Microcontrollers and Their Applications 372 Syllabus

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Course Description: Microcontrollers and Their Applications 372.

References
- Teach yourself C in 24 hours by Tony Zhang. The book can be downloaded from http://aelinik.free.fr/c/

Course Topics and Goals:
- Learn how to program in C programming language by compiling examples programs found in the reference book “Teach yourself C in 24 hours”.
- Learn how to program microcontrollers such as PIC16F877A through the development board called EASYPIC 6.
- At the end of the class, students should be able to apply their skills to program other microcontrollers from the PIC family.

Grading:

Attendance (5%) + Lab Reports (10%) + Challenges (35%) + Midterm (20%) + Final Project (30%)

- Attendance – A big component of this class is laboratory work. It is very important for students to attend the lectures and labs so that they will be able to learn as much as possible through hands-on projects.
- Lab Reports and Experimental Skills – There will be (~) weekly lab reports due. The reports will be send electronically though a Blackboard link. NO LATE LAB REPORTS ASSIGNMENTS WILL BE ACCEPTED.
- Midterm – The exam period is determined by the instructor, and there will be questions from the lecture, and laboratory materials.
- Final Project - Two weeks before the end of the eight-week session, students are required to start working on the final project. If the instructor assigns a project (at the request of the student) then a successful completion of that project will yield a maximum B as grade. For achieving a grade higher then B, the student needs to find its own project.

Equipment: Equipment will be provided for work in the lab. This equipment is to be used exclusively in the lab. NO EQUIPMENT MAY BE TAKEN FROM THE LAB WITHOUT WRITTEN PERMISSION OF THE INSTRUCTOR.

Laboratory Safety: As with any lab safety is an issue. This lab is not subject to many hazards but accidents result whenever people become careless. Common sense and care are mandatory in any laboratory.

Safety Specifics:

Circuits may become very hot! The most common hazard in this lab is from circuits that over-heat when improperly connected. Wiring elements in a circuit invariably involves mistakes. You may fry some components. Components can burn and smoke. LEDs can pop. Components may become hot enough to burn your finger. Be aware of this and look for signs that components may be overheating. Often, the first warning is that you smell it. UNPLUG YOUR POWER SUPPLY if you think a circuit is overheating.
No bare feet in the lab. Occasionally integrated circuits are dropped on the floor, and they nearly always land with the pins pointing up. If you should step on one in bare feet, you will regret it.

Soldering Irons Melt Solder and Skin! Allow adequate space, and use a well-controlled and comfortable work area, with good ventilation. Turn off the iron when done. Be aware that solder and the iron become very hot and burn quickly. Also, be sure to keep the electric cord of the iron away from the hot tip.

No food or beverages in the lab: This is a rule recently imposed by OHSA.

Final Grade Structure:

- **A** (93-100%)
- **A-** (90-92.9%)
- **B+** (86-89.9%)
- **B** (83-85.9%)
- **B-** (80-82.9%)
- **C+** (76-79.9%)
- **C** (73-75.9%)
- **C-** (70-72.9%)
- **D+** (66-69.9%)
- **D** (62-65.9%)
- **D-** (58 – 61.9%)
- **F** (57.9% or lower)