### Aero 205: Introduction to Aerospace Engineering Systems

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<tr>
<th><strong>COURSE #:</strong> 205</th>
<th><strong>COURSE TITLE:</strong> Intr Aero Eng Sys</th>
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<tr>
<td><strong>TERMS OFFERED:</strong> Fall and Winter</td>
<td><strong>PREREQUISITES:</strong> Phys 140, 141, Math 116, Engr 100, Engr 101 or equivalents</td>
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<td><strong>INSTRUCTOR (S):</strong> Washabaugh</td>
<td><strong>SCIENCE/DESIGN:</strong> 1/2</td>
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<td><strong>CATALOG DESCRIPTION:</strong></td>
<td><strong>COURSE TOPICS:</strong></td>
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| A Systems Engineering Experience: Introduces engineering processes by means of design, build, test and operation of flight vehicles. Exposure to technologies including: computer aided design, manufacturing, simulation, composites, mechanisms, instrumentation, and basic electronics. Embedded software development for data acquisition and processing, control, and communications. Individual and team projects. | 1. Introduction to design  
2. Solid Modeling  
3. Computer aided simulation  
4. Computer aided fabrication  
5. Microcontrollers and embedded programming  
6. Signals and Sensors |

#### COURSE OBJECTIVES*

Students will be:

1. Introduced to the design of a system and a component  
2. Introduced to a commercial solid-modeling program  
3. Simulate the load-displacement or thermal characteristics of a solids, and an internal flow.  
4. Fabricate components and systems using software and computer aided machine tools  
5. Introduced to microcontroller and programming  
6. Introduced to typical sensors and their signals.  
7. Test their components and system

#### COURSE OUTCOMES*

Students will demonstrate:

1. Competence in designing components and systems (Assessed by 1, 2, 3, 4)  
2. Competence with a computer solid modeling tool (Assessed by 1, 2)  
3. Competence with a computer simulation tool (Assessed by 1, 2)  
4. Competence with a computer fabrication tool (Assessed by 1, 2)  
5. Competence with a microcontroller and its programming (Assessed by 1, 2, 4)  
6. Understanding a microcontroller and its programming (Assessed by 1, 2, 4)  
7. Understanding sensors and their signals (Assessed by 1, 2, 4)

#### ASSESSMENT TOOLS

1. Lab Tutorial  
2. Lab questions  
3. Oral Report  
4. Exam

Notes: