IMEN 5340
Automation and Cellular Manufacturing
Summer 2009

Instructor: Farzin Heidari
Office: IT Building-105
Phone: 593-4056
Class Meets: MTWRF 12:30 – 2:30
Office Hours: MTWR 3:00 – 5:00

Course Description:

The intent of this to provide educational experience in the study of manufacturing automation, which includes design and solid modeling, robotics, CAD/CAM and role of cellular manufacturing in the production of materials. The overall objective of this course is to give students a solid understanding of the basics of manufacturing automation with an emphasis in operation scheduling and cell design.

Course Objective:

1. Develop a basic understanding of an integrated manufacturing system in order to optimize the overall effectiveness of the production.
2. Understand the fundamental of industrial robotics.
3. Solve problems associated with the operation and integration of CAD, CAM, and Robotics.
4. Identify terms and definitions related to computer aided manufacturing and manufacturing cell.
5. Display a satisfactory level of competence in the process of manufacturing technology and automation.
6. Be familiar with the process of scheduling an automated cell.

Text:

Manufacturing automation handouts
Selected articles and web sites

Student Assignments:

Each student is expected to maintain a class/lab notebook which will include notes assignments and handouts. In the event of absences or tardies the student will be expected to contact a class member for the assignment. IT WILL BE YOUR RESPONSIBILITY TO MAKE UP AND TURN IN ALL COURSE ASSIGNMENTS. Course assignments will become due on the date specified. Late assignment will receive a late grade.

Counseling and Special Assistance:

Instructor will be available prior to and after each class session as time permits and during the posted office hours. Every effort will be made to assist students in the successful completion of the course. However, the responsibility for completion rest with the student. Time organization and study habits should be developed and maintained throughout the course.

Class Attendance:

The course grade will be effected by the student's full time attendance. Tardies are annoying and disruptive and will be kept to a minimum. Each class meeting will begin promptly and each student is expected to exercise courtesy and discretion in the event of unavoidable tardies and absence. The course grade will be effected after two unexcused absents. Three tardies will equal to an unexcused absent. Maximum grade reduction due to tardies and absence would not exceed a letter grade.

Grading and Examinations:

Presentations and papers and class discussions will be graded using the following reference criteria: content organizations, accuracy and neatness. Quizzes will be graded on a percentage basis as follows: 90-100% = A 80-89% = B 70-79% = C 60-69% = D and 59% or below = F. The semester grade will include a composite of papers, presentations, quizzes, class participation and attendance.

Course Outline:

June 8 Introduction.
June 9 Role of computer in manufacturing.
June 10 Implementing computer aided manufacturing.
June 11 Computer aided design.
June 12 Solid modeling.

June 15 CAD/CAM/CNC.
June 16 Introduction to robotics.
June 17 Test.
June 18 Robot sensors and end of arm tooling.
June 19 Robot applications

June 22 Robot vision. . June 29 Group Technology.
July 23 Robot safety. June 30 Presentations.

June 24	Manufacturing cell.	July 1	Presentations.
June 25	Flexible Manufacturing systems.	July 2	Review for final
June 26	Simulation.	July 3	Final Examination.