Course Description

WES 237A is a Masters of Advanced Study course in the Wireless and Embedded Systems (WES) program. The course provides an introduction to embedded systems that stresses practical, hands-on experience with wirelessly connected embedded systems. Students utilize state of the art tools to create novel wireless systems utilizing the building blocks of all embedded systems.

The course teaches aspects of hardware and software architectures, peripherals and on-board communication protocols, hardware / software interface, and real time constraints. It combines these ideas with a close coupling with the ARM architecture and various synthesized hardware blocks. Students build their knowledge and experience through five labs that culminate in the wireless control of an iRobot.

Learning Objectives

After successfully completing this course, a student will have:

• Knowledge of embedded systems, peripherals, and communication protocols.

• Expertise in C-based coding of ARM architectures utilizing a variety of soft-IP cores and interfaces.

• Familiarity with the Xilinx Zynq SoC architecture and tools necessary for development of its embedded core.

• Experience working with, and coding for, wirelessly connected embedded systems

• An understanding of the real-time tradeoffs of implementing functionality in software vs hardware.

Instructor

Greg Hoover is a lecturer in the Department of Computer Science and Engineering (CSE) at the University of California, San Diego (UCSD). He has a PhD in Electrical & Computer Engineering from UCSB and works in various technical and business capacities for his own company and others in the San Diego area.

Class Schedule

The course is held during the Spring Quarter of the first year of the WES MAS program. The course is offered every other week on Fridays from 9am – 4pm in the Computer Science Building Room 3219. There is a lunch break from 12:30PM - 1:30PM.