UNIVERSITY OF RHODE ISLAND
Department of Electrical, Computer, and Biomedical Engineering

ELE 205-206 Microprocessor Laboratory Spring 2015

Course Content: Hands-on familiarization with computer and microprocessor software and hardware. Computer architecture and interfacing with input and output devices. Prerequisite: credit or concurrent enrollment in MTH 141 (Introductory Calculus with Analytic Geometry).

Instructor: Bill Ohley
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Classes: Kelley 102 MW 11:00 – 11:50 am
Labs: Kelley 101 Sect 1: M 2 - 4:50 pm
Sect 2: Th 2-4:50 pm

Books: Purchase an Arduino Uno with usb cable; Amazon is ok
Down load the Arduino IDE (its java based so Mac and PC work ok)
We will use on line info from Arduino and Atmel (Manufacturer of processor)

Week	Lab Work	Lectures	Reading
Jan 19	**No Lab; Classes only**	Intro to Arduino; Class Overview	Intro to arduino Programming
Jan 26	**Lab 1- Intro to Arduino (Part 1)**	IDE and Arduino; Basic labs	Atmel spec sheet Command structures
Feb 2	**Lab 1- Intro to Arduino (Part 2)**	Display examples	Display specifics
Feb 9	**Lab 2- LCD display**	Digital I/O; real time processing	Digital I/O characteristics
Feb 16	**Lab 3 –rate meter**	Review Exam #1	Review; Arduino processing
Feb 23	**Lab 3- rate meter**	Rate detection	Heart rate monitors
Mar 2	**Lab 4- Internet Interface**	**Timing and Display**	**Timing functions; internet function**
Mar 9	**Spring Break No Classes**	**Project requirements; Blue Tooth**	**Blue Tooth**
Mar 16	**Spring Break**	**Project Proposal in class; ppt**	**What ever you need for your project**

Mar 24	**Project**	**Matlab interaction with arduino**	**Matlab stuff**
Mar 31	**Project**	**Internet interaction with arduino-WIFI**	**Internet protocols And E-Arduino Shield**
Apr 7	**Project**	**Exam #2**	**Review for exam**
Apr 14	**Project**	**Other development devices and IDEs - Xcode**	**Eclipse and Arduino and Iphone**
Apr 21	**Project Final Demo**	**Final ppt in class with demo**	
Apr 28	**Project Final Demo**		

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Grade Distribution:				
	Lab Reports	30%	A:	90 – 100%
	Lab Project	25%	B:	80 – 89%
	Exam 1	20%	C:	70 – 79%
	Exam 2	20%	D:	60 – 69%
	Attendance	5%	F:	< 60%

Lab Exercise, Exam, & Grading Policies: Participation will count toward your course grade, so come to class and lab! Lab reports are due at the beginning of your next lab meeting. Late reports will not be accepted. Six lab reports will be turned in, but the lowest score will be omitted, so only 5 reports will count toward your course grade. (This doesn't include the Project Report—it can't be dropped.) Your lab report should be about two pages long (excluding printouts), generated using a word processor, and grammatically correct. Graphs and flow charts may be drawn by hand, but remember: we can evaluate your work only if it is legible, so be neat! Each report should include:

- Abstract of 25 words (or less) stating the problem, your solution, and your results
- Methods: a description of your procedure
- Results: observations, and results, diagrams of any special hardware you used
- Discussion: What you thought about the results
- program documentation including a flow chart, appropriately commented source code
- answers to all the questions in the lab handouts

You can complete the labs in groups, but each individual must turn in a lab report. List the names of everyone in the group on your report. Reports will be re-graded if you believe an error was made, but I reserve the right to re-grade the entire report. Exams will be open book, open notes. Make-up exams are difficult to prepare and administer, therefore approval for a make-up exam will be given only with strong justification. Contact me *before* the regularly scheduled exam to request a make-up exam. In case of illness, a physician's note will be required.

Lab Projects: The Lab Project allows you extend the skills you develop in the assigned exercises to build a more complex system. You will work on the project in teams of 3 people. A Project Proposal and Project Report will be turned in by each team, and presented by *all* the team members during our last class meetings. The project presentation will count for one-third of the project score.

Academic Enrichment Center: The Academic Enrichment Center, located on the 4th floor of Roosevelt Hall in University College, houses URI's writing center and learning assistance program, and many other academic support services such as tutoring, study groups, and workshops. The Center serves students seeking academic support as well as those with more advanced academic ability who are interested in helping others. Students can get help or help others with schoolwork and find individual or group assistance as needed.

Disabilities: Any student with a documented disability should contact me early in the semester so that we may make reasonable accommodations to support your success in this course; you should also contact Disability Services for Students, Office of Student Life, 330 Memorial Union, 874-2098. **Academic Honesty:** Students are expected to maintain the highest level of academic integrity. Academic dishonesty will be dealt with according to the University Manual; the penalty can range from failing the assignment to dismissal from the University. It isn't worth it, so don't do it.