# System Design with Microcontrollers - ECE473

- Class Goal: Equip students to competently design embedded microcontroller systems
- This is a design course. As such you will need to:
  - Use considerable creativity, resourcefulness and persistence
  - Read long datasheets
  - Improvise around problems
  - Extract information from obscure sources
  - Apply material from courses you have already taken
  - Find solutions on your own from incomplete specifications
- I will treat you like *real* engineers. I expect you to perform like *real* engineers.

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- This class is really about *Embedded Design*
- Embedded design covers toothbrushes to entertainment systems
- Our focus will be *bare-metal* systems
- Our code dances gently upon the silicon.
- SW controls HW, HW controls SW
- No big libraries of device drivers

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- You will read prodigiously. This is typical for real design work.
- Labs will not have step-by-step instructions. Think ahead.
- Labs vary in difficulty and are weighted accordingly. Expect from 3 hours on the first lab to 30+ hours on the final lab.
- A complete design consists of: C code, schematic diagrams, and documentation.
- Lab is the place where we gather as a smaller group and get stuff working. You should come to lab with half your lab already done.

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- Work in groups on projects if you wish.
  - Share design approaches, philosophy, coding ideas
  - Don't copy code. You'll get busted.
- Write code with a programming editor. Commit to learning *vim* or *emacs*
- *NO! Try not! Do, or do not. There is no try!* -Yoda