

# EC402 - Introduction to Control Systems

## Spring 2025

### Topics:

- Overview of Control Systems
- Mathematical Models of Electrical and Mechanical Systems
- State Variables
- Properties, Stability, and Performance of Feedback Control Systems
- Frequency Response Design Methods (Root Locus, Bode, Nyquist)
- Simulation using Matlab and Simulink
- Digital Control (embedded microprocessors)
- Controller design from experimental data
- Design Issues (PID, State Feedback, Observers, Robust Control)
- Numerous Examples from Many Disciplines and Current Events

**Text:** Interactive zyBook based on Nise, Control Systems Engineering, 8<sup>th</sup> edition  
You MUST purchase and use the specific digital version

zyBook code: **BUENGE402PisanoSpring2025**

### Grading Policy:

Midterm (Closed Book)	25%
Final (Closed Book).	35%
Participation Activities (in book).	10%
Labs (Matlab and Simulink)	15%
Homework	10%
Attendance	5%

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**Announcements / Assignments – Blackboard Learn**  
**Office Hours:** TBD

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## **Academic Misconduct**

BU takes academic integrity very seriously. Academic misconduct is conduct by which a student misrepresents his or her academic accomplishments, or impedes other students' opportunities of being judged fairly for their academic work. Knowingly allowing others to represent your work as their own is as serious an offense as submitting another's work as your own. This includes use of AI tools (ChatGPT, Copilot, Gemini, etc) without making proper reference. More information on BU's Academic Conduct Code, with examples, may be found at <http://www.bu.edu/academics/policies/academic-conduct-code> .

## **Class Material**

All class material (handouts, exams, exam solutions, etc) may not be copied, posted on any website (including Chegg), or otherwise be made available to others.

Lectures may not be recorded (video and/or audio) even for your own personal use.

Failure to meet any of the above constitute plagiarism and will be considered cheating in this class. If you are not sure whether something is permitted by the course policy, ASK ME! (it's much more awkward to explain your actions after the fact to the college disciplinary committee).