ECE/CS 5780/6780: Embedded System Design

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Review for Midterm 2
No lab this week.
Lab 8 writeup, lab 9 prelab, and lab 9 check-off due next week.
Midterm 2 is April 1st.
4 major topics:
- Interrupts.
- Schedulers & semaphores.
- Output compare & input capture.
- Serial communication.
Why use them? Pros/cons? Alternatives?

Interrupt process.

What are the qualities of a good interrupt service routine (ISR)?

Types of interrupt configurations (wired-or/polling, etc.).
Schedulers & semaphores

- **Schedulers.**
  - Types.
  - Statistics (waiting time, turnaround time, etc.).
  - Preemptive vs. Non-preemptive.
  - Blocking support.

- **Semaphores**
  - `wait()`
  - `signal()`
  - Use in mutual exclusion.
  - Deadlock and starvation.
Rituals.
Use in period and frequency measurement.
Pulse width modulation.
Serial communication

- Network communication configurations (half-duplex, full-duplex, ring, etc.).
- SPI vs. SCI.
- Ensuring correct data (parity, collision detection, etc.).