

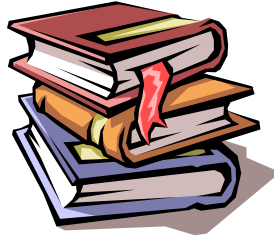
# MEM639 REAL-TIME MICROCOMPUTER CONTROL FALL QUARTER

## Week 01

- Introductions (contact info) and personal background
- Course motivation, class self-introduction and expectations
- Course logistics: Book, Deposit, Computer Account, ID Swipe
- Hardware and Software

# Course Motivation: Why MEM639?

## Student Expectations?



Except from Course Bulletin:

*Prerequisite: MEM 350 or equivalent. Covers discrete-time systems and the z-transform, sampling and data reconstruction, the pulse transfer function, discrete state equations, time-domain analysis, digital simulation, stability, frequency-domain analysis, LabVIEW programming, and data acquisition and processing. (Y, F) 2-2-3*

## Typical Graduate ME background:



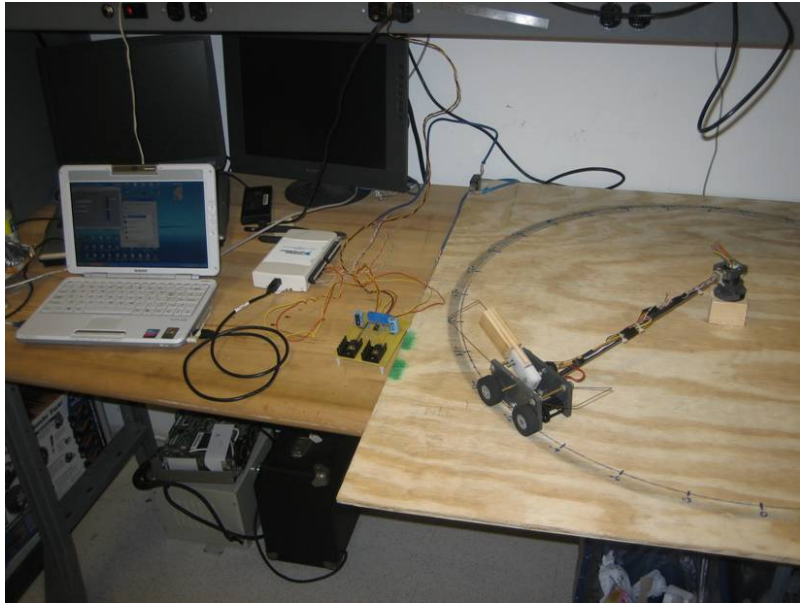
- Mainly theoretical background in dynamics, fluids, thermo and solid mechanics.
- Some experimental, industrial and lab experience
- Little programming and hands-on electronics experience

In the Information age industry and research labs demands mechanical engineers who are skilled in electronics and “real-world” control systems design!

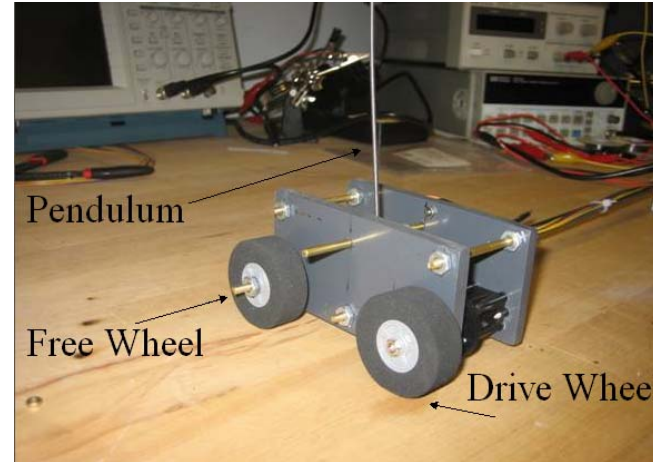
**Multi-disciplined • On-the-fly learning • Entrepreneurship**

# Logistics

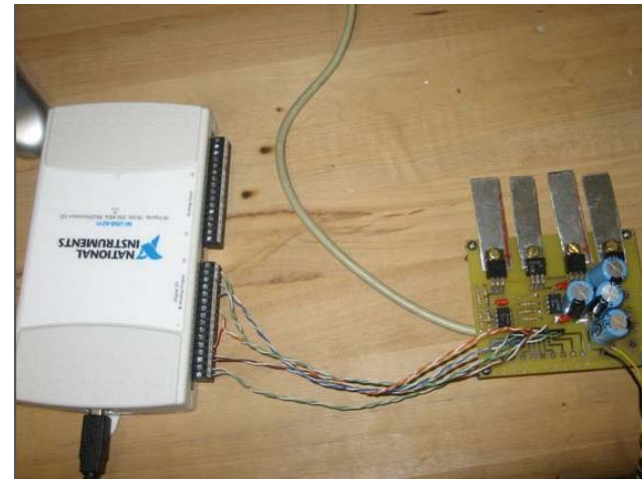
**End Goal:** Closed-Loop Control of DC motor



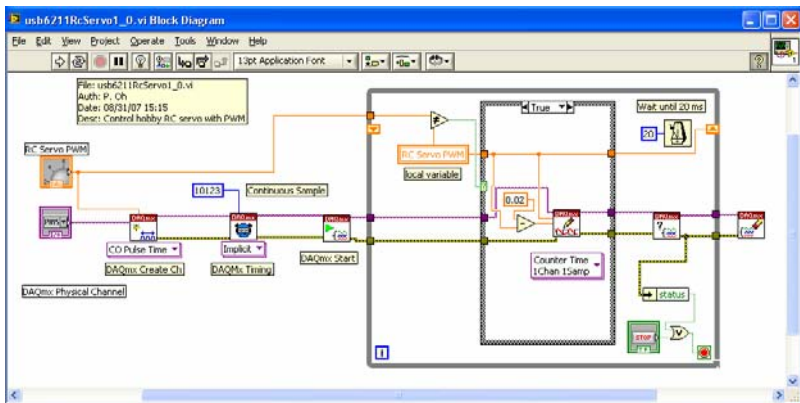
## Digital Control Theory



## Circuit-building



## Coding



**Essentially have 30 classroom hours to do so**

# Pedagogical Style: Facilitator

- Proposed class statement for quarter:



*“Acquire the necessary digital control theory, electronics and programming knowledge to implement on a real-world system”*

- Proposed Grading Scheme:

	Scheme 1	Scheme 2
Midterm	25	15
Final	20	40
Homework	30	20
Project	25	25