

CENG435 DATA COMMUNICATIONS AND NETWORKING Tentative Syllabus, 2017-2018 Fall

Instructor: Ertan Onur, eronur@metu.edu.tr, 5534, B211

Office Hours: Fridays 09:30-10:30 and by appointment

Assistant:

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Schedule:

- Section 2: Wednesdays, BMB4, 12:40-13:30 and Fridays, BMB4, 10:40-12:30

Communication: <http://odtuclass.metu.edu.tr> and <http://cow.ceng.metu.edu.tr>

Catalog Description: Introduction to data communications. OSI Reference model. Physical Layer. Electrical interface and data transmission. Data link layer. Media access sublayer. LAN/MAN Technologies. Network layer. Internetworking. Bridging and routing. Transport layer. Introduction to upper layers' issues.

Course Objectives: At the end of this course, you will be able to:

1. Understand the basic principles of communication protocols in the context of the Internet.
2. Explain the operation and architecture of the Internet including the software and hardware components to provide Internet services.
3. Compare and contrast various application layer protocols such as HTTP, SMTP, DNS; connection-oriented communication protocols such as TCP and connectionless communication protocols such as UDP at transport layer; virtual-circuit and packet switching at network layer; link-state and distance-vector routing at network layer; and multiple access techniques at link layer.
4. Devise protocols for reliable data transfer over unreliable channels, congestion control or flow control either in the user or kernel space of operating systems at the transport layer.
5. Design and implement networking protocols at any layer of the OSI communication stack above the physical layer using socket programming interface.

Textbook:

- Kurose, J.F. and Ross, K.W., Computer Networking: A Top Down Approach, 6th Ed., Pearson Education, 2012.

References:

- Tanenbaum, A.S., Computer Networks, 5th Ed., Prentice Hall, 2011.
- Stallings, W., Data and Computer Communications, 9th Ed., Prentice Hall, 2010.

Prerequisites: None. Knowledge on operating systems will be of great benefit.

Grading: Assignments (×2) 13+17%
Midterm exams (×2) 17+20%
Final 33%

NA Grade: Regardless of your overall grade at the end of the class, you will get an NA grade if you have no valid assignment submissions or if you have not attended at least one of the midterms. Empty/dummy assignment submissions will not be considered as a valid submission.

Makeup policy: The makeup policy applies if and only if you have an officially documented excuse such as medical, or family emergency. You have to inform the instructor about your situation as soon as possible and provide the official documentation. There will be a single make-up examination that will be scheduled after the final for all officially excused exams.

Assignments: Deadlines are not going to be extended for any reasons. Late delivery will not be accepted. The programming assignments must be well documented complete with test runs, with due attention to software engineering principles. Note that any work you submit must be your own. The university regulations will be applied in case of cheating.

Academic Honesty: There will be no tolerance to cheating in the exam, to plagiarism (copying someone else's work as if it is yours) and to taking advantage in group assignments and projects. The student who cheats will fail the course and be punished according to METU regulations.

Tentative Course Outline:

Week	Topic	Reading	Homework
1	Courseware, Introduction	Chapter 1	
2	Introduction	Slides	
3	Physical layer	Slides	
4	Physical, Application layer	Chapter 2	HW1 OUT
5	Application layer	Chapter 2	
6	Transport layer	Chapter 3	Midterm 1 (08/11)
7	Transport layer	Chapter 3	
8	Transport layer	Chapter 3	HW1 IN, HW2 OUT
9	Transport/network layer	Chapter 3,4	
10	Network layer	Chapter 4	
11	Network layer	Chapter 4	Midterm 2 (13/12)
12	Network layer	Chapter 4	
13	Link layer	Chapter 5	
14	Link layer and Review	Chapter 5	HW2 IN