ECE 447 Fall 2009 Lab Syllabus

Day/Time: Monday - 7:20 –10:00pm
Section: 203 (CRN: 71181)
TA: Michael Garcia
Email: mgarci10@gmu.edu
Office hours: Wednesday, 7:20pm – 8:20pm; Sunday, TBD

Day/Time: Tuesday - 7:20 –10:00pm
Section: 201 (CRN: 71177)
TA: Mark Chaney
Email: mchaney
Office hours: Tuesday: 10:00pm – 11:00pm

Day/Time: Wednesday - 7:20 –10:00pm
Section: 204 (CRN: 71183)
TA: Joel Potter
Email: jpotter1@gmu.edu
Office hours: TBD

Day/Time: Thursday - 7:20 –10:00pm
Section: 202 (CRN: 71179)
TA: Aamer Almujahed
Email: aalmujah@gmu.edu
Office hours: TBD

Location: The Engineering Building, room 3208 (for all sections and office hours.)
Access: Students will be required to attain ID-card access for off-hours entry.

Lab Description:
Students learn to implement microcontroller concepts through a series of lab experiments. Each lab experiment requires implementation of major concepts taught in previous class lectures. Some hardware-specific implementation details may also be taught during the labs.

Required Materials:
A lab kit is required for labs and can be purchased from Sue Davies. The kit contains the microcontroller development board and all major components required for the labs. Basic tools may also be necessary for labs that include hardware implementations.

Grading:
Lab Experiments: 40% of points for the entire class
Midterm Exam for the Lab: 10% of points for the entire class
<table>
<thead>
<tr>
<th>Week of</th>
<th>Lab Talk</th>
<th>Lab Assignment</th>
<th>Lab Due</th>
<th>Schedule comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 8/31/2009</td>
<td></td>
<td></td>
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<td>No labs meet</td>
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<tr>
<td>2 9/7/2009</td>
<td>Introduction &amp; IAR IDE</td>
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<td>Mon lab meets Tue-Thu</td>
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<tr>
<td>3 9/14/2009</td>
<td>LED in C &amp; Assembly</td>
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<td>4 9/21/2009</td>
<td>Digital IO related</td>
<td>1. SSD</td>
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<tr>
<td>5 9/28/2009</td>
<td>Prototyping</td>
<td>1 (simulation)</td>
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<tr>
<td>6 10/5/2009</td>
<td>Interrupts</td>
<td>2. Interrupts</td>
<td>1 (hardware)</td>
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<td>7 10/12/2009</td>
<td>Timer</td>
<td>3. Timer</td>
<td>2</td>
<td>Tue lab meets Tue-Thu</td>
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<td>8 10/19/2009</td>
<td>External LCD &amp; CCE IDE</td>
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<td>10 11/2/2009</td>
<td>Lab Midterm Exam</td>
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<td>11 11/9/2009</td>
<td>ADC</td>
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<td>12 11/16/2009</td>
<td>DAC</td>
<td>5. Analog</td>
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<td>13 11/23/2009</td>
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<td>15 12/7/2009</td>
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<td>16 12/14/2009</td>
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**General Laboratory Rules:**

Each lab experiment will be preceded by an introduction and a hands-on session taught by a lab instructor.

Students will be required to demonstrate working experiment during a lab session on a day designated as a due date for a particular lab experiment.

Experiment demonstrations will be accepted exclusively during the class time for a particular lab section.

Lab reports must be submitted using Blackboard by 9:00 PM, on the day following the experiment deadline, e.g., by 9:00 PM on Tuesday for the Monday section.

Lab assignments can be submitted for 50% credit up to one week late. After one week, no credit will be given for the assignment.

The additional opportunities will be provided to earn bonus points by completing additional requirements for each experiment or by completing an experiment a week or more ahead of schedule.

Both penalty and bonus points will apply independently to the demonstrations and to the electronic deliverables.
Office hours will be devoted to helping students with their experiments and answering any questions related to the subject of the course. You are welcome to attend office hours held by all lab instructors and the course instructor.

Students are required to work individually on all experiments, except one or two in which working in groups is explicitly permitted. In case of the group work, both students are expected to be intimately familiar with the entire solution to the given experiment and the entire lab report. This knowledge will be verified during the experiment demonstration and the same grade will be applied to the entire team.

Every completed experiment must be presented to your lab instructor, who will evaluate student’s results and effort. It is the students' responsibility to convince the lab instructor that their designs work as required. Therefore, students have to simulate and test their designs thoroughly and well document their work. The lab instructor is not required to test anything by himself nor to investigate if the designs are correct in case of insufficient documentation.

The students will be required to answer correctly several detailed questions regarding their experiment solution at the time of demonstration. Incorrect answers to these questions may lead to either a total rejection of the demonstration by the TA, or to a substantial reduction of the number of points awarded to the student.

In case of any evident attempt to submit somebody else’s work as your own, both students involved in the incident may be penalized by taking away all points for the given experiment. The two repeated attempts to present somebody else’s work as your own may lead to the F grade for the entire course, independently of the total amount of points earned by the student before the second incident.

The students are encouraged to help and support each other in all problems related to the
- operation of the development environment,
- operation of the microcontroller boards,
- operation of the measurement equipment available in the lab,
- understanding of the problem to be solved during each experiment.