AERO 4720 Aircraft Design II  
(Current)

Catalog Data: AERO 4720: Aircraft Design II (3) LEC. 2, LAB 3. Pr. AERO 4710. Application of the principles of Class I and Class II fixed-wing aircraft design through construction of an actual small-scale glider.


References: None.

Goals: This course is designed to give students the experience of participating as a member of a team on an aircraft project which ranges from basic conception, through design, fabrication, flight testing and retirement. Students hone their communication skills as part of a team during three oral presentations. Students learn how to make full-color slide presentations using low-cost, photographic techniques. Because this is the last aerospace engineering class that many students will take, it is structured to give them two of the most critical tools which will be needed on the job: 1) the ability to work as a productive member of an engineering team, and 2) the ability to communicate engineering results both orally and visually.

Topics/Laboratory Exercises:
1. Aircraft fabrication fundamentals (1 week)
2. Composites fabrication principles  
   a) Composite prepreg material (1 week)  
   b) Vacuum bagging and oven curing (1 week)
3. Practice subscale aircraft fabrication (2 weeks)
4. Radio control aircraft design fundamentals  
   a) Motor specifications and selection (1 week)  
   b) Control actuator specifications and selection (1 week)  
   c) Fuselage material specifications and selection (1 week)
5. Composite tooling design (1 week)
6. Composite fuselage fabrication (1 week)
7. Composite wing fabrication (1 week)
8. Wing skinning and flight control integration (1 week)
9. Aircraft flight testing (3 weeks)
Grading:
- Attendance: 0%
- Notebook: 25%
- Flight Grade: 25%
- Final Exam (Team Presentation): 50%
- Total: 100%

Note: Students will be divided into teams of 3-4 people at the beginning of the semester to complete the design project. Each member of the team is to develop a personal technical notebook recording that individual's weekly contribution to the project. These notebooks will be collected on previously announced dates to be graded. An oral team presentation will be made at the end of the semester during the final examination period with a length of 30-45 minutes. The flight grade is evaluated on the performance of the team aircraft with respect to the flight specifications established by the instructor at the beginning of the semester.

Course letter grades are determined by the following conversion scale:

<table>
<thead>
<tr>
<th>Numerical Grade</th>
<th>Letter Grade</th>
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<tbody>
<tr>
<td>90-100</td>
<td>A</td>
</tr>
<tr>
<td>80-89</td>
<td>B</td>
</tr>
<tr>
<td>70-79</td>
<td>C</td>
</tr>
<tr>
<td>60-69</td>
<td>D</td>
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<tr>
<td>Below 60</td>
<td>F</td>
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</tbody>
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Attendance:
Class attendance is not required. However, students are reminded that lecture material is essential to understand the proper design techniques.

Special Needs:
Any student who requires special accommodations should contact the Director of the Program for Students with Disabilities in 1244 Haley Center (844-2096).