

<b>COURSE CODE</b>	<b>COURSE TITLE</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
<b>1152AE145</b>	<b>COMPUTER INTEGRATED MANUFACTURING</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>

**a. Preamble :**

This course will enable the student to gain knowledge about mass production techniques, management and product identification techniques, floor controlling techniques and also data communication. To use computers in the area of manufacturing to reduce manual processing and linking computers to all the manufacturing machines and increase the productivity, reduce the unnecessary costs. To study about group technology, resource planning, Computer aided quality control and Flexible manufacturing systems.

**b. Course educational objectives :**

Students undergoing this course are expected:

- To understand the role of computer in manufacturing and introduce hardware, software components for soft automation.
- To provide an in-depth understanding of manufacturing control, automated material handling, storage and retrieval systems and to introduce group technology and concurrent engineering, developing skill in automated process plans using variant and generative approaches.

**c. Course outcomes :**

Upon the successful completion of the course, learners will be able to

<b>CO Nos.</b>	<b>Course Outcomes</b>	<b>Level of learning domain (Based on revised Bloom's)</b>
CO1	Introduce automatic techniques in manufacturing and explains production, marketing and business plans	K1
CO2	Implement group technology concepts in production to facilitate cellular and flexible manufacturing and automated process plans using variant and generative approaches.	K2
CO3	Understand shop floor control system and take appropriate strategy to gradually migrate from conventional manufacturing to FMS	K3
CO4	Apply the principles and strategy of CIM using CIMOSA and gains knowledge in network communication to implement them in production.	K3

CO5	Apply manufacturing automations protocol and various database management systems for manufacturing automation.	K3
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(K1 – Remember; K2 – Understand; K3 – Apply)

**d. Correlation of cos with programme outcomes :**

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		H			H	H			H	H	L	L
CO2		H		H	H				H		L	H
CO3		H		H	H				H		H	H
CO4	H	H		H	H				H		H	
CO5	H	H		H	H				H	H	H	H

H- High; M-Medium; L-Low

**e. Course contents :**

**UNIT I- INTRODUCTION**

**L-9**

The meaning and origin of CIM- the changing manufacturing and management scene  
 External communication - islands of automation and software-dedicated and open systems-manufacturing automation protocol - product related activities of a company-marketing engineering - production planning - plant operations - physical distribution-business and financial management.

**UNIT II -GROUP TECHNOLOGY AND COMPUTER AIDED PROCESS**

**PLANNING**

**L-9**

History of group technology- role of G.T. in CAD/CAM integration - part families - classification and coding - DCLASS and MICLASS and OPITZ coding systems-facility design using G.T. - benefits of G.T. - cellular manufacturing. Process planning - role of process planning in CAD/CAM integration - approaches to computer aided process planning - variant approach and generative approaches - CAPP and CMPP process planning systems

**UNIT III -SHOP FLOOR CONTROL AND INTRODUCTION OF FMS**

**L-9**

Shop floor control-phases -factory data collection system -automatic identification methods- Bar code technology-automated data collection system. FMS-components of FMS - types -FMS workstation -material handling and storage systems- FMS layout - computer control systems-application and benefits.

