AE 1601 – Introduction to Aerospace Engineering
Fall 2026

CATALOG DESCRIPTION: Overview of aerospace engineering. Common terminology, introduction to use of engineering models, professional and ethical standards and experience with team-based design of aerospace systems.

COURSE OBJECTIVES:

Students will gain an exposure level understanding of :

- Aerospace historical perspectives
- Global Issues
- Ethics
- Technical Communications

Students will gain a basic level understanding of :

- Professional skills including identifying gaps in knowledge, strategies for finding appropriate and credible information sources
- Generating an engineering model and translating it into a mathematical equation
- Applying an engineering model to describe or predict an aspect of atmospheric flight
- Team skills
- Conceive, Design, Build, Test, Evaluate, and Analyze (CDBTEA) an Aerospace Device. Document results.

INSTRUCTOR

Mayuresh Patil
Weber 211C
Email: mpatil@gatech.edu
Office Hours: TBD (Weber 211C)

GRADUATE TEACHING ASSISTANT:

TBD
Office Hours: TBD (Lowey Library)

The best way to reach TA is via e-mail. TA should be the first point of contact for questions about grading and are also a valuable resource for help on assignments. Please be respectful and professional in all communications with all TAs. Allow 1 business day for a response.

COURSE GOALS

The purpose of this course is to provide a big picture understanding of the field of Aerospace Engineering. This includes exposure to various aerospace vehicles, their operational environment, and design constraints and considerations. It also includes exposure to the different technical disciplines within Aerospace Engineering along with the engineering design process. Finally, the course provides some exposure to the curriculum you will experience in GTAE and some exposure to the industry you are joining.

It is my hope that this course will help you better understand your major and the industry you are joining, and help you get excited about and prepared for your future!

COURSE TEXTBOOK AND WEBSITE

There is no assigned textbook for this course. Course materials will be provided to students throughout the semester. A good optional reference is:
Anderson, Introduction to Flight, McGraw Hill.

Canvas will be used as the course website.

COURSE COMMUNICATION

Canvas will be the primary means of communication for this course. Many announcements will be released summarizing plans, to-do lists of what you are responsible for, and relevant due dates. Any other items that need to be communicated will be relayed via Canvas announcement. Please make sure you are set up in Canvas to receive announcements to your e-mail inbox so you do not miss them.
You are responsible for regularly checking Canvas and for being aware of the content of the announcements.

COURSE STRUCTURE

This is an in-person class with a significant amount of group work and hands-on classroom experiences. Thus, it is expected that you will attend class in-person regularly unless you have an illness, emergency, or other excused absence. If you must miss class, please notify the instructor as soon as possible so that we can properly accommodate your situation.

The course will include the following types of activities:

- **Lectures**: Over the course of the semester, there will be lectures on a variety of aerospace topics. These will be delivered in the regular classroom.
- **"In-class" Activities**: Alongside the lectures, a series of hands-on activities has been designed to enhance understanding of course material.
- **Hands-on Experiences**: During some class periods, we will do experiments and/or projects using various lab spaces on campus. These will be done during our regularly scheduled class time but may take place in locations other than the classroom.
- **Take-home Activities:** There will be several take-home assignments during the semester. Some of these will be done in teams and have an in-person component while others will be individual. All in-person activities will have a remote alternative for students not taking the course in-person. A schedule will be provided with details about the dates and nature of these activities.
- **Optional Tutorials**: Several optional tutorials will be offered over the course of the semester to aid students with certain aspects of the assignments. These are designed to help you succeed and are highly recommended but not required.

ASSIGNMENTS AND GRADING

This is a project-based course that includes a series of activities. There are no exams and no final for this course. Please note that there will be an assignment due on the final instructional day.

Grades will be determined based on a combination of in-class and take-home activities, with the grade breakdown as follows:

Rocket Activity: 20%
Glider Activity: 20%
In-class and take-home activities: 60%

Grades will be assigned according to the breakdown below. There will be no curve and grades will not be rounded.
A: >90%
B: 80%-90%
C: 70%-80%
D: 60%-70%
F: <60%

ATTENDANCE: Attendance is required in this course and will be tracked as part of your overall grade for the course.

Note that institute approved absences do not count, and reasonable accommodation and exception will be made for illness and emergencies. NOTE: **If you are ill, please do not come to class.** Your health takes priority and your fellow students will thank you for not exposing them. Please e-mail me as soon as possible to arrange to learn what you missed and come up with a plan to get back on track.

Students may need to miss classes due to personal emergencies such as being hospitalized or being in a car accident. The Office of the Vice President and Dean of Students can assist with contacting professors in these situations via the link provided in the previous section. These absences will be considered excused, and the instructor will make reasonable accommodations to help get you back on track.

If you ever find yourself in any situation in which an unexpected personal challenge is preventing you from performing your best in the course, please reach out so we can come up with a plan for you.

COURSE ETHICS

Students are expected to uphold high ethical standards including adherence to the Georgia Institute of Technology Honor Code, Academic Regulations and Student Regulations.

Below are some guidelines to help you understand what constitutes appropriate academic behavior in this course:

- Students are not permitted to review or use materials from previous semesters. This includes the use of old homeworks, exams, or solutions.
- Students are permitted and encouraged to work collaboratively on assignments and seek help from one another, but the work that is turned in must be the student's own work. Copying another student's work is not permitted.
- On group assignments, students are expected to do their fair share of the work. If there is an instance where a student is not contributing to a group project, the team members should notify the instructor as soon as possible.
- Plagiarism of any kind is not permitted.

TIPS FOR SUCCESS

Successful learning requires significant effort from both the instructor and the student. I will do everything in my power to make this course a success and provide you with the resources you need to learn. However, being successful will require you to do your part as well. Here are a few tips to help you be successful in this course.

- **Come to class!** (And also come on time)
- **Engage with the material.** Understanding the concepts in aerospace engineering comes as a result of working through example problems and stretching your understanding. Don't be tempted to shortcut your learning process by looking up solutions online or copying from a friend. If you are stuck, ask for help, but don't be tempted to just copy the answer. Your learning will come through the (sometimes painful) process of working through the connections.
- **Ask for help when you need it.** Office hours are a great time to get help with homework, ask questions about the material covered in class, discuss your own performance in the course, or just to come and chat. These are a resource for you, and I encourage you to use it!
- **Your peers are a resource**. Talking out a problem with a classmate can be a fantastic tool to enhance learning for all parties. Explaining your thought process to someone else is often all it takes to get un-stuck. Plus, your current peers are the start of your professional network.
- **Focus on your problem-solving process.** Rather than focusing on simply learning the equations or memorizing a set of problems, focus on learning an approach to use when faced with a new problem. This skill will serve you well in all your courses and beyond.
- **Make sure you contribute in your group projects.** These are designed to help you learn the material. Plus, your peers are the first of your future professional network. Don't start off with a bad impression!

STUDENTS WITH DISABILITIES

Your experience in this class is important to me. If you have already established accommodations with the Offices of Disability Services, please communicate your approved accommodations to me at your earliest convenience so we can discuss your needs in this course.

If you have not yet established services through Disability Services, but have a temporary health condition or permanent disability that requires accommodations (conditions include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), please contact the Office of Disability Services at https://disabilityservices.gatech.edu.

Disability Services offers resources and coordinates reasonable accommodations for students with disabilities and/or temporary health conditions. Reasonable accommodations are established through an interactive process between you, your instructor(s) and Disability

Services. It is important to the Georgia Tech to create inclusive and accessible learning environments consistent with federal and state law.

WELL BEING: The School of Aerospace Engineering values the complete well-being of all members of its community, which includes professional, physical, spiritual, emotional, and social dimensions. There are numerous resources to support the health and well-being of all members of our community: https://gatech.instructure.com/courses/108574

NON-DISCRIMINATION: As a matter of policy, Georgia Tech is committed to equal opportunity, a culture of inclusion, and an environment free from discrimination and harassment in its educational programs and employment. Georgia Tech prohibits discrimination, including discriminatory harassment, on the basis of race, ethnicity, ancestry, color, religion, sex (including pregnancy), sexual orientation, gender identity, national origin, age, disability, genetics, or veteran status in its programs, activities, employment, and admissions.
https://www.policylibrary.gatech.edu/employment/equal-opportunity-nondiscrimination-and-anti-harassment-policy

RESOURCES FOR STUDENTS

Georgia Tech understands that many students experience stress through a variety of academic, financial and personal experiences. Your well-being and mental health are important to us, and we are here for you. Also, here are some GT resources that you may find helpful.

- Dean of Students Office: 404- 894-2565 https://studentlife.gatech.edu/
- Stamps Health Services: 404-894-1420 https://health.gatech.edu/contact
- Center for Assessment, Referral and Education (CARE): https://care.gatech.edu/
  Students experiencing a crisis that requires immediate attention may speak with a counselor at any time 24 hours a day, 7 days a week. During regular business hours, students may call CARE at 404-894-2575 or walk-in to CARE office in Suite 238 of Smithgall Student Services. After business hours, please call 404-894-2575 and select the option to speak to the after-hours counselor.
- Campus Police (any emergency): 404-894-2500 http://www.police.gatech.edu/
  Students who are experiencing an immediate life-threatening emergency on campus, call the Georgia Tech Campus Police at 404-894-2500. If off campus, please immediately call 911.