ECE4110 Course Syllabus

ECE4110

Internetwork Programming (3-3-4)

CMPE Degree
This course is Elective for the CMPE degree.

EE Degree
This course is Elective for the EE degree.

Course Coordinator
Owen III,Henry L

Prerequisites
ECE 3076/3600 or CS 3251

Corequisites
None

Catalog Description
Exploration of internet implementation as a network of embedded computing systems. Internetworking skills for design and implementation of hardware and embedded software internet products.

Textbook(s)
No Textbook Specified.

Student Outcomes
In the parentheses for each Student Outcome:
"P" for primary indicates the outcome is a major focus of the entire course.
“M” for moderate indicates the outcome is the focus of at least one component of the course, but not majority of course material.
“LN” for “little to none” indicates that the course does not contribute significantly to this outcome.

1. (LN) An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. (LN) An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. (LN) An ability to communicate effectively with a range of audiences
4. (LN) An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. (LN) An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. (LN) An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. (LN) An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Topical Outline

Introduction (1 week)
TCP/IP Protocol Architecture (2 weeks)
Sockets programming (3 weeks)
- Client/Servers
- TCP Sockets
- UDP Sockets
Internet Addressing (1 week)
- Subnets
- Classless Interdomain Routing
- Routing tables
Routers and Architectures (3 weeks)
- Routing Protocols
Network Protocol Analyzers (1 week)
Traffic Generation Hardware (1 week)
Linux Kernel Network Implementation (3 weeks)
- Kernel Hacking