Instructor: Dr. Massood Z. Atashbar, Professor of Electrical and Computer Engineering.
Office: A-247
Phone: 269-267-3148
Email: massood.atashbar@wmich.edu
Home Page: http://homepages.wmich.edu/~zandim
Office Hours: Wednesdays 1:00 PM-3:00 PM, or by appointment
Lecture: Tuesdays and Thursdays 4:30-5:50 PM, Room D0109
Labs: Tuesday 1:30 PM – 4:30 PM, Thursday 9:30 AM-12:20 PM and 6:30 PM -09:20 PM, Room B-115
Lab Instructor: Mr. Chi Jung Cheng, Office Hours: Thursdays 1:30-3:30 PM
Prerequisites: ECE 250, CS106 or CS 111 or CS 306, Recommended: Basic Programming Knowledge.
Required Materials:
- Instructor’s Lecture Notes, posted on the class webpage
- Laboratory Experiments, posted on the class webpage
- MC9S12DP256B Advance Information Rev. 1.1 by Motorola, required, available for loan through your lab instructor
- CPU12 Reference Manual by Motorola, required, available for loan through your lab instructor
Topics to be tentatively covered in this course include:
- Introduction to microprocessors, microcontrollers and basic definitions
- Introduction to the M68HC12 microcontroller hardware, instruction set and addressing modes
- M68HC12 assembly programming
- M68HC12 hardware and software development tools
Advanced assembly programming
C language programming
Interrupts, Resets and Operation Modes
Parallel Ports and External Interrupts
Basic introduction to timers, EEPROM, FLASH memory
Memory system design

Laboratory Work:

The platform in the lab is the Adapt9S12DP512 Board by Technological Arts. Programs will be created, compiled, and downloaded to the board using the ICC12 IDE environment and D-Bug12 V.4.4 debug Monitor that has been preloaded in the flash memory of the 9S12DP256 microcontroller on the Adapt board. We will be using standard scientific/engineering procedure regarding laboratory reports.

This means that you are expected to come to class prepared. Prelab and Lab Assignments will be posted on the Class Web Page. The objective and design sections (the latter contains pseudocode of software, circuit schematic diagrams, timing diagrams, math formulas, etc.) of your lab report should be completed before lab as a draft. The finalized design, data/results and conclusion sections of the Team's Lab Report should be completed either during the lab session, or shortly thereafter. In the conclusion section you will describe major concepts observed/discovered, discuss any anomalies and suggest what caused them.

Prelab Assignments will be checked by the lab instructor at the beginning of each lab. Missing, or insufficient Prelabs will be penalized by losing 3 pts (out of 12 pts) for the lab. Lab reports may be done in pencil but typed reports using a word processor are highly recommended. The penalty will be severe for illegible writing, sloppy schematics and drawings. Lab reports are due during the beginning of the next lab session. Failing so will result in a grade 0. If you don't show up for a lab, you forfeit the points associated with it and cannot later make up the lab. Exceptions will be made only for those individuals who contact their lab instructor before the lab and have excused absence.

Note: you must achieve a passing grade in the lab (total 60% out of 100%) in order to pass the class. Plagiarism and/or the copying/duplication of another student's, or team's designs or written reports will result in zero scores for the lab, or homework, or design project for all individuals involved.

There will be a Lab Final (worth of three regular labs).

Homework:

Homework and/or projects may be accepted up to 2 working days after the due date with being penalized by 30%.

Quiz:

Quizzes will be given during the scheduled class time. Prior notice for the quiz may or may not be given to the students. Quiz will be mainly based on the topics covered during the class.
Evaluation and Grading Policy:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homeworks</td>
<td>10%</td>
<td>will be assigned</td>
</tr>
<tr>
<td>Test #1</td>
<td>15%</td>
<td>Thursday, February 16, 2012, 4:30 – 5:50 pm</td>
</tr>
<tr>
<td>Test #2</td>
<td>15%</td>
<td>Thursday, March 22, 2012, 4:30 – 5:50 pm</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
<td>Will be announced,</td>
</tr>
<tr>
<td>Quiz</td>
<td>5%</td>
<td>will be assigned,</td>
</tr>
<tr>
<td>Laboratories</td>
<td>30%</td>
<td>Labs must be turned in at beginning of the due date.</td>
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All Exams are open book exams. Students can bring textbook, Lecture material, Lab Reports and HCS12 Instruction Manual to the exam.

The break up for the letter grades is as follows:

A: 91-100; BA: 86-90; B: 81-85; CB: 76-80; C: 71-75; DC: 66-70; D: 61-65; E: 0-60.

In borderline cases, the Final Exam may be given a higher weight, up to the instructor's discretion.

Codes, Policies, Processes and Procedures:

The ECE 251 Web Home Page will be used as official communications media for the class.

The WMU College of Engineering and Applied Sciences Honesty Code will apply in this course.

“You are responsible for making yourself aware of and understanding the policies and procedures in the Undergraduate and Graduate Catalogs that pertain to Academic Honesty. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. [The policies can be found at http://catalog.wmich.edu under Academic Policies, Student Rights and Responsibilities.] If there is reason to believe you have been involved in academic dishonesty, you will be referred to the Office of Student Conduct. You will be given the opportunity to review the charge(s). If you believe you are not responsible, you will have the opportunity for a hearing. You should consult with your instructor if you are uncertain about an issue of academic honesty prior to the submission of an assignment or test.” — provided by the Professional Concerns Committee of the WMU Faculty Senate

1 If any student is assigned four exams during the same day, University policy will allow the student to request one exam to be given at the make-up time. If this applies to you, please make your request at least two weeks before the final exam date.