: 17.05.2025 No. of weeks: 15
Week	**Class Day**	**Theory Topics:**
1st	1st	**Modern Machining Processes:** Introduction – comparison with traditional machining.
	2nd	Ultrasonic Machining: principle
	3rd	Description of equipment, applications
2nd	1st	Electric Discharge Machining: Principle
	2nd	Description of equipment, Dielectric fluid, tools (electrodes), Process parameters, Output characteristics, applications.
	3rd	Wire cut EDM: Principle
	4th	Description of equipment, controlling parameters; applications.
3rd	1st	Abrasive Jet Machining: principle
	2nd	Description of equipment, Material removal rate, application
	3rd	Laser Beam Machining: principle
	4th	Description of equipment, Material removal rate, application
4th	1st	Electro Chemical Machining: principle
	2nd	Description of equipment, Material removal rate, application.
	3rd	Plasma Arc Machining – principle, description of equipment, Material removal rate
5th	1st	Process parameters, performance characterization, Applications.
	2nd	Electron Beam Machining - principle
	3rd	Description of equipment, Material removal rate, Process parameters, performance characterization, Applications.
6th	1st	**Plastic Processing:** Processing of plastics.
	2nd	Moulding processes: Injection moulding
		Moulding processes: Compression moulding, Transfer moulding.
7th	1st	Extruding; Casting
	2nd	Extruding;Calendering.
	3rd	Fabrication methods-Sheet forming, Blow moulding
	4th	Fabrication methods- Laminating plastics (sheets, rods & tubes), Reinforcing.
8th	1st	Applications of Plastics.

8th	2nd	**Class test - 1**
	3rd	**Additive Manufacturing Process:** Introduction, Need for Additive Manufacturing
	4th	Fundamentals of Additive Manufacturing, AM Process Chain
9th	1st	Advantages and Limitations of AM
	2nd	Commonly used Terms in AM
10th	1st	Classification of AM process, Fundamental Automated Processes
	2nd	Distinction between AM and CNC, other related technologies.
	3rd	Application –Application in Design, Aerospace Industry
	4th	Automotive Industry, Jewelry Industry, Arts and Architecture. RP Medical and Bioengineering Applications
11th	1st	Web Based Rapid Prototyping Systems
	2nd	Web Based Rapid Prototyping Systems
12th	1st	Concept of Flexible manufacturing process
	2nd	Concept of concurrent engineering, production tools like capstan and turret lathes
	3rd	Concept of rapid prototyping processes.
	4th	**Special Purpose Machines (SPM):** Concept
13th	1st	General elements of SPM
	2nd	Productivity & Improvement by SPM
	3rd	Principle of SPM design
	4th	**Maintenance of Machine Tools:** Types of maintenance
14th	1st	Repair cycle analysis
	2nd	Repair complexity
	3rd	Maintenance Manual & Record
		House keeping
15th	1st	Introduction to TPM
	2nd	**Class test – 2** & Short questions discussion
	3rd	Previous year Long questions discussion

07.02.25

07/2/25

H.O.D. Mechanical