ECE4175 Course Syllabus

ECE4175

Embedded Microcontroller Design (3-3-4)

Prerequisites
ECE 2031 [min C] and junior standing

Corequisites
None

Catalog Description
Microcontroller structure, instruction set, addressing modes. Code development by assembly language programming and using an emulator. Programmable timer use, interrupt handlers and timing.

Textbook(s)
Peatman, *Coin-Cell Powered Embedded Design*, Quick & Low, 2008. ISBN 9780979977008 (required) (comment: This book is free on-line at http://www.quikandlow.com/)

Topical Outline

ECE 4175 last taught Spring 2012; replaced by ECE 4185.

Microcontroller resources, instruction set, addressing modes, assembler use, emulator use, LED display, stepper motor outp

Looptime considerations, programmable timer use, controlling output measuring input timing, RPG input, LCD display of fixed strings.

LCD display and voice output of variable strings.

Keyswitches and state machines, analog-to-digital converter input.

Interactions with a temperature transducer having a pulse-width-mod output.

Interactions with devices with strange serial protocols (e.g., one- interface with infared sensor), design projects.

C language coding versus assembly language

Multiple-microcontroller interactions via UART, low-power considera