Microcontroller Lab

ECE 3567

Credit Hours:
1.00

Course Levels:
Undergraduate (1000-5000 level)

Course Components:
Lab

Course Description:
Laboratory in which a microcontroller is used to interface real-world hardware to make a functioning system.

Prerequisites and Co-requisites:
Prereq: 2560 or CSE 2421, and enrollment in ECE, CSE, or EngPhysics major.

Course Goals / Objectives:
- Mastery of software development platforms such as Code Composer Studio
- Competency with microcontroller architecture configuration with emphasis on the user’s manual.
- Mastery writing C Programming Language using the embedded code style. Familiarity with the unique features of embedded code and understanding how this is a departure from higher level applications
- Be competent in using the microcontroller peripherals for applications such as Pulse Wave Modulated wave Generation, Arbitrary Wave Generation, Frequency Measurement, Analog to Digital Conversion and RC measurements.
Course Topics:
- Software tools for programming in C Language such as editors, compilers and debuggers
- Clock Module of a microcontroller
- Timing Module of a microcontroller
- PWM generation using the peripherals of a microcontroller
- Arbitrary Signal generation using the peripherals of a microcontroller
- Frequency measurements using the peripherals of a microcontroller
- Handling Interrupts
- Analog to Digital Conversion
- Resistance and capacitance measurement using the peripherals of a microcontroller

Designation:
Required
Elective