

**ME 121: Solids Modeling
Fall and Spring Semesters**

Type (check one):	Required: <input checked="" type="checkbox"/> _____ Elective: _____
2005-2006 Catalog Data:	Emphasis on visual aspects of engineering communications, expression of ideas, developing spatial concepts as related to design. Design is taught using 3-D modeling and parametric design. CAD applications. <i>One semester; three credits</i>
Prerequisites:	None
Co-Requisites:	None
Textbook:	Roger Toogood, <i>Pro/ENGINEER WILDFIRE 2.0, Tutorial and Multimedia CD</i> , 2004.
Other Required Materials:	None
Other References:	G.R. Bertoline, E.N. Wiebe, C.L. Miller, and J.L. Mohler, <i>Technical Graphics Communication</i> , 2nd edition, McGraw-Hill, 1997.
Instructor:	Dr. Bernard Beard, Chairman and Professor of Mechanical Engineering Dr. Paul Shiue, Professor of Mechanical Engineering
Course Objectives:	<ol style="list-style-type: none">1. Familiarize student with basic engineering drafting techniques2. Introduce concepts of parametric design3. Develop familiarity with parametric design software4. Develop students' ability to think and to design in three dimensions5. Prepare students to communicate with professional draftsmen
Prerequisites by Topics:	<ol style="list-style-type: none">1. Geometry
Topics:	<ol style="list-style-type: none">1. Introduction to Pro/ENGINEER CAD software2. Features, parts, and assemblies3. Sketching sections in 2D4. Extrusions, sweeps, and blends5. Patterned features6. Family tables7. Exploring dependencies; rerouting8. Producing dimensioned drawings9. Auxiliary views10. Introduction to Pro/MECHANICA modules
Class Schedule:	Two 75-minute sessions per week

Prepared by: Dr. Paul Shiue

Date: 21-Aug-05

**Professional Component:
ME 121 – Solids Modeling**

Category (check one)	<input type="checkbox"/> Math/Basic Science <input checked="" type="checkbox"/> Engineering <input type="checkbox"/> General Education <input type="checkbox"/> Other
Design (check one)	<input checked="" type="checkbox"/> Significant <input type="checkbox"/> Some <input type="checkbox"/> None
Realistic Constraints (check all that apply)	<input type="checkbox"/> Economic <input type="checkbox"/> Environmental <input type="checkbox"/> Sustainability <input checked="" type="checkbox"/> Manufacturability <input type="checkbox"/> Ethical <input type="checkbox"/> Health & Safety <input type="checkbox"/> Social <input type="checkbox"/> Political

Relationship to Program Outcomes:

Check all that apply:

- (a) an ability to apply knowledge of mathematics, science, and engineering
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data
- (c) an ability to design a system, component, or process to meet desired needs
- (d) an ability to function on multi-disciplinary teams
- (e) an ability to identify, formulate, and solve engineering problems
- (f) an understanding of professional and ethical responsibility
- (g) an ability to communicate effectively
- (h) the broad education necessary to understand the impact of engineering solutions in a global and societal context
- (i) a recognition of the need for and an ability to engage in life-long learning
- (j) a knowledge of contemporary issues
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice