Course: ECE 48500 — Embedded Real-Time Operating Systems

Type of Course: Required for CmpE Program, Elective for EE Program

Catalog Description: An introduction to embedded real-time operating systems, with an emphasis on embedded system software development, tasks, inter-task communications and synchronization as well as network software.

Credits: 4

Contact Hours: Lecture 3, Lab 3

Prerequisite Courses: ECE 36200, ECE 36800

Prerequisites by Topics: Experience programming in C, experience programming microcontrollers, understanding of circuits and electrical components


Course Objectives: The course provides an introduction to embedded real-time operating systems. Topics covered include general embedded systems concepts, general embedded software development, real-time operating systems concepts.

Course Outcomes: Students who successfully complete this course will have demonstrated:

1. Familiarity with many of the issues involved with embedded systems. (k [6])
2. Familiarity with key Real-Time Operating System terms and concepts. (k [6])
3. Ability to program using system calls in a uC/OS-II environment. (a [1], b [3], c [4], k [6])
4. Ability to program an embedded system with tasks and executive. (a [1], b [3], c [4], k [6])
5. Understanding and ability to use tools to build an embedded real-time system. (b [3], k [6])
6. Ability to specify, design and implement a small embedded system. (a [1], b [3], c [4], k [6])
7. Ability to present design information effectively in the forms of technical reports and oral presentations. (g [8])
Lecture Topics

1. C language review, pointers, etc
2. 8051 introduction
3. Embedded C & ANSI C
4. Theory and Principle of RTOS
5. RTX51 Tiny OS introduction
6. uC/OS-ii introduction
7. Mentor Graphics nucleus introduction

Computer Usage

Indicate: High

Laboratory Experience

Indicate: High

Design Experience

Indicate: High

Coordinator

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Date

05/31/2011