# University of Cyprus
# Electrical and Computer Engineering
# Spring 2013

## ECE 360: Computer Networks

## Course Syllabus


**Instructor:** Christos Panayiotou
Green Park, Room 409.
Tel: 22 89 22 98
Email: christosp@ucy.ac.cy


**Web-page:** http://www.eng.ucy.ac.cy/Christos/Courses/ECE360

**Lectures:** Tuesday – Friday 3:00-4:15pm.
ΧΩΔ01 Room: 104

**Laboratory**: Friday 4:30-6:30pm
Latsia Room ΛΑ012.

**Office Hours:** By appointment

**Teaching Assistants:** Yannis Tofis (yiannistofis@hotmail.com)

# Course Objective:

This undergraduate course covers the fundamental topics in computer communication networks. The objective is to provide a solid understanding of the underling concepts and issues of computer networks. Furthermore, the course provides in depth understanding of the issues involved in the design and implementation of computer networks. During this course, we will investigate the principles that drive the design on the various protocols that make up today´s networks. Special emphasis will be on the physical, data link, and networking layers. In addition we will cover some more advanced material including transport layer, congestion control and security.

# Prerequisites:

Good programming skills as well as good knowledge of data structures and algorithms (equivalent to the CS034 and CS035 courses).

# Topics Covered:

1. Introduction to the computer networking problem
2. Direct link networks
   • Physical layer and hardware components
   • Framing, error detection, reliable transmission.
   • Network configurations: Ethernet, Token ring, Wireless

3. Packet switching
   • Circuit vs. Packet switching
   • Virtual circuit switching
   • Broadcast and multicast.
4. Network layer
   • Routing
   • The Internet
   • Multicast
5. Transport layer and end-to-end communications
   • Reliable communications
   • Performance issues.
6. Congestion control and resource allocation (if time permits)
   • Resource allocation issues
   • TCP congestion control
   • Congestion avoidance
   • Quality of service

# Grading:

Laboratory Assignments: 25%
Mid term exam: 25% (Tentative date: March 22, 2013)
Final exam: 50%.

**Important Note:** To get a passing grades, students have to get at least 50% in the mid-term and final exams and at least 50% of the overall laboratory assignments.

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# Textbook

- Andrew Tanenbaum, "Computer Networks", 4th Ed., Prentice-Hall, 2003 or
- W. Stallings, "Data and Computer Communications", 8th Ed. Prentice-Hall, 2007.

# Additional Bibliography:

- L.L. Peterson and B.S. Davie, "Computer Networks: A Systems Approach", Morgan Kaufmann.
- J. Kurose and D. Ross, "Computer Networks. Top down approach featuring the Internet"
- A. L. Garcia and I. Widjaja, "Communication Networks: Fundamental Concepts and Key Architectures"

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# Academic Honesty:

It is acceptable to work together in small groups for study and discussing homework and lab assignments. However, work that you turn in under ***your name*** must be ***your own***. Cheating will ***not*** be tolerated; neither during homework nor during exams. Each assignment that you submit must include a ***signed*** statement that this is ***your own*** work and the names of the students that you worked with or discussed the solution of the assignment. Assignments without such statement ***will not*** be corrected. You can find more information on academic honesty on the course website.