THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Embedded Computer Systems

ECE 5466

Credit Hours:
3.00

Course Levels:
Undergraduate (1000-5000 level)
Graduate (5000-8000 level)

Course Components:
Lecture

Course Description:
This course introduces the design principles, analysis methods and case studies of microprocessor-based and time-critical embedded systems, such as sensor and actuator networks, multimedia devices, mobile phones, and avionics. Topics include real-time operating systems, processor scheduling, performance control, resource management, power-aware design, energy optimization, etc.

Prerequisites and Co-requisites:
Prereq: 5362, or Grad standing in Engr.

Course Goals / Objectives:
- Be familiar with embedded program optimization.
- Be competent with power management for embedded systems.
- Be competent with process/thread scheduling in the OS.
- Master real-time scheduling algorithms, such as RMS and EDF.
- Be familiar with feedback control designs for embedded systems.
- Be exposed to the designs of embedded, networked, and mobile systems.

Course Topics:

- Introduction of embedded systems
- Microprocessor, I/O, interrupts
- Program optimization
- Power management
- Real-time OS and process scheduling
- Real-time scheduling
- Feedback control design
- CPU utilization control
- Student project presentations
- Case studies
- Project programming environment

Designation:

Elective