ECE 341 Syllabus

Credits and Contact Hours: 1 credits, 2 laboratory hours

Instructor: James F. Frenzel

Text: Programming 32-bit Microcontrollers in C - Exploring the PIC32,
Lucio Di Jasio, ISBN 978-0-7506-8709-

Course Description: ECE 341 Microcontrollers Lab (1 cr) Lab to accompany ECE 340.

Prereqs. ECE 240-241 or Instructor Permission
CS112, CS 120 or equivalent knowledge of C

Coreqs. ECE 340

Course Type: Required

Course Goals:

- To instruct student how to solve engineering problems using microcontrollers.
- To instruct students how to partition programs for sustainable software development
- To instruct students how to use modern embedded system development tools
- To instruct students how to use hardware instrumentation

Student Outcomes: Data collected in this course are used to assess achievement of Student Outcomes (b) and (e) for the Electrical Engineering Program: (b) An ability to design and conduct experiments, as well as to analyze and interpret data; (e) An ability to identify, formulate and solve engineering problems.
Course Topics:

1. Using the Microchip MPLAB IDE
2. Microprocessor I/O and Lab Planning
3. Timers and software delays
4. Software finite state machines
5. Multi rate process control
6. Interrupts
7. Handshaking
8. Serial communications
9. I2C Communications
10. PWM
11. Input Capture

Prepared by: Richard W. Wall, PhD                Date: February 12, 2013