Control of Dynamic Systems

EML 4312 Section 11722
Class Periods: MWF 7 (1:55-2:45)
Location: LIT 101
Academic Term: Spring 2026

Instructor:
Prof. John K. Schueller
schuejk@ufl.edu
Office Hours: TBD (unknown as of December 2025)

Teaching Assistant/Peer Mentor/Supervised Teaching Student:
Please contact through the Canvas website (office hours TBD--unknown as of December 2025)

- Zetong Xuan
- Sean Miller

Course Description
Theory, analysis, and design of control systems, including mechanical, electromechanical, hydraulic, pneumatic, thermal, and aerospace components and systems.

Course Pre-Requisites / Co-Requisites
Prerequisites: EGM 3401, EGM 3344, and MAP 2302 with minimum grades of C
Note that this course is a prerequisite for EAS 4400 (required for AE's) and EML 4314C (required for ME's)

Course Objectives
By the end of this course, you should be able to do the following: Write differential equations describing the behavior of engineering systems; Use the Laplace transform to describe the transfer function of engineering systems and determine the time domain response to a wide range of inputs; Use state-variable equations to model engineering systems; Describe the advantages of feedback control; Analyze the performance of control systems; Determine the stability of control systems using Root-Locus and Bode methods; Design feedback control systems; Identify some of the current trends in control engineering.

Materials and Supply Fees
None

Relation to Program Outcomes (ABET) for BSAE and BSME:

Outcome	Coverage*
1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	High
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	Low
3. An ability to communicate effectively with a range of audiences	Low
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	

5. An ability to function effectively on a team whose members together provide leadership, create a collaborative environment, establish goals, plan tasks, and meet objectives	
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	

Required Textbooks and Software

- *Modern Control Systems*
- Richard C. Dorf and Robert H. Bishop
- 2022, 14th edition
- 9780137307258

Note: Textbook required for exams. Computers or other electronic devices will NOT be allowed during exams, so purchase accordingly. Do not buy international versions which do not include traditional (non-metric) units. (For example, problem P10.3 should specify 100,000 feet.)

Recommended Materials

None

Required Computer

Recommended Computer Specifications: https://it.ufl.edu/get-help/student-computer-recommendations/
HWCOE Computer Requirements: https://www.eng.ufl.edu/students/advising/fall-semester-checklist/computer-requirements/
Students will be required to use MATLAB in Homework

Course Schedule

A university of the stature of UF should be sensitive to the needs of the students. Every cohort of students is different. To have a fixed schedule would be foolish. Based upon the instructor's development of this course and teaching it about fifty times to differing cohorts, the coverage and speed of coverage will be determined according to what experience has shown to be best considering the students' characteristics and performance. Current trends change and for me to specify months in advance is also foolish. We will do what I think will best meet the course objectives. Sections of the textbook chapters to read will be assigned accordingly. There will be in-class exams after the 1/3rd and 2/3rd points of the semester. They will be announced at least a week in advance. All exams will be open-book/open-notes exams and cumulative with an emphasis on the material since the last exam.

Important Dates

All class meetings are important.
The final exam is scheduled by the Registrar for 30 April from 3:00-5:00.

Evaluation of Grades

Assignment	**Total Points**	**Percentage of Final Grade**
Homework Sets (approx. 10)	10 each	10%
Exam 1	100	30%
Midterm Exam	100	30%
Final Exam	100	30%

Grading Policy

The following is the minimum course percentage required to get the corresponding grade.

Percent	Grade	Grade Points
93	A	4.00
90	A-	3.67
87	B+	3.33
83	B	3.00
80	B-	2.67
77	C+	2.33
73	C	2.00
70	C-	1.67
67	D+	1.33
63	D	1.00
60	D-	0.67
else	E	0.00

For **any** cheating on any exam, I ask for an undroppable E course grade and usually get it from the UF Student Conduct Committee. For cheating on homework, I ask for a reduction in the course grade and usually get it.

Academic Policies & Resources

To support consistent and accessible communication of university-wide student resources, instructors must include this link to academic policies and campus resources: https://go.ufl.edu/syllabuspolicies. Instructor-specific guidelines for courses must accommodate these policies.

You are adults. You are responsible for everything covered in lectures, in the assigned readings, in the assignments, messages sent to your @ufl.edu email, and any other communications. You must turn in homework at their due dates and times and take the exams at the required times. If there is a problem for serious and justifiable reasons, please communicate with me as soon as possible and we will see if an arrangement can be made.

Although the MAE faculty members who teach this course communicate frequently and have very similar goals and expectations for this course, you are expected to comply with the specific requirements of this instructor and section.

Commitment to a Positive Learning Environment

The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University's core values.

If you feel like your performance in class is being impacted, please contact your instructor or any of the following:

- Your academic advisor or Undergraduate Coordinator
- HWCOE Human Resources, 352-392-0904, student-support-hr@eng.ufl.edu
- Pam Dickrell, Associate Dean of Student Affairs, 352-392-2177, pld@ufl.edu