Syllabus

CE-490 – Senior Computer Engineering Design Project
Spring B 2007


Class: MW 9:05–10:05, Rm. 2-824 (Bosch Lab)
Lab: MW 3:35–5:40, Rm. 2-822A (in the back)
URL: http://www.kettering.edu/~mcdonald/class/ce490/

Instructor. James S. McDonald

Office: Rm. 2-703S
Hours: Call or e-mail for appointment.
URLs: mailto:mcdonald@kettering.edu
        http://www.kettering.edu/~mcdonald/
Tel.: 762-9500, x5690

Overview. In this course students working in small teams design and implement a device or system to meet given, realistic specifications. While the specifications are chosen to require expertise and to build on earlier course work primarily in the area of computer engineering, completing the project requires students to specialize and collaborate in a multidisciplinary team effort. Designs are required to adhere to applicable engineering standards, and attention must be paid to other relevant considerations, for example manufacturability, economic, health and safety, environmental, sustainability, ethical, social, and political.

Text. There is no required text, but Embedded Design with the PIC18F452, by John B. Peatman, Prentice Hall, 2002, ISBN 0130462136, is recommended as a very readable introduction to the PIC processor used in the project. Find it on amazon.com new for $80 or used for $58+.

The Project. In a nutshell, the project is to design and implement a battery-powered, rechargeable, pocket-sized digital camera that uses MultiMediaCard flash memory for image data storage. Many of the components to be used are specified, but there is still considerable design freedom. A separate document Project Requirements gives precise minimum requirements plus optional features that can be implemented to earn bonuses.

Preliminary Design Review. Each group will hold a preliminary design review at which they will present their preliminary design and submit a written preliminary design report to the instructor. A separate document Preliminary Design Review describes this requirement more precisely.

Preliminary Hardware Demonstration. Each group will conduct a preliminary demonstration of their hardware that establishes that the hardware is adequate to support all minimum design requirements.

Informal Progress Reports. Each group will report to the instructor informally on its progress several times during the course of the project.

Final Design Review and Demonstration. Each group will hold a final (public) design review at which they will present their final design orally, demonstrate their completed project, and submit a written final design report to the instructor. A separate document Final Design Review describes this requirement more precisely.
Course Schedule. A separate document Course Schedule gives tentative dates for conducting the various demonstrations and giving the various reports described above.

Grading. A separate document Grading describes the policy precisely.

Attendance. Not all class and lab times will have scheduled activities. Attendance is mandatory at those that do, however.