

GEORGIA INSTITUTE OF TECHNOLOGY
George W. Woodruff School of Mechanical Engineering

ME 6404 Advanced Control System Design and Implementation
Fall 2026

Lecture: M & W, 11:00 – 11:50 AM, Clough UG Learning Commons 272

Lab: F, 3:30-6:15 PM, GTMI Hibay

Lecturers: Professor William Singhose, GTMI 253, Singhose@gatech.edu
Dr. Khalid Sorensen, KhalidS@gatech.edu

TA: Will Barclay, WBarclay6@gatech.edu

Course Objectives

To learn advanced control and implementation techniques such as: optimal control, tracking control, repetitive control, adaptive control, and command generation. To work individually and in groups to realize simulated and actual working versions of advanced control techniques.

Textbook Command Generation for Dynamic Systems
www.lulu.com/shop/warren-seering-and-william-singhose/command-generation-for-dynamic-systems/paperback/product-1pey6mp.html

Computer MATLAB will be used as a supplementary tool

Course Requirements (100%)

1) Introductory Lab	5%
2) Two-week group projects (Labs 2-5)	10% each
3) Quiz #1	15%
4) Final group project	15%
5) Quiz #2	20%
6) Class Participation/Peer Reviews	5%

Group Projects: All names must be on the report and each group member will receive the same grade. You will be randomly assigned to different groups throughout the term.

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. For information on Georgia Tech's Academic Honor Code, please visit <http://www.catalog.gatech.edu/policies/honor-code/> or <http://www.catalog.gatech.edu/rules/18/>.

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.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodations, contact the Office of Disability Services at (404) 894-2563 or <http://disabilityservices.gatech.edu/>, as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodation letter. Please also e-mail faculty as soon as possible in order to set up a time to discuss your learning needs.

Collaboration & Group Work

Some of the course project deliverables are to be submitted as a team. Students are encouraged to seek advice and guidance from people and learning materials outside of the class. Students will be required to submit peer-evaluations as individuals to score the contribution from themselves as well as their team members.

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. See <http://www.catalog.gatech.edu/rules/22/> for an articulation of some basic expectation that you can have of faculty and that faculty have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, we encourage you to remain committed to the ideals of Georgia Tech while in this class.

Campus Resources for Students

Visit this page https://ctl.gatech.edu/sites/default/files/documents/campus_resources_students.pdf for a list of relevant campus resources available to Georgia Tech students.

Covid-Related Guidelines

The most up-to-date information on Covid-19 is on the [TECH Moving Forward](#) website and in the [Academic Restart Frequently Asked Questions](#).

Each of us has a responsibility to ourselves and our fellow Yellow Jackets to be mindful of our shared commitment.

CARE Center, Counseling Center, Stamps Health Services, and the Student Center

These uncertain times can be difficult, and many students may need help in dealing with stress and mental health. The [CARE Center](#) and the [Counseling Center](#), and [Stamps Health Services](#) will offer both in-person and virtual appointments. Face-to-face appointments will require wearing a face covering and social distancing, with exceptions for medical examinations. Student Center services and operations are available on the [Student Center](#) website. For more information on these and other student services, contact the Vice President and Dean of Students or the [Division of Student Life](#).