COURSE NUMBER: ME 5241, 4 credits	**COURSE TITLE:** Computer-Aided Engineering
TERMS OFFERED: Fall, Spring	**PREREQUISITES:** ME 3222 CSci 1113
TEXTBOOKS/REQUIRED MATERIAL: Cook, Robert D., 1995, Finite Element Modeling for Stress Analysis, New York, NY: Wiley	**PREPARED BY:** Professor Chase, Durfee, Kelso **DATE OF PREPARATION:** May, 2007
COURSE LEADER(S): Professors Chase, Mantell	**CLASS/LABORATORY SCHEDULE:** Four 50 minute lectures per week **CONTRIBUTION OF COURSE TO MEETING PROFESSIONAL OBJECTIVES:** 100 % Engineering Topics
CATALOG DESCRIPTION: Apply computer-aided engineering to mechanical design. Engineering design projects and case studies using computer-aided design and finite element analysis software; design optimization and computer graphical presentation of results.	**COURSE TOPICS:** 1. Computer-aided design and Pro/ENGINEER 2. Structured programming 3. Numerical Optimization 4. Graphics programming 5. Applied finite elements using ANSYS

COURSE OBJECTIVES	1. Provide a broad background in computer-based engineering skills that students can apply to a job or to engineering research. 2. Provide an in-depth understanding of the course topics that goes well beyond what would be obtained from a "survey" type class. 3. Provide practical experience in the use of computer-based engineering tools through the completion of challenging, practical projects.

COURSE OUTCOMES	**(Letters shown in brackets are linked to program outcomes a-k)** 1. Familiarity with computer-based engineering tools including Pro/ENGINEER and ANSYS. [k] 2. Students gain sufficient background to immediately implement significant CAD designs, optimizations and graphics interfaces. [a, i, k] 3. Students have a rudimentary background in finite elements that provides an awareness of the strengths and pitfalls of the technique. [a, k] 4. Students gain experience in using computer-based engineering tools through significant projects. [c] 5. Students learn to document their work in project reports. [g]
ASSESSMENT TOOLS:	1. Homework assignments 2. Four projects 3. Final exam

ME 5241

Nature of Changes

1. ***The course is now offered in both Fall and Spring Semesters***
2. ***Under course topics references to C, C++, and OpenGL were removed***
3. ***Under course outcomes #1 references to C++ and Mathematica were removed.***