

ECE 372 – Introduction to Computer Networks

Catalog Description: Computer network principles, fundamental networking concepts, packet-switching and circuit-switching, TCP/IP protocol layers, reliable data transfer, congestion control, flow control, packet forwarding and routing, MAC addressing, multiple access techniques.

Credits: 4

Terms Offered: All

Prerequisites: CS 261 and (ECE 271 or CS 271)

Courses that require this as a prerequisite: ECE 476

Structure: Two 80-minute lectures per week

Note: This course has an implied, non-scheduled lab. The lab takes place in an EECS computer lab at various times, and is not part of the official course schedule. TAs are available to help the students with lab assignments at times announced in the syllabus.

Instructors: B. Hamdaoui, T. Nguyen

Course Content:

- Introduction to computer networks and the Internet
- Transport layer principles and reliable data transfer
- Network layer addressing and routing
- Data-link layer services and functions
- Network security

Measurable Student Learning Outcomes:

At the completion of the course, students will be able to...

1. **Explain** the concept of packet-switching, and identify and analyze the different types of packet delay in packet-switched networks (ABET Outcomes: A, e, i, l, M)
2. **Describe** the essential principles of a transport layer protocol (reliable data transfer, flow control, congestion control) (ABET Outcomes: a, E, i, M)
3. **Use** IP addressing and apply routing algorithms to find shortest paths for network-layer packet delivery (ABET Outcomes: A, E, i, j, m, n)
4. **Describe** and compare data link layer services and multiple access techniques (ABET Outcomes: A, b, C, E, i, j, m)
5. **Describe** network security issues and some of the methods that address them (ABET Outcomes: a, E, j)
6. **Use** networking tools to observe and analyze behaviors of networking protocols (ABET Outcomes: B, e, i, j, K)

Evaluation of Student Performance:

Students will be evaluated via class assignments, quizzes, midterm(s) and/or final exams.

Learning Resources:

- Kurose and Ross, *Computer Networking: A Top-Down Approach Featuring the Internet* (6th edition), Addison Wesley (recommended).
- Wireshark (<http://www.wireshark.org/>)

Students with Disabilities:

Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 737-4098.

Link to [Statement of Expectations for Student Conduct](#), i.e., cheating policies

Revised Prerequisites 5/28/09

Revised 2/4/14 to update CLO's