Syllabus: EECE 1070 Introduction to Engineering for ECE

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Course Description: The purpose of this course is to strengthen your analytical and problem-solving skills through application programming to help you to thrive in the engineering programs here at UML. At the end of the course you should be able to use MATLAB, which is used in many courses here at UML. The second part of the course teaches use of basic test equipment such as the oscilloscope and function generator using the "Laboratory Anywhere". You will do several projects using an Arduino micro controller combined with different basic components. You will construct several open ended design projects including: a traffic light controller, a digital night light, an op amp. Besides learning, I expect you to have fun in this course.

Credits: 2, **Course Schedule:** Lecture Tuesday 9:30-10:20. Lab sections 2 hours/week in the Makerspace, Falmouth 102.

Prerequisites: None

Textbook: Online Videos and User Guides: See Blackboard Site for more information

References: http://faculty.uml.edu/jweitzen/25.108(ECE)/INDEX.HTM

Course Objectives: At the end of this course you should be able to:

1. Use Matlab as a programming language to solve engineering and math problems
2. Understand basic programming structures such as if/else, for loops, etc.
3. Perform basic measurements using an oscilloscope and function generator
4. Use the Arduino microprocessor to control basic electronic components and read sensor info

Computer Usage: Assignments in Matlab or Arduino Each Week

Grading: Grade is based on lab work only. Five graded Matlab exercises 33%, Two Matlab programming assignments worth 25%, 42% for 6 microcontroller labs. You must submit all labs to receive a grade of A or A- regardless of your point score. Penalty of 20% per week for late submissions starting day lab is due. All materials are submitted via Blackboard.

- **Grading rubric for lab reports**:
  - 50% Does your code meet the requirements and give the correct answer
  - 25% Is your code well written including comments, indented
  - 25% Is your report/output professional looking (example: all plots have legends, etc.)

Relationship of Course to ECE Outcomes: 1,2,6

- Lectures are video captured if you want to review or miss lecture.
- Please check the Blackboard Course Site at least once per week for news, announcements, homework assignments, and pre-laboratory information. Everything is located there.

- In the event of bad weather, I will email you at your UML email. You will still be responsible for completing the weekly work, using your laboratory anywhere.

- **Purchasing Your "Lab in the Box" materials:** You need to purchase on your own "Lab Anywhere". The Instructions are on the back of this syllabus. This saves you bookstore markup of 40%. We will give you a parts kit at the start of the Hardware section of the course. Textbook and reference materials are on the website and are free.
- **Work Expectation**: In addition to the Lecture and Laboratory, you will likely put in about 1-2 hours per week outside of the classroom completing lab reports, preparing for class etc. The course will have more work at the beginning as you are rapidly ramping up in Matlab.
- **Academic Dishonesty (cheating):** Academic dishonesty is presenting someone else's work as your own. This is a skill building class, stressing programming, whose purpose is to get you ready for later classes. If you cheat, you are cheating on yourself because you won't learn these skills. If you find you need to cheat in "Intro", you are in the wrong major!
- **Ordering your "Laboratory Anywhere Materials":**
  Note to all students: By doing it this way I save you the 40% markup of the Bookstore and you get the best price possible. Please follow the following instructions from Digilent to get the student discount. Please make sure you order the Analog Discovery Kit 2 which you will use the rest of your time at UML ECE. We will give you a parts kit on the first day of the hardware labs.

  You need to order both the discovery kit and an Arduino UNO

  All students need to submit their academic information to be verified for Student/Academic pricing.

  First create a store account at: store.digilentinc.com

  Next they go to the academic verification page at : https://resource.digilentinc.com/verify/

  Once approved you can order at the academic pricing. You will receive an email when their account is verified. The website says to allow up to 2 days for approval. Once verified, your academic status is good for at least a year.