GUJARAT TECHNOLOGICAL UNIVERSITY

M.E Semester: 2

Mechanical Engineering (Advanced Manufacturing Systems)

Subject Name**: Computer Integrated Manufacturing**

Subject Code: **1725002**

Sr_No	Content
1.	**Introduction:** Objectives of a manufacturing system, Identify business opportunities and problems, Evolving manufacturing environment, new competitive challenges, evolving role of information technology. Classifying production systems, linking manufacturing strategy and systems and analysis of manufacturing operations**.**
2.	**NC and CNC:** Recapitulation of NC, CNC, and DNC, Manual Part programming and Computer assisted part programming. Methods of CAD to CAM integration.
3.	**Flexible manufacturing system:** Definition, description and need of FMS, types of FMS, Flexibilities, their measurement techniques including mathematical techniques, FMC, Group technology applied to FMS, Material handling function, Automated material handling, AGVs, automated storage/Retrieval systems, Interfacing, handling and storage with robotic, end effecter, Remote Centre of Compliance End Effecter, tooling; selection of robots; layout of robotic cell; CMM, ancillary equipment.
4.	**CIM, Networking and Communication:** concepts, functions, Simulation and AI in CIM systems, CIM and beyond. CIM networking, hardware & software, protocols and standards used. Communication modes, communication standards. Data base system, their architecture. Information environment for suppliers, management, testing & inspection design engineering etc., Automated Factory, Factory of future.

Text Books:

1. CAD CAM & CIM by C. Radhakrishnan
2. Grover, M. P. ”Automation, Production System and CIM”, Prentice – Hall of India, 1998.

Reference Books:

1. Yoren Koren, ”Computer Integrated Manufacturing Systems”, McGraw Hill, 1983.
2. Ranky, PaulG.,”Computer Integrated Manufacturing”., Prentice Hall international 1986.
3. P. N. Rao. ‘CAD CAM”. (PHI).
4. Manufacturing Cells and Systems By Luggen (1991) or latest).
5. CIM by Rao, Kundra and Tivari
6. CNC by Krar and Gill,