



Lesson Plan & Work-done Diary for AY:2023-24, ODD Semester

Course with Code: COMPUTER AIDED DESIGN AND MANUFACTURING, 18ME72				Faculty: Dr. Mohanakumara K C			Semester & Section: VII, A	
Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Class No.	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
MODULE-1								
1		Introduction to CIM and Automation: Automation in Production Systems, automated manufacturing systems- types of automation, reasons for automation.	Chalk & Talk					
2		Computer Integrated Manufacturing, computerized elements of a CIM system, CAD/CAM and CIM.	Chalk & Talk					
3		Mathematical models and matrices: production rate, production capacity, utilization and availability, manufacturing lead time, work-in- process, numerical problems.	Chalk & Talk					
4		Problems on Mathematical Models	Chalk & Talk					
5		Problems on Mathematical Models	Chalk & Talk					
6		Automated Production Lines and Assembly Systems: Fundamentals, system configurations, applications, automated flow lines, buffer storage,	Chalk & Talk					



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7		Control of production line, analysis of transfer lines, analysis of flow lines without storage, partial automation.	Chalk & Talk					
8		Analysis of automated flow lines with storage buffer, fundamentals of automated assembly systems,	Chalk & Talk					
9		Numerical Problems on production lines.	Chalk & Talk					
10		Numerical Problems on production lines.	Chalk & Talk					

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MODULE-2								
11		CAD and Computer Graphics Software: The design process, applications of computers in design, software configuration,	Chalk & Talk and PPT					
12		Functions of graphics package, constructing the geometry. Transformations: 2D transformations.	Chalk & Talk					
13		Translation, rotation and scaling, homogeneous transformation matrix, concatenation, Numericals on transformations.	Chalk & Talk					



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14		Numerical problems on transformations.	Chalk & Talk					
15		Computerized Manufacture Planning and Control System: Computer Aided Process Planning, Retrieval and Generative Systems, benefits of CAPP.	Chalk & Talk PPT					
16		Production Planning and Control Systems, typical activities of PPC System, computer integrated production management system.	Chalk & Talk					
17		Material Requirement Planning, inputs to MRP system, Working of MRP, outputs and benefits. Capacity Planning, Computer Aided Quality Control, Shop floor control.	Chalk & Talk PPT					



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MODULE-4								
18		Computer Numerical Control: Introduction, components of CNC, CNC programming, manual part programming, G Codes, M Codes	Chalk & Talk					
19		Programming of simple components in turning, drilling and milling systems, programming with canned cycles. Cutter radius compensations.	Chalk & Talk					
20		Programming of simple components in turning, drilling and milling systems, programming with canned cycles. Cutter radius compensations.	Chalk & Talk					
21		Robot Technology: Robot anatomy, joints and links, common robot configurations,	Chalk & Talk and PPT					
22		Robot control systems, accuracy and repeatability, end effectors, sensors in robotics.	Chalk & Talk and PPT					
23		Robot programming methods: on-line and offline methods. Robot industrial applications: material handling, processing and assembly and inspection.	Chalk & Talk and PPT					



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MODULE-5								
24		Additive Manufacturing Systems: Basic principles of additive manufacturing, slicing CAD models for AM, advantages and limitations of AM technologies.	Chalk & Talk and PPT					
25		Additive manufacturing processes: Photo polymerization, material jetting, binder jetting, material extrusion. Powder bed sintering techniques, sheet lamination, direct energy deposition techniques, applications of AM.	PPT					
26		Future of Automated Factory: Industry 4.0, functions, applications and benefits.	PPT					
27		Components of Industry-4.0, Internet of Things (IOT), IOT applications in manufacturing, Big-Data and Cloud Computing for IOT.	PPT					
28		IOT for smart manufacturing, influence of IOT on predictive maintenance, industrial automation, supply chain optimization & logistics, cyber-physical manufacturing systems.	PPT					



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MODULE-3								
29		Flexible Manufacturing Systems: Fundamentals of Group Technology and Flexible Manufacturing. Systems, types of FMS, FMS components, Material handling and storage system, applications, benefits, computer control systems.	PPT					
30		FMS planning and design issues, Automated Storage and Retrieval Systems, AS/RS and Automatic parts identification systems and data capture.	PPT					
31		Line Balancing: Line balancing algorithms, methods of line balancing, numerical problems on largest candidate rule.	Chalk & Talk					
32		Kilbridge and Wester method, and Ranked Positional Weights method, Mixed Model line balancing, computerized line balancing methods.	Chalk & Talk					
33		Numerical Problems	Chalk & Talk					
34		Numerical Problems	Chalk & Talk					



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	Activity	Planned	Actual	Remarks
1	Theory Classes			
2	Assignments/ Quizzes/ Self-study			
3	Tutorials/ Extra classes			
4	Internal Assessments			
5	ICT based Teaching (% of usage in Curriculum)			
Planning			Execution	
Faculty Signature:			Faculty Signature:	
HoD Signature:			HoD Signature:	