Design of Atmospheric Flight Vehicles II

AEROENG 4516

Course Description:
Continuation of 4515. Preliminary and detailed design of aerospace vehicle components: design of a vehicle for atmospheric flight.

Course Goals / Objectives:
Provide students with preliminary and detailed aircraft design experience
Foster multidisciplinary thought processes and collaborations
Train students in effective teamwork
Refine students' technical communication skills through written reports and presentations
Course Topics:

- Minimum Buckling Load Design
- Low Cycle/High Cycle Fatigue Design
- FEA with Hypermesh and Nastran
- Structural design presentations
- Detailed aerodynamic analysis
- Detailed weights estimation
- Detailed stability, control, and handling
- Detailed propulsion performance
- Detailed performance assessment
- Cost analysis
- Final presentations

Grades Breakdown:

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm presentation</td>
<td>20%</td>
</tr>
<tr>
<td>Final Presentation</td>
<td>20%</td>
</tr>
<tr>
<td>Final Report</td>
<td>40%</td>
</tr>
<tr>
<td>Homework</td>
<td>10%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>10%</td>
</tr>
</tbody>
</table>

Designation:
Required
Instruction Modes:
In Person (75-100% campus; 0-24% online)

Representative Textbooks and Other Course Materials:

<table>
<thead>
<tr>
<th>Title</th>
<th>Author</th>
<th>Year</th>
</tr>
</thead>
</table>