The University of Texas at Tyler
Department of Electrical Engineering

EENG 5336: Real Time Systems

Syllabus

Catalog Description:
Basic Real-Time Concepts; Computer Hardware; Languages; Real-Time Kernels; Intertask Communication and Synchronization; Real-Time Memory Management; The Software Life Cycle; System Performance Analysis and Optimization; Reliability, Testing, and Fault Tolerance; Hardware/Software Integration; Integrated lab experiments with state-of-the-art real-time hardware and software tools. Graduate level term project or paper.

Prerequisites: EENG 3307 or equivalent course in Microprocessors

Credits: 3 (0 hours lecture, 0 hours laboratory per week)


Additional Material: Texas Instruments OMAP 5912 and TMS320C64x DSP hardware with development tools

Course Coordinator: Mukul V. Shirvaikar, Associate Professor

Topics Covered: Basic Real-Time Concepts; Computer Hardware; Languages Issues; Real-Time Kernels; Intertask Communication and Synchronization; Real-Time Memory Management; The Software Life Cycle; System Performance Analysis and Optimization; Reliability, Testing, and Fault Tolerance; Hardware/Software Integration; Integrated lab experiments with state-of-the-art real-time hardware and software tools.

Evaluation Methods: (only items in dark print apply):
1. Examinations / Quizzes
2. Homework
3. Report
4. Computer Programming
5. Project
6. Presentation
7. Course Participation
8. Peer Review

Course Objectives¹: By the end of this course students will be able to:
1. Understand real time and embedded systems concepts including requirements, complexity, tasks, and deadlines [1-3]
2. Understand real time operating systems, kernels, software design, inter-task communications, and memory management [1-3,5,7]
3. Implement hands-on projects with real time systems and tools [1-3,5]

¹Numbers in brackets refer to method(s) used to evaluate the course objective.
Relationship to Program Outcomes (only items in dark print apply)

This course supports the following Electrical Engineering Program Outcomes, which state that our students will:

1. Graduates of the program will possess a breadth and depth of knowledge in electrical and computer engineering. [1-3]
2. Graduates of the program will possess and demonstrate oral and written communication skills. [1-3]
3. Graduates of the program will demonstrate the capability to perform independent learning and investigation. [1-3]

Numbers in brackets refer to course objective(s) that address the Program Outcome.

Contribution to Meeting Professional Component: (in semester hours)

| Mathematics and Basic Sciences: | hours |
| Engineering Sciences and Design: | 3 hours |
| General Education Component: | hours |

Prepared By: Mukul Shirvaikar, Professor  Date: 8 January 2004
6 January 2005
3 June 2009