

34292	ELC 4438-01	Embedded Systems Design	4	MW	ROGERS 114	8:00 AM-8:50 AM 9:05 AM-11:00 AM
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Instructor: Liang Dong
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Office Hours: MWF 2:00 p.m. – 3:30 p.m.; other by appointment

Course Description:

Prerequisite(s): ELC 3336 Microprocessor Systems

Design and implementation of embedded computer systems using microcontrollers, sensors and data conversion devices, actuators, visual display devices, timers, and applications specific circuits. Software design using microprocessor cross-development systems and real-time operating system principles.

Textbook (reference):

Embedded System Design: Embedded Systems Foundations of Cyber-Physical Systems
 Author: Peter Marwedel
 Springer; 2nd Edition
 ISBN-10: 9400702566, ISBN-13: 978-9400702561

(There will be other reference books and seminal papers recommended during the semester.)

Class Structure:

8:00 AM – 8:50 AM Lecture
 9:05 AM – 11:00 AM Lab

Homework and Exams:

There will be after-class reading assignments and homework assignments.
 There will be one in-class midterm exam and one final project.

Midterm Exam 8:00AM – 10:00AM Wednesday March 2, 2016

Laboratory:

- Lab starts on the second week (Monday, January 18, 2016).

Baylor University

- Use Atmel SAM4L Xplained Pro board for embedded programming. This is a board with the ARM Cortex-M4 MCU. Atmel Studio is used to program.
- Use Arduino open-source electronic prototyping platform
- Use TI Tiva C Series LaunchPad for embedded programming. This is a board with the ARM Cortex-M4 MCU. TI code composer is used to program.

Final Project:

There will be a final project with a written report. The final project can be an embedded programming product using the TI or Atmel development board, an Arduino project, etc. You are also encouraged to explore a subject of your interest that is closely related to embedded system design. Each project can be done by one person or a team of maximum 3 people.

Final Project Presentation	Last class
Final Project Written Report due	Final exam time (scheduled by University)

Performance Evaluation:

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| • Homework and Reading Assignments | 10% |
| • Lab | 30% |
| • Midterm Exam | 30% |
| • Final Project | 30% |