GOVERNMENT POLYTECHNIC, BALASORE

Government of Odisha

ସରକାରୀ ବହୁବୃତି ଅନୁଷ୍ଠାନ, ବାଲେଶ୍ୱର

Academic Lesson Plan for Summer semester-2023-24

Name of the teaching faculty:Mrutunjaya jena **Department:MechanicalEngg.**

Semester: 6th **Subject:Advance manufacturing process**

No.of periods per week:4 **Total Periods:60**

End semester exam:80 **Classtest:20**

TotalMarks:100

WEEK	PERIOD	TOPICS TO BE COVERED
1st	1st	Introduction – comparison with traditional machining.
	2nd	Ultrasonic Machining: principle, Description of equipment, applications.
	3rd	Electric Discharge Machining: Principle, Description of equipment, Dielectric fluid, tools (electrodes),
	4th	Process parameters, Output characteristics, applications
2nd	1st	Wire cut EDM: Principle, Description of equipment
	2nd	Controlling parameters; applications
	3rd	Abrasive Jet Machining: principle
	4th	Description of equipment, Material removal rate, application
3rd	1st	Laser Beam Machining: principle,
	2nd	Description of equipment, Material removal ,application
	3rd	Electro Chemical Machining: principle, description of equipment,
	4th	Material removal rate, application
4th	1st	Plasma Arc Machining – principle,
	2nd	Material removal rate, description of equipment
	3rd	Process parameters, performance characterization, Applications
	4th	Electron Beam Machining - principle
5th	1st	Description of equipment
	2nd	Material removal rate,
	3rd	Process parameters
	4th	performance characterization, Applications
6th	1st	Processing of plastics.
	2nd	Moulding processes
	3rd	Injection moulding
	4th	Compression moulding,

7th	1st	Transfer moulding
	2nd	Extruding
	3rd	Casting
	4th	Calendering
8th	1st	Fabrication methods-Sheet forming
	2nd	Blow moulding,
	3rd	Laminating plastics (sheets, rods & tubes),
	4th	Reinforcing
9th	1st	Applications of Plastics.
	2nd	Introduction, Need for Additive Manufacturing
	3rd	Fundamentals of Additive Manufacturing
	4th	AM Process Chain
10th	1st	Advantages and Limitations of AM ,Commonly used Terms
	2nd	Classification of AM process
	3rd	Fundamental Automated Processes
	4th	Distinction between AM and CNC,
11th	1st	Other related technologies.
	2nd	Application –Application in Design
	3rd	Aerospace Industry, Automotive Industry
	4th	Jewelry Industry,
12th	1st	Arts and Architecture.
	2nd	RP Medical and Bioengineering Applications
	3rd	Web Based Rapid Prototyping Systems
	4th	Concept of Flexible manufacturing process
13th	1st	concurrent engineering,
	2nd	Rapid prototyping processes
	3rd	production tools like capstan and turret lathes,
	4th	General elements of SPM
14th	1st	Productivity improvement by SPM,
	2nd	Principles of SPM design.
	3rd	Types of maintenance
	4th	Repair cycle analysis
15th	1st	Repair complexity

	2nd	Maintenance manual,
	3rd	Maintenance records, Housekeeping.
	4th	Introduction to Total Productive Maintenance (TPM).

Mrutunjaya Jena

MRUTUNJAYA JENA

(Guest faculty in Mechanical Engg.)