

Carleton University
Department of Electronics

EGEN 5307 - CONTROL SYSTEMS AND ROBOTICS

3 credit hours

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Prerequisites (if applicable):

- Signal and system analysis in time and frequency domains, Laplace transform,...

Texts and References:

- *Modern Control Systems* by Richard C. Dorf and Robert H. Bishop, 14th edition, Pearson Prentice Hall.
- *Robot Dynamics and Control* by Mark W Spong and Mathukumalli Vidyasagar, 2nd edition, John Wiley & Sons.

Course Description: This course introduces the fundamentals of modeling, automation, and control systems. It lays the foundation for further studies of control system concepts and controller design. Applications: robotic manipulator, inverted pendulum, etc.

Instructional Outcomes:

Upon completion of this course, a student will be able to:

1. Design control systems using time/frequency domain techniques and state space.
2. Analyze dynamic equations and stability of robotic systems.

Major Teaching Methods: lectures, assignments, discussion.

Special Instructional Platform/Materials: (e.g., laptop, etc.)

Grading and Evaluation Procedures:

- Assignments 20%
- Project 20%
- Midterm 20%
- Final 40%

Grading Scale (if applicable)

A	90-100
B	80-89
C	70-79
D	60-69
F	59 and below

Attendance Policy: When you miss a class, it is your duty to obtain the missed information.

Academic Integrity: It is the aim of the faculty of Carleton University to foster a spirit of complete honesty and a high standard of integrity as well as academic excellence. Any attempt by students to present as their own any work that they have not honestly performed is regarded by the faculty and administration as a serious offense and renders the offenders liable to serious consequences, possibly suspension.

Civility in the Classroom: Students are expected to assist in maintaining a classroom environment that is conducive to learning. In order to assure that all students have the opportunity to gain from time spent in class, unless otherwise approved by the instructor, students are prohibited from engaging in any form of distraction. Inappropriate behavior in the classroom shall result, minimally, in a request to leave class.

Examination Policy: The use of communication or recording/playback devices, with the exception of devices explicitly permitted by the course instructor, is prohibited during quizzes and examinations. This includes, but is not limited to, cell phones, PDAs, iPods and MP3 players, tablets, computers, cameras, and headphones or in-ear earphones. All such devices must be turned off and put away in an inaccessible location such as a backpack. Accessing a prohibited device will result in the immediate termination of the quiz or examination and may result in a charge of academic misconduct.

Student Email Policy: The University sends official communications to Carleton email addresses. This address will receive notices about schedules, grade results, billing information, emergency alerts, important deadlines, newsletter, and all other official university information. It is your responsibility to read and manage this email. Make sure you receive any correspondence in regards to this course. Please note the instructor of this course is not responsible for missed email communication directed to your spam folder.

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Academic Accommodation: You may need special arrangements to meet your academic obligations during the term.