Electrical Engineering & Computer Science
University of Kansas

EECS 541 – Computer Systems Design Laboratory I
Lectures – Tuesday and Thursday, 3:00 to 3:50 PM
Laboratory – Thursday, 4:00 to 5:50 PM
3003 Eaton Hall

Instructor:

Dr. Joseph B. Evans — evans@ittc.ku.edu
2048 Eaton Hall, 864-8808 — 136 Nichols Hall, 864-4830
Office Hours: By appointment

GTA:

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Office Hours: To be arranged

EECS 541 Description

EECS 541 - Computer Systems Design Laboratory I
3 credit hours
A two semester lecture/laboratory course involving the specification, design, implementation, analysis, and documentation of a significant hardware and software computer system. Laboratory work involves software, hardware, and hardware/software trade-offs. Project requirements include consideration of ethics, economics, manufacturing, safety, and health aspects of product development. Can be taken only during the senior year.
Prerequisite(s): EECS 443 and EECS 448

EECS 541 Topics

- Introduction and overview
- System design and specifications
- Engineering economics, budgets, and financing
- Review of software engineering tools
  - Basics – scripting languages, compilers, lint, make, etc.
  - IDEs – Eclipse for Android, Arduino tools, Visual Studio
- User interface design
  - Smart phone / tablets using Android
- Network programming
  - Sockets, TCP/IP networking, and security issues
- Integrating hardware and software
  - Arduino microcontroller programming
  - Raspberry Pi microcontroller programming
  - Sensors and control algorithms
- System prototyping, testing, and debugging
- Engineering ethics, safety, health, and regulatory considerations
- Project reviews and demonstrations

Texts/References: Class notes

Anticipated Schedule

Date	Topic
August 26	Course organization Overview of system design project objectives
August 28	Hardware platforms and software engineering tools
September 2	Project idea discussions
September 4	Project idea discussions
September 9	Overview of project planning
September 11	Overview of engineering economics, budgets, and financing
September 16	Overview of ethics, safety, health, regulatory considerations
September 18	Project concept development
September 23	Project concept development
September 25	Project concept development
September 30	Rapid prototyping
October 2	Rapid prototyping
October 7	Rapid prototyping
October 9	Rapid prototyping
October 14	Fall Break
October 16	Rapid prototyping
October 21	Review and demos of rapid prototypes
October 23	Review and demos of rapid prototypes
October 28	System prototyping, testing, and debugging
October 30	System prototyping, testing, and debugging
November 4	System prototyping, testing, and debugging
November 6	System prototyping, testing, and debugging
November 11	System prototyping, testing, and debugging
November 13	System prototyping, testing, and debugging
November 18	System prototyping, testing, and debugging
November 20	System prototyping, testing, and debugging
November 25	System prototyping, testing, and debugging
November 27	Thanksgiving Break
December 2	System prototyping, testing, and debugging
December 4	System prototyping, testing, and debugging
December 9	Project reviews and demos
December 11	Project reviews and demos
December 15	Final Exam, 1:30-4:00 PM, 3003 Eaton Hall

Note that this schedule may be modified in order to adapt to currently unforeseen circumstances.

Grading Policy

The class will be graded competitively according to the percentages listed below. Each assignment within a category will be weighted equally. The course grade thresholds (that is, the numerical grade required to get a particular letter grade) will be set by the instructor to reflect the relative performance of the students. Class attendance is expected unless otherwise indicated.

Final Exam	20%
Project	40%
Homework, Miscellaneous Projects	40%

Note: failure to complete the "Project" portions of the course will result in a grade of F for the course.

3% per day will be subtracted from assignments turned in late, except under extraordinary circumstances and with adequate prior notification of the instructor.

The student must notify the instructor within 48 hours of a missed exam and present adequate justification. If illness is the justification, a doctor's note must be provided to the instructor.

An appeal on grades for individual assignments must be within 14 days of the date the assignment is returned.

Further details of the project grading procedure may be announced in class or via e-mail as required.