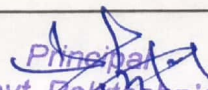


GOVERNMENT POLYTECHNIC, MALKANGIRI
DEPARTMENT OF MECHANICAL ENGINEERING

Discipline:- MECHANICAL ENGG.	Semester:- 6TH	Name of Teaching Faculty:- Sri SAURAV RANJAN PRADHAN, WORKSHOP SUPERINTENDENT	
SUB:- ADVANCE MANUFACTURING PROCESSES	No of Days /per week class allotted:-04	Semester From Date:- 14.02.23 To Date:- 23.05.23 No of Weeks- 15	
PRE-REQUISITE	Basic knowledge about Manufacturing process.		
COURSE OUTCOMES	CO1:- Understand the working principle of modern machining processes. CO2:- Understand the Plastic Processing. CO3:- Understand the additive manufacturing process. CO4:- Understand the Special Purpose Machines. CO5:- Understand the Maintenance of Machine Tools.		
WEEK	CLASS DAY	THEORY/PRACTICAL TOPICS	DELIVERY METHOD
1ST	1st	Introduction – comparison with traditional machining	Whiteboard
	2nd	Ultrasonic Machining:- Principle, Description of equipment	Whiteboard
	3rd	Ultrasonic Machining:- Advantages, Disadvantages & applications	Whiteboard, Lecture notes
	4th	Electric Discharge Machining:-Principle, Description of equipment	Whiteboard
2ND	1st	Electric Discharge Machining:- Dielectric fluid, tools (electrodes)	Whiteboard
	2nd	Electric Discharge Machining:- Process parameters, Output characteristics, applications	PPT
	3rd	Wire cut EDM:- Principle, Description of equipment	Whiteboard
	4th	Wire cut EDM:- Controlling parameters, applications	Whiteboard, Lecture notes
3RD	1st	Abrasive Jet Machining:- Principle, description of equipment	Whiteboard
	2nd	Abrasive Jet Machining:- Material removal rate, application	Whiteboard
	3rd	Abrasive Jet Machining:- Advantages, Dis advantagesapplication	Whiteboard, Lecture notes
	4th	Laser Beam Machining:- principle, description of equipment	Whiteboard
4TH	1st	Laser Beam Machining:- Material removal rate, application	Whiteboard, , Lecture notes
	2nd	Electro Chemical Machining:-principle, description of equipment	PPT
	3rd	Electro Chemical Machining:-Material removal rate, application	Whiteboard, , Lecture notes
	4th	Plasma Arc Machining :- Principle, description of equipment, Material removal rate	Whiteboard
	1st	Plasma Arc Machining :- Process parameters, performance characterization, Applications	Whiteboard, , Lecture notes

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5TH	2nd	Electron Beam Machining :- Principle, description of equipment, Material removal rate	Whiteboard
	3rd	Electron Beam Machining :- Process parameters, performance characterization, Applications	Whiteboard, , Lecture notes
	4th	REVISION CH-1/QUIZ & ASSIGNMENT-1	Whiteboard
6TH	1st	Processing of plastics	Whiteboard
	2nd	Moulding processes: Injection moulding	Whiteboard
	3rd	Moulding processes: Compression moulding	Whiteboard
	4th	Moulding processes: Transfer moulding.	Whiteboard, Lecture notes
7TH	1st	Extruding; Casting; Calendering.	PPT
	2nd	Fabrication methods-Sheet forming	Whiteboard
	3rd	Fabrication methods-Blow moulding	Whiteboard
	4th	Fabrication methods- Laminating plastics (sheets, rods & tubes), Reinforcing	Whiteboard
8TH	1st	Applications of Plastics	Whiteboard, Lecture notes
	2nd	REVISION CH-2/QUIZ & ASSIGNMENT-2	Whiteboard
	3rd	Introduction, Need for Additive Manufacturing	Whiteboard
	4th	Fundamentals of Additive Manufacturing, AM Process Chain	Whiteboard
9TH	1st	Advantages and Limitations of AM, Commonly used Terms	Whiteboard
	2nd	Classification of AM process, Fundamental Automated Processes	Whiteboard, Lecture notes
	3rd	Distinction between AM and CNC, other related technologies	PPT
	4th	Application – Application in Design, Aerospace Industry	Whiteboard
10TH	1st	Application – Automotive Industry, Jewelry Industry	Whiteboard
	2nd	Application – Arts and Architecture.	Whiteboard, Lecture notes
	3rd	RP Medical and Bioengineering Applications	Whiteboard
	4th	Web Based Rapid Prototyping Systems	Whiteboard
11TH	1st	Concept of Flexible manufacturing process	Whiteboard
	2nd	Concurrent engineering	Whiteboard, Lecture notes
	3rd	Production tools like capstan and turret lathes	Whiteboard, Lecture notes
	4th	Rapid prototyping processes	Whiteboard, Lecture notes
12TH	1st	REVISION CH-3/QUIZ & ASSIGNMENT-3	Whiteboard
	2nd	Special Purpose Machines (SPM), Concept	Whiteboard, Lecture notes
	3rd	General elements of SPM	PPT


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	4th	Productivity improvement by SPM	Whiteboard
13TH	1st	Productivity improvement by SPM	Whiteboard, Lecture notes
	2nd	Principles of SPM design	Whiteboard
	3rd	Principles of SPM design	Whiteboard, Lecture notes
	4th	REVISION CH-4/QUIZ & ASSIGNMENT-4	Whiteboard
14TH	1st	Types of maintenance	Whiteboard
	2nd	Repair cycle analysis	Whiteboard
	3rd	Repair complexity	Whiteboard, Lecture notes
	4th	Maintenance manual	PPT
15TH	1st	Maintenance records	Whiteboard
	2nd	Housekeeping	Whiteboard, Lecture notes
	3rd	Introduction to Total Productive Maintenance (TPM)	Whiteboard, Lecture notes
	4th	REVISION CH-5/QUIZ & ASSIGNMENT-5	Whiteboard

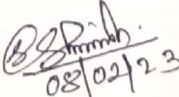
LEARNING RESOURCES-


- 01:- Production technology –Vol-II, O.P.KHANNA
 02:-Workshop Technology, Vol – II,B.S. Raghuwanshi
 03:- Production Technology , HMT, Bangalore
 04:- Rapid prototyping: Principles and Applications, Chua C.K., Leong K.F. and LIM C.S,
 05:- Exploring Advanced Manufacturing Technologies, Stephen F. Krar & Arthur Gil

WEBSITE RESOURCES-

- 01:- www.youtube.com


 Sign. of Faculty concerned


 Sign. of HOD


 Sign. of Academic Co-ordinator


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