

Course Announcement

EE456

Computer Networks

Spring 2008

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Course URL: http://www.engr.colostate.edu/ECE456/ECE456_Sp08/

Time: Lectures 9:30-10:45 AM Tu, Th MilSci200
Labs Open hours

Objectives:

Today's global information infrastructure consists of various systems and devices interconnected via the Internet. Where information resides has become less important compared to ubiquitous and quick availability of information. The quality of service experienced by a user or an application depends on the underlying network hardware (e.g., links, routers), protocols (e.g., TCP/IP) and characteristics (e.g., network traffic, access times and interference). Internet is a dynamically evolving systems held together by a set of protocols, in contrast to many other systems (e.g., microprocessors, workstations) that are designed by a close-knit group of designers. EE 456 introduces computer and communication networking principles and technologies that make such a complex global information infrastructure possible.

Outcomes:

Students will know how the Internet works and how it is able to evolve and grow in size, speed and complexity. They will be able to develop network protocols and distributed Internet based applications using basic network programming concepts.

Prerequisites: ECE251, ECE303, and programming skills (ex. CS160 or CS155, CS156, CS157)

Topics:

1. Introduction
2. Circuit Switching and Packet Switching - Sonet/SDH
3. Layered Architectures - ISO-OSI, TCP/IP
4. Physical Layer – Link Technologies, Encoding
5. Data Link Layer – Logical Link Control, Framing, Error Detection & Correction
6. Medium Access Control (MAC)
 - Wired and Wireless Local-Area Networks, IEEE 802.X Standards
7. Internet Protocol (IP) – Addressing, Service Model, Routing
8. Transport Protocols – TCP/UDP, Socket Systems Calls
9. Sensor Networking – An Introduction
10. Future Trends in Networking

Text: Communication Networks, A. Leon-Garcia, I. Widjaja, McGraw Hill, 2004 (Required).
Additional reading material will be made available.

Labs: The course has a set of lab assignments that will introduce the concepts in network programming. There is no designated time for labs, i.e., they will be run on an open hour basis.