THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Computer Aided Design and Manufacturing

MECHENG 5680

Credit Hours:
4.00

Course Levels:
Undergraduate (1000-5000 level)
Graduate (5000-8000 level)

Course Components:
Lecture
Lab

Course Description:
Design of machine components, surfaces, and assemblies using parametric and feature-based design principles and advanced design tools.

Prerequisites and Co-requisites:
Prereq: 3670 (561), or Grad standing in Engineering, or permission of instructor.

Course Goals / Objectives:
- Develop a good grasp of the fundamentals of solid modeling and be able to use it model complex parts and assemblies
- Be able to simulate the motion of a model and apply advanced analysis tools
- Understand the basic concepts of geometric dimensioning and tolerancing (GD&T) and be able to apply GD&T to engineering drawings
- Learn the fundamentals of geometric modeling- representation and manipulation of complex curves and surfaces and be able to apply them to real world examples
- Understand what "rapid prototyping" is and what common processes are
- Analyze parts and determine logical manufacturing sequences
- Demonstrate teamwork, presentation skills, and the ability to use computer-based productivity tools in a project setting

Course Topics:
- Introduction to CAD/CAM
- Advanced concepts in modeling, constraints and relations, good dimensioning practices, CAM safety
- Feeds/Speeds, fixturing, machine types
- Assemblies
- NC machining, rapid prototyping
- Tolerancing, introduction to GD&T
- Plastics/Injection Molding
- GD&T form
- Curves, surfaces; surface modeling
- GD&T orientation
- GD&T location
- Advanced topics in machining and GD&T

Designation:
Elective