



28

GOVERNMENT POLYTECHNIC , NABARANGPUR **LESSON PLAN FOR ADVANCED MANUFACTURING PROCESS (Th. 1)**

Discipline: Mechanical Engineering	Semester: 6th	Name of the Teaching Faculty: Sri Raso Bihari Nayak
Subject: ADVANCED MANUFACTURING PROCESS	No. of days per week class allotted: 4	Semester From Date : 04.02.2025 to Date: 17.05.2025 No. of Weeks: 15
Week	Class Day	Theory
1st		1. NON CONVENTIONAL MACHINING PROCESS
	1st	1.1. classification of various non conventional machining processes
	2nd	1.1. differences between conventional and advanced manufacturing processes
	3rd	1.1.1 Electro chemical machining process - construction, working principle (cont.)
	4th	1.1.1 advantages and limitations of ECM (electro chemical machining) area of application
		1. NON CONVENTIONAL MACHINING PROCESS (Cont.)
2nd	1st	1.2 electro discharge machining process - working principle 1.2 advantages and limitations of electro discharge machining , area of applications
	2nd	1.3 PAM (plasma arc machining process) - working principle advantages and disadvantages of PAM , area of application
	3rd	1.4 LBM (laser beam machining) process - working principle advantages and limitations , area of applications
	4th	1.5 AJM (abrasive jet machining) - working principles advantages and limitations , area of application
		1. NON CONVENTIONAL MACHINING (CONT.)
3rd	1st	1.6 EBM (electron beam machining) - working principles advantages and limitation , area of application
	2nd	2. AUTOMATION
	3rd	2.1 INTRODUCTION TO AUTOMATION , Definition
	4th	2.2 various types of automation
		2. AUTOMATION (cont.)
4th	1st	2.3 Need for automation
	2nd	3. NUMERICAL CONTROL - definition
	3rd	3.2 NC system with block diagram
	4th	3.3 various types of NC coordinates : point - to - point , straight cut , and contouring (cont.)
5th	1st	3.3 various types of NC coordinates : point - to - point , straight cut , and contouring (cont.)
	2nd	3.4 NC part programming : G code & M code
	3rd	3.4.1 Reference point (machine zero , work zero , Tool zero & Tool offset)
	4th	3.4.2 simple part program for lathe
		3. NUMERICAL CONTROL (cont.)
6th	1st	3.5 extension of NC with block diagram
	2nd	3.5.1 DNC (Direct numerical control) 3.5.2. CNC (computer numerical control) 3.5.3 adaptive control
	3rd	4. ROBOT TECHNOLOGY
7th	1st	4.1 DEFINING A ROBOT (ISO) fields of applications of robot
	2nd	4.2 explanation on robot anatomy
	3rd	4.3 . robot configuration (Cont.)
	4th	4.3. robot configuration
8th	1st	5. FLEXIBLE MANUFACTURING SYSTEM (FMS)
	2nd	5. 1 Need for Flexible manufacturing system (FMS)
	3rd	5.2 concept of FMS
	4th	5. 3 components of FMS :processing stations
9th	1st	5.3.1 material handling and storage
	2nd	5.3.2 computer control systems
	3rd	6. CAD/CAM and CIM
	4th	6. 1 define CAD ,CAM & CIM (cont.)
10th	1st	6. 2 define CAD,CAM, & CIM
	2nd	6. 3 benefits of CAD software
	3rd	6. 3.1 CAD software and hardware
	4th	6. 3.2 benefits of CAM software

11th	1st	6.4 differentiate between CAD and CAM (cont.)
	2nd	6.4 differentiate between CAD and CAM
	3rd	6.5 CIM (computer integrated manufacturing)
12th	4th	6.5.1 concept and background of CIM
	1st	7.3 software and hardware of CIM (cont.)
	2nd	7.3 software and hardware of CIM
	3rd	PPT class on AUTOMATION (cont.)
	4th	PPT class on AUTOMATION
13th	1st	PPT classes containing animations about CNC And DNC (cont.)
	2nd	PPT classes containing animations about CNC And DNC
	3rd	
	4th	
14th	1st	Smart class on various non conventional machining process - ABM, LBM (cont.)
	2nd	smart class on various non conventional machining process - ABM, LBM
	3rd	smart class on various non conventional machining process - ELECTRO BEAM MACHINING, ELECTRON DISCHARGE MACHINING
	4th	smart class on various non conventional machining process - ELECTRO BEAM MACHINING, ELECTRON DISCHARGE MACHINING
15th	1st	smart class on various non conventional machining process - plasma arc machining process
	2nd	PPT classes illustrating CIM, its applications
	3rd	PPT class on FMS, its area of application
	4th	PPT classes on NC, CNC, DNC

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Sign. Of Faculty Concerned

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Academic Coordinator

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7.2.25
Principal