



GOVERNMENT POLYTECHNIC, KORAPUT
DEPARTMENT OF MECHANICAL ENGINEERING

Discipline: MECHANICAL ENGG	Semester: 6 TH	Name of the Teaching Faculty: SHARMILA SABAR
Subject: ADVANCE MANUFACTURING PROCESS	No. of days/per week class allotted: 4	Semester From date: 20/4/21 To Date: 03/08/21 No. of Weeks:
COURSE OUTCOMES	CO1: UNDERSTAND THE WORKING PRINCIPLE OF MODERN MACHINING. 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
1 ST	1 ST	COMPARISON WITH TRADITIONAL MACHINING.
	2 ND	COMPARISON WITH TRADITIONAL MACHINING. (CONTD..)
	3 RD	ULTRASONIC MACHINING: PRINCIPLE
	4 TH	ULTRASONIC MACHINING: EQUIPMENT, APPLICATIONS (CONTD...)
2 ND	1 ST	ELECTRIC DISCHARGE MACHINING: PRINCIPLE, EQUIPMENT, DIELECTRIC FLUID.
	2 ND	ELECTRIC DISCHARGE MACHINING: TOOLS (ELECTRODES), PROCESS PARAMETERS, O/P CHARACTERISTICS, APPLICATIONS.
	3 RD	WIRE CUT EDM: PRINCIPLE, DESCRIPTION OF EQUIPMENT.
	4 TH	WIRE CUT EDM: CONTROLLING PARAMETERS, APPLICATIONS.
3 RD	1 ST	ABRASIVE JET MACHINING: PRINCIPLE, EQUIPMENTS.
	2 ND	ABRASIVE JET MACHINING: MATERIAL REMOVAL RATE, APPS.
	3 RD	LASER BEAM MACHINING: PRINCIPLE, EQUIPMENT.
	4 TH	LASER BEAM MACHINING: MATERIAL REMOVAL, APPLICATIONS.
4 TH	1 ST	ELECTRO CHEMICAL MACHINING: PRINCIPLE, EQUIPMENTS.
	2 ND	ELECTRO CHEMICAL MACHINING: MATERIAL REMOVAL, APPS.
	3 RD	PLASMA ARC MACHINING: PRINCIPLE, EQUIPMENTS
	4 TH	PAM: MATERIAL REMOVAL, PROCESS PARAMETERS, PERFORMANCE CHARACTERISTICS, APPLICATIONS. (CONTD...)
5 TH	1 ST	ELECTRO BEAM MACHINING: PRINCIPLE, EQUIPMENTS
	2 ND	EBM: MATERIAL REMOVAL, PROCESS PARAMETERS, PERFORMANCE CHARACTERISTICS, APPLICATIONS. (CONTD...)
	3 RD	REVISION
	4 TH	QUIZ & ASSIGNMENT - I
6 TH	1 ST	PROCESSING OF PLASTICS.
	2 ND	MOULDING PROCESSES: INJECTION, COMPRESSION, & TRANSFER.
	3 RD	EXTRUDING: CASTING, CALENDERING.
	4 TH	FABRICATION METHODS: SHEET FORMING, BLOW MOULDING, LAMINATING PLASTICS (SHEETS, RODS & TUBES), REINFORCING.
7 TH	1 ST	FABRICATION METHODS (CONTD...)
	2 ND	APPLICATION OF PLASTICS.
	3 RD	REVISION
	4 TH	QUIZ & ASSIGNMENT - II

8 TH	1 ST	ADDITIVE MANUFACTURING: INTRODUCTION.
	2 ND	ADDITIVE MANUFACTURING: NEED. (CONTD...)
	3 RD	FUNDAMENTALS OF ADDITIVE MANUFACTURING (AM)
	4 TH	AM PROCESS CHAIN (CONTD...)
9 TH	1 ST	ADVANTAGES & LIMITATIONS OF AM
	2 ND	COMMONLY USED TERMS IN AM (CONTD...)
	3 RD	CLASSIFY AM PROCESSES, FUNDAMENTAL AUTOMATED PROCESS,
	4 TH	AM v/s CNC, OTHER RELATED TECHNOLOGIES (CONTD...)
10 TH	1 ST	APPLICATION IN DESIGN, AEROSPACE INDUSTRY, AUTOMOTIVE INDUSTRY, JEWELRY INDUSTRY, ARTS & ARCHITECTURE.
	2 ND	APPS: RP MEDICAL & BIO-ENGINEERING APPLICATIONS (CONTD...)
	3 RD	WEB-BASED RAPID PROTOTYPING SYSTEMS.
	4 TH	WEB-BASED RAPID PROTOTYPING SYSTEMS. (CONTD...)
11 TH	1 ST	CONCEPT OF FLEXIBLE MANUFACTURING PROCESS, CONCURRENT ENGINEERING.
	2 ND	PRODUCTION TOOLS LIKE: CAPSTAN & TURRET LATHES, RAPID PROTOTYPING PROCESSES. (CONTD...)
	3 RD	QUIZ & ASSIGNMENT - III
	4 TH	CONCEPT OF SPECIAL PURPOSES MACHINES.
12 TH	1 ST	GENERAL ELEMENTS OF SPECIAL PURPOSES MACHINES.
	2 ND	PRODUCTIVITY IMPROVEMENT BY SPM.
	3 RD	PRODUCTIVITY IMPROVEMENT BY SPM. (CONTD...)
	4 TH	PRINCIPLES OF SPM DESIGN.
13 TH	1 ST	PRINCIPLES OF SPM DESIGN. (CONTD...)
	2 ND	QUIZ & ASSIGNMENT - IV
	3 RD	TYPES OF MAINTENANCE.
	4 TH	REPAIR CYCLE ANALYSIS.
14 TH	1 ST	REPAIR CYCLE ANALYSIS. (CONTD...)
	2 ND	REPAIR COMPLEXITY.
	3 RD	MAINTENANCE MANUAL
	4 TH	MAINTENANCE RECORDS.
15 TH	1 ST	HOUSEKEEPING.
	2 ND	INTRODUCTION TO TOTAL PRODUCTIVE MAINTENANCE.
	3 RD	REVISION
	4 TH	QUIZ & ASSIGNMENT - V

LEARNING RESOURCES:

O.P.KHANNA, PRODUCTION TECHNOLOGY –VOL-II, DHANPAT RAI PUBLICATION

B.S. RAGHUWANSHI, WORKSHOP TECHNOLOGY, VOL – II, DHANPAT RAI PUBLICATION

HMT, BANGALORE PRODUCTION TECHNOLOGY, TATA MC-GRAW HILL

Shamila

Sign. Of Faculty
concerned

Sharmila Saba

Sign. Of HOD I/C

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Principal