

MIAMI UNIVERSITY  
SCHOOL OF ENGINEERING AND APPLIED SCIENCE  
DEPARTMENT OF ENGINEERING TECHNOLOGY

ENT 235

COMPUTER AIDED DESIGN

3

Course Number

Title

Credit Hours

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**Description:**

An introduction to feature based, parametric, solid modeling using the Solid Edge© computer software. Solid model part databases are created of mechanical type component parts and used to construct third-angle, orthographic projection type drawings to which dimensions and annotations are added. Various part databases are inserted and constrained to create multipart assemblies and assembly drawings. Exploded assembly views are created as bitmap files and inserted into multi-view assembly drawings. Solid model assemblies of mechanical mechanisms are animated using the Dynamic Designer© computer software. Dynamic force analyses and measurements are produced.

**PERIODS PER WEEK:**            2 Lecture            1 Lab

**PREREQUISITE(S):**    ENT 135, MTH 125 or equivalent

**TEXT:** No Text Book is required for the course. All computer software, Power Point© presentations, and written handouts are provided on CD and on the ENT web site.

**METHOD OF PRESENTATION:**

Class room discussions, individual tutorial sessions, computer laboratory assignments, and final examination

**METHOD OF EVALUATION:**

Computer Laboratory Assignments - 70%

Final Examination                        - 30%

**GENERAL OBJECTIVES:** Upon completion of the course

- 1) The student should be able to demonstrate a working knowledge of the basic principles of solid modeling.
- 2) The student should be able to apply these principles to the creation of mechanical parts, assemblies of parts, and multiple view drawings.
- 3) The student should be able to demonstrate a working knowledge of rigid body animation techniques applied to solid model assemblies using the Dynamic Designer© computer software.

**COMPUTER SOFTWARE:**

Solid Edge®, Dynamic Designer®

**COURSE ASSESSMENT CRITERIA:**

**Outcome 1** “Knowledge of modern engineering computer aided design methods and techniques used in the graphical representation of mechanical components.”

**ASSESSMENT TOOLS:**

Student Evaluations

Lab Assignments and Projects

Tests

Examinations

Employer Surveys

Graduate Surveys

**Topical Outline and Project Assignments:**

Week 1	Introduction and Practice With Part Tutorials	(Project 1)
Week 2	Introduction and Practice With Part Tutorials	(Project 1)
Week 3	2D Sketching and Drawing Techniques	(Project 2)

Week 4	2D Sketching and Drawing Techniques	(Project 2)
Week 5	Sketch/Drawing Constraints and Reference Planes	(Project 3)
Week 6	Sketch/Drawing Constraints and Reference Planes	(Project 3)
Week 7	Modeling Parts With Inclined and Oblique Surfaces	(Project 4)
Week 8	Modeling Parts With Inclined and Oblique Surfaces	(Project 4)
Week 9	Modeling Parts With Curved Surfaces	(Project 5)
Week 10	Modeling Parts With Curved Surfaces	(Project 5)
Week 11	Practice With Assembly Tutorials	(Project 6)
Week 12	Practice With Assembly Tutorials	(Project 6)
Week 13	Creation of Multiple View Detail Drawings of Parts and Assemblies	(Project 7)
Week 14	Creation of Multiple View Detail Drawings of Parts and Assemblies	(Project 7)
Week 15	Use of Dynamic Designer To Animate Assembly Model of A Mechanical Mechanism And Measure Associated Dynamic Forces. This Is The Design Project	(Project 8)
Week 16	Final Exam – Creation of a Mechanical Part and Multiple-View Drawing of the Part.	

**MIAMI UNIVERSITY LEARNING COMMUNITY:**

Miami University is committed to fostering a supportive learning environment for all students irrespective of individual differences in gender, race, national origin, religion, handicapping conditions, sexual preferences, or age. Students should expect, and help create, a learning environment free from all prejudice. Disparaging comments, sexist or racist humor, or questioning the academic commitment of students based upon these individual differences are behaviors that undermine our learning community. If such behaviors occur in class, please seek the assistance of your instructor or department chair.

Students with disabilities are encouraged to register with the Disability Service Office in order that academic accommodations may be made.

There are a total of eight (8) course projects. These projects should be submitted for grade on CD or as electronic attachment files to the instructor. If this is not possible please submit paper copies of the projects printed on 8 ½ x 11 inch paper. The final examination will be posted on the ENT file server. Failure to submit the above items on time will result in an incomplete grade being issued for the course.

**Prepared by:** Professor Ron Earley, May 17, 2008