AE 4071 Syllabus

Rotorcraft Aeromechanics AE4071, Section RIN, 3 Credits
Summer 2026

Instructor Information

Instructor: J. Prasad
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General Course Information

Description
Basic rotor aerodynamics and dynamics, helicopter performance and trim, introduction to helicopter stability, control and vibration

Course Learning Outcomes
Students will be able to:

- Model rotor as an actuator disk
- Develop simplified rotor inflow models
- Formulate and analyze rigid blade flapping dynamics
- Formulate rotor aerodynamic forces and moments
- Carry out helicopter simplified performance analysis
- Formulate and solve simplified helicopter trim equations
- Analyze rotor damping and controllability
- Understand introductory aspects of helicopter stability and control
- Understand introductory aspects of helicopter vibration

Required Course Materials
Course Notes will be made available on Canvas

Grading Policy:

- Mid-term exam: 30%
- Project: 30%
- Final Exam: 40%

A>90; B>80; C>65; D>50

Assignments:
Mid-Term (Take-home exam): 30%
Project: 30%
Final: 40%

Description of Graded Components
Project will involve the use of a code provided by the instructor for helicopter performance and trim analysis. Mid-term and final exams will be closed book and notes with formula sheet.

Course Policies

Attendance and/or Participation
The course will be run as self-study with on-line videos of lectures. Weekly in-person meetings will be organized to go through problem sets related to the lectures. Attendance of all weekly meetings is required.

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 Georgia Tech's Honor Code and the student Code of Conduct.
Any student suspected of cheating or plagiarism 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.

Core IMPACTS
Not Applicable

Accommodation 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.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. The Student-Faculty Expectations articulate some basic expectations that you can have of me and that I have of you. 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 the ideals of Georgia Tech while in this class.

Pre-&/or Co-Requisites

AE3530 System Dynamics

Collaboration, Group Work, and Use of Generative AI

You are allowed to consult with one another on project. However, you must submit entirely your own work. You are not allowed to use Generative AI. Both mid-term and final exams will be closed book and notes. I will provide equation sheet.

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

Late project submission will be penalized accordingly. Make-up exams are given for illness, approved Institute activities or religious observances.