

## ME 644

# Computer-Integrated Design and Manufacturing

### ***Textbook:***

James A. Rehg, Henry W. Kraebber, "Computer-Integrated Manufacturing",  
Prentice Hall.

### ***Course Objectives:***

This course is designed to introduce the computer integrated design and computer integrated manufacturing. Contemporary issues related to these two topics will be discussed in the course. The course will focus on tools and software for CIM, integration methods and protocols, computer-aided process planning, lean manufacturing and production, agile manufacturing, flexible manufacturing system, just-in-time manufacturing, supply chain management, group technology, rapid prototyping and effective metrics in computer integrated design and manufacturing.

### ***Course Outline:***

- Introduction To CIM and The Manufacturing Enterprise
  - The Manufacturing Enterprise (Chapter 1)
  - Manufacturing Systems (Chapter 2)
  - CIM Models and Concepts
  - Manufacturing Strategy and the Supply Chain
  - Analysis Tools for Manufacturing
- The Design Elements and Production Engineering
  - Product Design and Production Engineering (Chapter 3)
  - Design Automation: CAD and PDM (Chapter 4)
  - Design Automation: Computer-Aided Engineering (Chapter 5)
  - System Optimization and Analysis for Manufacturing
- Managing The Enterprise Resources
  - Introduction to Production/Operations Planning (Chapter 6)
  - Detailed Planning and Production-Scheduling Systems (Chapter 7)
  - Enterprise Resource Planning and Beyond (Chapter 8)
  - The Revolution in Manufacturing (Chapter 9)
- Enabling Processes and Systems for Modern Manufacturing
  - Production Process Machines and Systems (Chapter 10)
  - Production Support Machines and Systems (Chapter 11)
  - Machine and System Control (Chapter 12)
  - Quality and Human Resource Issues in Manufacturing (Chapter 13)

