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 – Microprocessor Implementations
- Controller design from experimental data
- Design Issues (State Feedback, Observers, Robust Control, Implementation)
- Numerous Examples from Many Disciplines throughout the course


Grading Policy:

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<tr>
<th>Component</th>
<th>Percentage</th>
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<tr>
<td>Midterm</td>
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<td>Final</td>
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<td>Lab</td>
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<td>Homework / Quizzes</td>
<td>10%</td>
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<td>Attendance</td>
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Instructor:
Professor Alan D. Pisano
Telephone: 617-353-6264
Email: apisano@bu.edu
Office: PHO 522

Undergrad Teaching Fellow: Mike Schmidt schmidtm@bu.edu

Announcements / Assignments – Blackboard Learn: http://blackboard.bu.edu/
Office Hours: Tuesday 3-5 PM; Wednesday 1:30-3:30 PM. I’m usually here every day (“open door policy”). Or send email to request day / time.

Labs sessions TBA
Controls Systems Laboratory

Co-located in PHO 309

This laboratory houses 4 ECP model 220 Industrial Plant Emulators for studying the control of practical systems. These systems consist of an electromechanical apparatus including an adjustable mechanical mechanism ("plant") with actuators and sensors. Various types of controllers (e.g. PID, State-Feedback, LQR) can be designed and implemented in either continuous or discrete time formulations using a DSP based real-time controller with a Windows XP graphical interface. Non-ideal conditions that are often present in real-world applications can be studied. Integrated with the systems are MATLAB and SIMULINK design tools, which can be used to design control systems that can then be implemented in the hardware. Analytical models of both the "plant" and the "controller" can be validated with actual hardware responses.
EC402 -- Spring 2014

Name:

Nickname (How do you prefer to be addressed in class?):

Year at BU and Major?

Why did you sign up for this course?

What do you want to learn in this course? Why?