IME 813 Computer Integrated Manufacturing (3)

Textbook: Computer Integrated manufacturing, by James A. Rehg, Prentice Hall, 1994. ISBN-10: 0130875538, ISBN-13: 978-0130875532 **Reference Books:**

- Advanced manufacturing Technology, David L. Geotsch, Delmar Pub. (1990) ☐ Agile-Based Manufacturing and Control Systems: New Agile Manufacturing Solutions for achieving Peak Performance, by Massimo Paolucci & Roberto Sacile, CRC Press (2004).

- Justification Methods for Computer Integrated Manufacturing Systems, edited by H. R. Parsaei, T. L.Ward, & W. Karwowski, Elsevier (1994)

- Automation, Production Systems and Computer Integrated Manufacturing, by Mikell P. Groover, Prentice Hall, 3rd. Edition (2007).

- Mechatronics: An Integrated Approach by Clarence W. De Silva - CRC Press, 2005 **Objective:**

This module is designed to develop understanding about the synergetic integration of mechanical engineering with electronic and intelligent computer control in the design and manufacture of industrial products and processes.

Course Outcome:

After taking this course the students are expected to have developed a firm knowledge base of applications of robotics in manufacturing industry and the computerized integration of robots with other automated systems.

Course Outline:

Topics	Allocated Periods
General Introduction & Analysis of Manufacturing Systems	45
Manufacturing Information Systems (MIS), Factory Information Systems (FIS) & manufacturing Simulation	
CIM Components	
Product & Process Design for CIM	
Planning & Control in a CIM Environment	
Automation & Intelligent Machines	
Flexible Manufacturing Cells & Systems	

Lab. for CIM

CNC Machining

Optimizing the use of CNC Turning & Milling Machines

CADCAM Software

Computer Aided Designing

Computer Aided Process Planning

G Code Programming

MicroCIM

Experiments on operation & reliability of various CIM System elements

CIM Modeling, IDEF0, IDEF1x

Manufacturing Simulation Software
- ARENA
- FlexSim
- AnyLogic
- PowerSim

Expert Systems
- GURU
- EXSYS

Expert Choice