Course Objectives

- Theory: functional/technological characteristics of µP structures, memory components, peripheral support devices, and interface logic (Textbooks reading, homework, quiz, exam)
- Practice: apply µP subsystems and components to common interfacing problems (Labs and textbook examples, assembly programming)
- Platform: Motorola 68HC12 µcontroller and in-house development board will be used

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Relation /w other µP Courses

- 4417C: µP Applications (Assembly language, Instruction set, I/O interface)
- 5764: Computer Architecture (Microarchitecture, instruction-level parallelism, memory wall, thread-level parallelism)
- 6935: Billion Transistor Computer Architecture (Multi-core, low-power, reliability, security)
- 6763: Parallel Computer Architecture (Parallel programming, SMP, MPP, cluster)
- 4713C: Digital Computer Architecture (Pipeline, Memory hierarchy, I/O subsystem)

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HW/SW Preparation

- Hardware:
  - UF 6812 development board kit (will be handed out in lab)
  - Wire-wrap tool (required) and soldering iron (highly recommended for work at home)
    - Radio Shack has wire-wrap/stripper tools
- Software:
  - Quartus (free from Altera)
    - Will be used to program the 7032 CPLD on your 6812 development board

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Course Grade

- Exam #1 15%
- Exam #2 15%
- Exam #3 15%
- Laboratory 45%
- Homework 0%
- Quiz 10% (in class)
- Total 100%

- A grade of 60% or better in lab alone is required
- See course syllabus for re-grading policy

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Grading policy

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<th>Grade</th>
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<td>A</td>
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<td>B+</td>
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Lab Rules

- Attending Labs at the assigned time slots
- Be prepared: Pre-lab work is mandatory; each lab section is (or less than) 3 hrs long
- Be here on time: you may miss lab quiz if you are late
- Be responsible: before leaving, return all equipment and clear work area, no food/drinks
- The Lab projects must be your individual work (cheating and will be dealt with in a severe manner)

Covered Topics

- Introduction and basic processor architecture
- Programming model and addressing modes
- Assembly language programming
- 68HC12 instruction set
- S/W Design and 68HC12 programming

Covered Topics (2)

- Computer buses and parallel I/O
- Interrupts and real-time events
- Memory concepts and interfacing
- Timers
- Serial I/O
- Analog I/O
Any Question on ....

• Course material
• Study tips
• Lab
• Grade
• ... ...

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