UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING

LESSON PLAN

Discipline: Mechanical	**Semester: 3RD**	**Name of the Teaching faculty: MONALISHA SWAIN**
Subject: Advanced Manufacturing Processes(Th-2)	**No of Days/ Weekclass alloted: 4**	**Semester from Date: 09. 01 . 2024 To Date: 07.05.2024** **No of weeks: 15**
Week	Class	Topics
1st	1st	Introduction
	2nd	1.0 Modern Machining Processes: 1.1 Introduction – comparison with traditional machining
	3rd	1.2 Ultrasonic Machining: principle, Description of equipment, applications.
	4th	1.2 Ultrasonic Machining: principle, Description of equipment, applications.
2nd	1st	1.3 Electric Discharge Machining: Principle, Description of equipment, Dielectric fluid, tools (electrodes), Process parameters, Output characteristics, applications.
	2nd	1.3 Electric Discharge Machining: Principle, Description of equipment, Dielectric fluid, tools (electrodes), Process parameters, Output characteristics, applications.
	3rd	1.3 Electric Discharge Machining: Principle, Description of equipment, Dielectric fluid, tools (electrodes), Process parameters, Output characteristics, applications.
	4th	1.4 Wire cut EDM: Principle, Description of equipment, controlling parameters; applications.
3rd	1st	1.5 Abrasive Jet Machining: principle, description of equipment, Material removal rate, application.
	2nd	1.5 Abrasive Jet Machining: principle, description of equipment, Material removal rate, application.
	3rd	1.6 Laser Beam Machining: principle, description of equipment, Material removal rate, application
	4th	1.6 Laser Beam Machining: principle, description of equipment, Material removal rate, application
4th	1st	1.7 Electro Chemical Machining: principle, description of equipment, Material removal rate, application.
	2nd	1.7 Electro Chemical Machining: principle, description of equipment, Material removal rate, application.
	3rd	1.8 Plasma Arc Machining – principle, description of equipment, Material removal rate, Process parameters, performance characterization, Applications.
	4th	1.8 Plasma Arc Machining – principle, description of equipment, Material removal rate, Process parameters, performance characterization, Applications
5th	1st	1.9 Electron Beam Machining - principle, description of equipment, Material removal rate, Process parameters, performance characterization, Applications.
	2nd	1.8 Electron Beam Machining - principle, description of equipment, Material removal rate, Process parameters, performance characterization, Applications.

	3rd	2.0 Plastic Processing: 2.1 Processing of plastics..;;. Reinforcing.
	4th	2.1 Processing of plastics.
6th	1st	2.2 Moulding processes: Injection moulding,
	2nd	2.2 Moulding processes: Injection moulding,
	3rd	Compression moulding
	4th	Compression moulding
7th	1st	Transfer moulding
	2nd	Transfer moulding
	3rd	2.3 Extruding
	4th	2.3 Extruding
8th	1st	Casting
	2nd	Calendering
	3rd	2.4 Fabrication methods-Sheet forming,
	4th	Blow moulding,
9th	1st	Laminating plastics (sheets, rods & tubes),
	2nd	2.5 Applications of Plastics.
	3rd	3.0 Additive Manufacturing Process: 3.1 Introduction, Need for Additive Manufacturing
	4th	3.2 Fundamentals of Additive Manufacturing
10th	1st	AM Process Chain
	2nd	3.3 Advantages and Limitations of AM, Commonly used Terms
	3rd	3.4 Classification of AM process, Fundamental Automated Processes,
	4th	Distinction between AM and CNC, other related technologies
11th	1st	3.5 Application –Application in Design, Aerospace Industry,
	2nd	Automotive Industry, Jewelry Industry, Arts and Architecture
	3rd	RP Medical and Bioengineering Applications
	4th	3.6 Web Based Rapid Prototyping Systems.
12th	1st	3.7 Concept of Flexible manufacturing process,
	2nd	concurrent engineering

	3rd	Production tools like capstan and turret lathes, rapid prototyping processes
	4th	
13th	1st	4.0 Special Purpose Machines (SPM): 4.1 Concept, General elements of SPM,
	2nd	Productivity improvement by SPM
	3rd	Principles of SPM design
	4th	5.0 Maintenance of Machine Tools: 5.1 Types of maintenance
14th	1st	5.1 Types of maintenance
	2nd	Repair cycle analysis
	3rd	Repair complexity
	4th	Maintenance manual
15th	1st	Maintenance records, Housekeeping
	2nd	. Introduction to Total Productive Maintenance (TPM).
	3rd	Revision
	4th	Internal -2

Lect.(Mech)