ISE660 - Geometric Modeling in Manufacturing

Course:
ISE 660 Geometric Modeling in Manufacturing - 3 credit hours, Call number: 03678

Course Description:
This course is advanced graduate level course in manufacturing applications of geometric modeling. Topics covered will include geometric transformations, solid modeling representations, feature recognition and feature modeling, and generative process planning.

Sessions:
TTh 2:30-4:00pm, Stocker 166

Instructor:
Dr. Dusan Sormaz, Room 280, Stocker Center
phone: (740) 593-1548,
e-mail: sormaz@bobcat.ent.ohiou.edu
URL: http://www.ent.ohiou.edu/~sormaz

Office Hours:
TTh 11:30-1:00pm or by appointment

Textbook:
A.A.G. Requicha, Geometric Modeling, Lecture Notes, University of Southern California, 2002.
Collection of research papers from instructor.

Readings (on reserve in the library):
See the list on the last page.

The Course Objective:
The course objective is to enable students to learn modern geometric modeling theories and techniques and gain the knowledge necessary for their application in advanced manufacturing. The course will provide the students with hands-on experience in implementing geometric modeling systems as well as using commercial software.

Requirements:
Readings - Please read the textbooks and papers before the class in which they will be covered.
Homeworks – There will be 4-5 homework assignments in which the students will use paper and pencil or Unigraphics to solve geometric and manufacturing problems.
Programming projects - There will be 5 programming projects. We will use Java and JBuilder to implement concepts taught in the class.
Midterm exam - Exam will be held about the middle of the quarter (week 5/5-5/9).
Final exam - The final exam will be held on 6/12/03 and it will include the whole material covered during the quarter.

**Grading Policy:**
Homeworks 20%
Programming projects 30%
Midterm 20%
Final exam 30%

**Attendance Policy:**
Attendance to all sessions is required. No enforcement policy will be in effect, but students are responsible for all material covered in the class.

**Academic Misconduct:**
No unauthorized collaboration of any kind is permitted during any of the examinations, homework assignments, or quizzes. All suspected cases will be treated according to the University Policy as stated in the Catalog and the Student Handbook.

**Tentative Schedule:**
1. Week (3/31-4/4): Introduction, Java and Java3D (Chapter 1, Java3D Manual)
2. Week (4/7-11): Mathematical foundations (linear algebra, geometry, transformations, set theory) (Appendix)
3. Week (4/14-18): Geometric Modeling (Chapter 2)
5. Week (4/28-5/2): Representations of rigid solids (Requicha, Voelker)
6. Week (5/5-5/9): Feature modeling (Chapter 3 and 4, [Shah 91],[Joshi, Chang]), midterm
7. Week (5/12-16): Features in manufacturing (Chapter 6, [Sormaz, Khoshnevis])
8. Week (5/19-23): Design by features (Chapter 8)
9. Week (5/26-30): Feature recognition (Chapter 9, [Shah,Chang], [Vandenbrande,Requicha])
10. Week (6/2-6/6): Feature-based process planning (Chapter 11, [Mantyla, Nau, Shah], [Srinivasan et al])

**Tuesday 06/12/03 Final exam starts at 12:20pm**
Lecture Notes content:


Books on the reserve in the library: