ME 121: Solids Modeling
Fall and Spring Semesters

Type (check one): Required:  
Elective:  

2015-2016 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.  
One semester; three credit

Prerequisites:  
None

Co-Requisites:  
None

Textbook:  
Roger Toogood, Creo Parametric 3.0 Tutorial, 2015.

Other Required Materials:  
None

Other References:  
Visualization, modeling, and graphics for Engineering Design, Dennis K. Lieu, Sheryl Sorby, 2007 DELMAR Cengage Learning

Instructor:  
Dr. James Aflaki

Course Objectives:  
1. Familiarize student with basic engineering drafting techniques  
2. Introduce concepts of parametric design  
3. Develop familiarity with parametric design software  
4. Develop students' ability to think and to design in three dimensions  
5. Prepare students to communicate with professional draftsmen

Prerequisites by Topics:  
1. Geometry

Topics:  
1. Introduction to CREO software  
2. Sketching sections in 2D  
3. Creating simple objects  
4. Revolved protrusions, mirrored copies  
5. Exploring dependencies; rerouting  
6. Datum planes and sketcher tools  
7. Patterns and copies  
8. Engineering drawings  
9. Assembly fundamentals and operations  
10. Sweeps and blends

Class Schedule:  
Two 75-minute sessions per week

Prepared by:  
Dr. James Aflaki  
Date:  
August, 2015
### Professional Component:
**ME 121 – Solids Modeling**

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<tr>
<th>Category (check one)</th>
<th>Math/Basic Science</th>
<th>Engineering</th>
<th>General Education</th>
<th>Other</th>
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<th>Design (check one)</th>
<th>Significant</th>
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<th>Realistic Constraints (check all that apply)</th>
<th>Economic</th>
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### 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