Roll No. | | | | | | | | | | |

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)

B.E. / B.Tech. / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, APRIL/ MAY 2025

DEPARTMENT OF MECHANICAL ENGINEERING

VII Semester

ME5702 COMPUTER INTEGRATED MANUFACTURING

(Regulation 2019)

Time: 3 hrs. Max. Marks: 100

Upon completion of this course, the students will be able to:

CO1 Apply the concept of CIM & Automation in Manufacturing Systems
CO2 Discriminate the problems in Production Planning and Control
CO3 Design Cellular Manufacturing Processes
CO4 Implement FMS in conventional batch production
CO5 Select and apply Robots for industrial applications

BL – Bloom's Taxonomy Levels
(L1 - Remembering, L2 - Understanding, L3 - Applying, L4 - Analyzing, L5 - Evaluating, L6 - Creating)

PART- A (10 x 2 = 20 Marks)

(Answer all Questions)

#	Questions	Marks	CO	BL
1	Compare CAD and CAM.	2	1	L2
2	What do you mean by automation?	2	1	L1
3	Write the importance of capacity planning.	2	2	L1
4	What are the benefits of proper process planning?	2	2	L1
5	What do you mean by batch production?	2	3	L1
6	Define Cellular manufacturing.	2	3	L1
7	What do you mean by flexible manufacturing?	2	4	L1
8	What is (are) the need(s) for AGVs?	2	4	L1
9	Write down the sensors used for force measurement in robots.	2	5	L1
10	What do you mean by repeatability in robotic application?	2	5	L1

PART- B (5 x 13 = 65 Marks)

#	Questions	Marks	CO	BL
11 (a)	Explain the various phases in product design with a neat flow chart.	13	1	L3
	OR			
11 (b)	Compare and contrast lean production and Just-In-Time production.	13	1	L3
12 (a)	Explain the methodology behind the Material Requirement Planning (MRP I) along with its advantages and limitations.	13	2	L3
	OR			
12 (b)	With a suitable case study, explain the Computer Aided Process Planning (CAPP).	13	2	L3

#	Questions	Marks	CO	BL
13 (a)	Discuss in detail: i. Production flow analysis, and ii. OPITZ part coding system.	13	3	L3
	OR			
13 (b)	Explain the following concepts pertaining to cellular manufacturing: i. Rank Order Clustering Method, and ii. Hollier method.	13	3	L3
14 (a)	Explain the types, components, applications, and benefits of Flexible Manufacturing System.	13	4	L3
	OR			
14 (b)	Explain in detail about any two AGVs used in Automobile industry.	13	4	L3
15 (a)	Explain the importance, growth, advantages, and limitations of robots used in surgical application.	13	5	L3
	OR			
15 (b)	Explain the various errors, and their corrective measures to be carried out to improve the accuracy of robots used in pick and place application.	13	5	L3

PART- C (1x 15=15Marks)
(Q.No.16 is compulsory)

#	Questions	Marks	CO	BL
16.	A service based company consists of 'n' numbers of departments and 'm' number of contact nodes in each of the departments. The CEO of that company is planned to integrate all the departments in to a central contact node along with one sub nodes in each department to reduce time delay in the communication and the on-time update of the processes happening in each departments. i. What type of production planning and control approach you will choose?, ii. Create a process methodology to implement the method you choose, iii. Justify you answer based on the CEO's requirement, and iv. Prepare additional remedial measures if your plan is not match with the expectations of CEO so that he/she will be convinced.	15	2	L5