AE8883 Syllabus

Spacecraft Engineering I, 3 Graduate Credits

Lectures: M,W,F 5 – 5:50 pm, Clough UG Learning Commons 423

Labs: W 5 – 5:50 pm, Clough UG Learning Commons 423

Instructor Information

Instructor	Email	Office Hours & Location
Á. Romero-Calvo	alvaro.romerocalvo@gatech.edu	TBD, ESM 203B
Teaching Assistant		
N/A	N/A	N/A

General Information

Description

This course gives the tools and techniques used in modern spacecraft design, fabrication, and testing. The course emphasizes the multi-disciplinary and interactive nature of spacecraft engineering. Students will conduct individual lab assignments based on four distinct learning modules. The course will prepare the student to conduct graduate research and work on space flight projects.

Pre- &/or Co-Requisites

Aerospace Engineering undergraduate degree or equivalent. Intended for first-year graduate students.

Course Goals and Learning Outcomes

Upon completion of this course, the student should be able to:

- Know and demonstrate basic hardware assembly and testing skills
- Know and demonstrate embedded system software development and testing skills
- Know and demonstrate aerospace project management best practices
- Know and demonstrate concepts in flight program mission assurance and testing

Course Requirements & Grading

Assignment	Date	Weight (Percentage, points, etc)
Midterm Exam	Mid-semester	40%
Final Exam	End of semester	60%

Extra Credit Opportunities

Extra credit assignments may be presented to the class on a case-by-case basis in addition to regularly assigned work. Examples of possible extra credit assignments would be to re-work missed problems on the midterm, work optional additional homework problems, write a report on a topic that is relevant to the class, etc. Please contact the instructor if you want to discuss possible opportunities for extra credit.

Description of Graded Components

Midterm exam: An in-person midterm exam will be administered in the middle of the semester to assess the students' understanding of the material covered until that date. The exam encompasses the lecture slides shared by the instructor and the content discussed in class. Students are allowed one cheat sheet per lecture spanning a single face of a letter-size paper with 1 inch margins and 10 pts minimum font size (Times New Roman or equivalent).

Final Exam: An in-person fianl exam will be administered by the end of the semester to assess the students' understanding of the material covered from the midterm. The exam encompasses the lecture slides shared by the instructor and the content discussed in class. Students are allowed one cheat sheet per lecture spanning a single face of a letter-size paper with 1-inch margins and 10 pts minimum font size (Times New Roman or equivalent). The instructor reserves the right to include midterm make-up questions or an equivalent evaluation mechanism in the final exam.

Students are encouraged to keep their own individual electronic journal which will document their participation in the class and completion of lab activities. GoodNotes (iOS), NoteLedge (Android), and Overleaf are recommended journaling apps. The use mixed-media formatting (e.g., text and photos) is allowed in the journal and the exam cheat sheets.

Grading Scale

Letter grades are based on a straight average. Letter grades will be assigned according to the following scale:

A	90-100%
B	80-89%
C	70-79%
D	60-69%
F	0-59%

Full credit is awarded for solutions that demonstrate a solid understanding of the problem and mastery in the execution of the solution. Partial credit is given for solutions that, while incorrect, demonstrate partial knowledge. Final grades will not be curved.

Course Materials

Course Text

Class notes and provided materials. Students may need to research some topics online.

Course Website and Other Classroom Management Tools

Course materials will be posted online to Canvas (https://canvas.gatech.edu/). Important communications to the class will be sent through the Canvas system; please be alert to these messages. Students will be held responsible for any message or announcement that has been posted to the class for more than 24 hours.

Course Expectations & Guidelines

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review the Student Code of Conduct and the Academic Honor Code, especially Appendix A: Graduate Addendum to the Academic Honor Code.

Students are required to report any suspected violation of the Honor Code to the Instructor whether or not they were directly involved in the incident.

Any student suspected of cheating or plagiarizing on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Use of Generative Artificial Intelligence (AI) Tools

As grad students, you are expected to develop independent, creative, and critical thinking. Reading the scientific literature and synthesizing its content is part of that training. In this context, you are welcome to use generative AI programs to help generate ideas and brainstorm. You are also welcome to use AI tools when explicitly allowed in the course assignments. You should be aware that the material generated by these programs may be inaccurate, incomplete, biased, or otherwise problematic. In addition, using these tools may stifle your independent thinking and creativity.

Generative AI derives its output from previously created texts from other sources that the models were trained on. Still, most of these tools don't cite sources. Per GaTech's Honor Code, you may not submit any work generated by an AI program as your own. The only exception is grammar/spell/style correctors.

Collaboration & Group Work

Discussions with other students about homework methods are allowed and encouraged; however, all work turned in must be the student's own original work.

Midterm and/or final exams must be completed individually.

The use of outside references (e.g., textbooks) is expected and encouraged as long as they are appropriately cited.

Use of homework solutions from prior semesters is not allowed and will be treated as a violation of the honor code.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Attendance and/or Participation

Classroom attendance is required. Up to two lectures may be missed without justification. Active participation is essential for understanding major concepts and contributing to the learning of others. Attendance will also be considered by the instructor when assigning final grades near a letter-grade boundary. Any material covered in class is susceptible to being evaluated.

Absences related to personal illness or emergency, or career development (e.g., presenting a paper at a conference or scheduled job interview) are considered excused if approved by the **Dean of Students**. Please contact the instructor as soon as you know of a schedule conflict. Please see the Institute Absence Policy - https://catalog.gatech.edu/rules/4/ for more information.

Extensions, Late Assignments, & Re-Scheduled/Missed Exams

Assignments are due at the designated time using online submission on Canvas. Any assignment turned in after collection is late. Late homework assignments may be turned in during the advertised grace period (24 hours) for half credit. Any homework turned in after this is not counted. The grace period doesn't apply to quizzes, midterms, or presentations.

Excused absences (see above) may be a justification to receive an extension on an assignment. Please get in touch with the instructor as soon as you know of a schedule conflict, and before it occurs.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgment, and responsibility between faculty members and the student body. The Student-Faculty Expectations articulates some basic expectations that you can have of me and that I have of you. Additional information for research-related work is given in The Expectations of Advisors and Advisees. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to Georgia Tech's ideals in this class.

Student Use of Mobile Devices in the Classroom

Mobile Devices (laptop computers and tablets) may be used in class to enhance your learning experience, provided they are used in support of the class and are not a distraction to you or your classmates. Viewing materials unrelated to the class and doing homework in class is not allowed. Cell phones should be set to silent mode and stowed during class. If you must answer a phone call during class, please step outside to avoid disturbing the class.

Course Schedule

The course schedule will be posted on Canvas in the first week of the semester. Changes to the outline will be discussed in class, and updated versions will be uploaded as necessary.