

# SYLLABUS

## AME 455: Control System Design

Location: AME S324

Times: MoTuWeThFr 1:00 PM to 2:45 PM

### Description of Course

This course is an introduction to control systems, specifically classical control theory in the time and frequency domain designed for junior and senior undergraduate students. Some of the topics which will be covered include: Mathematical modeling of dynamical systems, hardware and software issues; computer simulations; classical control methods including transient response, steady-state errors, bode diagrams, root locus and design of closed loop control systems; introduction to state feedback design and digital control.

### Course Prerequisites

AME 250: Dynamics

AME 301: Engineering Analysis

AME 300: Instrumentation Laboratory (Concurrent enrollment is valid)

### Instructor and Contact Information

Instructor: Harshvardhan Uppaluru

Location: AME N416

E-mail address: [huppaluru@arizona.edu](mailto:huppaluru@arizona.edu)

Office Hours: MoTuWeThFr 11:30 AM to 12:30 PM

Course home page: <https://d2l.arizona.edu/d2l/home/1307100>

### Course Format and Teaching Methods

In-person lecture only

### Course Communications

D2L

### Required Text

Katsuhiko Ogata, *Modern Control Engineering*, Fifth Edition, Pearson

### Assignments and Examinations:

Optional homework assignments will be assigned approximately weekly.

Homework 1: Released on Jun 5, 2023 Due on Jun 11, 2023

Homework 2: Released on Jun 12, 2023 Due on Jun 18, 2023

Homework 3: Released on Jun 20, 2023 Due on Jun 26, 2023

Homework 4: Released on Jun 27, 2023 Due on Jul 3, 2023

There will be two exams:

1. Midterm Exam: Jun 16, 2023 In-person & Times: 1:00 PM to 3:00 PM
2. Take-home Final Exam: Jul 6, 2023 Released on July 6, 2023@8:00AM. Due on July 7, 2023@7:59AM.  
(Suggestion: Upload the final exam the night before due date and review it the next morning)

### Grading Scale and Policies

Midterm Exam: 40%

Final Exam: 60%

Optional Homework (extra credit): 20%

Letter grades will be determined by either the following standard scale

- 90-100: A
- 80-89: B
- 70-79: C
- 60-69: D
- 59-0: F

or by a curve, whichever gives the best grade.

- There are no make-up homework assignments. If you do not turn in your homework by the due date, then you will get a zero for it.
- Make-up exams for a valid excuse must be arranged 1 week before the scheduled exam date. If you can't take the exam for some emergency reason, you still need to notify the instructor prior to the exam. Without prior consent, there are no make-up exams.

#### Incomplete (I) or Withdrawal (W):

Requests for incomplete (I) or withdrawal (W) must be made in accordance with University policies, which are available at <http://catalog.arizona.edu/policy/grades-and-grading-system#incomplete> and <http://catalog.arizona.edu/policy/grades-and-grading-system#Withdrawal> respectively.

#### Dispute of Grade Policy:

If there are any grading issues, please contact me within 24 hours of grades being released.

#### Scheduled Topics/Activities

Week No	Dates	Topics covered & activities
1	Jun 5, 2023 - Jun 9, 2023	Module 1
2	Jun 12, 2023 - Jun 16, 2023	Module 1 Module 2 <b>NOTE: Jun 16, 2023 - No class. In-person Midterm Exam from 1:00 PM to 3:00 PM</b>
3	Jun 19, 2023 - Jun 23, 2023	Module 2 <b>NOTE: Jun 19, 2023 - No class.</b>
4	Jun 26, 2023 - Jun 30, 2023	Module 2 Module 3
5	Jul 3, 2023 - Jul 6, 2023	Module 3 <b>NOTE: Jul 4, 2023 - No class. Jul 6, 2023 - No class. Final Exam will be released at 8:00 AM. Due on Jul 7, 2023 at 7:59 AM</b>

## Classroom Behavior Policy

### Recommended language:

To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.).

## Safety on Campus and in the Classroom

For a list of emergency procedures for all types of incidents, please visit the website of the Critical Incident Response Team (CIRT): <https://cirt.arizona.edu/case-emergency/overview>

Also watch the video available at

[https://arizona.sabacloud.com/Saba/Web\\_spf/NA7P1PRD161/common/learningeventdetail/crtfy000000000003560](https://arizona.sabacloud.com/Saba/Web_spf/NA7P1PRD161/common/learningeventdetail/crtfy000000000003560)

## Additional Resources for Students

UA Academic policies and procedures are available at <http://catalog.arizona.edu/policies>

### Accessibility and Accommodations

<https://drc.arizona.edu/>

At the University of Arizona, we strive to make learning experiences as accessible as possible. If you anticipate or experience barriers based on disability or pregnancy, please contact the Disability Resource Center to establish reasonable accommodations.

Phone: 520-621-3268

### Campus Health

<http://www.health.arizona.edu/>

Campus Health provides quality medical and mental health care services through virtual and in-person care.

Phone: 520-621-9202

### Counseling and Psych Services (CAPS)

<https://health.arizona.edu/counseling-psych-services>

CAPS provides mental health care, including short-term counseling services.

Phone: 520-621-3334

### The Dean of Students Office's Student Assistance Program

<http://deanofstudents.arizona.edu/student-assistance/students/student-assistance>

Student Assistance helps students manage crises, life traumas, and other barriers that impede success. The staff addresses the needs of students who experience issues related to social adjustment, academic challenges, psychological health, physical health, victimization, and relationship issues, through a variety of interventions, referrals, and follow up services.

Email: [DOS-deanofstudents@email.arizona.edu](mailto:DOS-deanofstudents@email.arizona.edu)

Phone: 520-621-7057

### Survivor Advocacy Program

<https://survivoradvocacy.arizona.edu/>

The Survivor Advocacy Program provides confidential support and advocacy services to student survivors of sexual and gender-based violence. The Program can also advise students about relevant non-UA resources available within the local community for support.

Email: [survivoradvocacy@email.arizona.edu](mailto:survivoradvocacy@email.arizona.edu)

Phone: 520-621-5767

## Confidentiality of Student Records

<http://www.registrar.arizona.edu/ferpa>

## University-wide Policies link

Links to the following UA policies are provided here, <http://catalog.arizona.edu/syllabus-policies>:

- Absence and Class Participation Policies
- Threatening Behavior Policy
- Accessibility and Accommodations Policy
- Code of Academic Integrity
- Nondiscrimination and Anti-Harassment Policy
- Subject to Change Statement