

In The Name of God, The Merciful, The Compassionate

Computer Networks

**Department of Computer Engineering
Sharif University of Technology
Fall 2012 – CE40443**

Instructors: Mostafa Salehi

Class Hours & Location: Saturdays & Mondays; 16:30 – 18:00 (CE department, #x)

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TAs: (TA Sessions are held on Saturdays 12:00 – 13:15, Room CE-xxx)

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Office: CE department #803 (DML lab)

Course Website: <http://ce.sharif.edu/courses/91-92/1/ce443-1>

Course Objectives: The course is an undergraduate level course that

- Covers fundamentals of modern computer networks.
- Obtains background for advanced classes and projects in computer networks.

Prerequisites: Probability and Statistics (CE 40181)

Corequisites: Operating Systems (CE 40424) and Computer Networks Lab. (CE 40416)

Course Textbooks (References):

- “Computer Networking: A Top-Down Approach (5th edition),” by J. Kurose and K. Ross, Addison-Wesley, 2010.

Grading (from 20 points):

- Homework (7 sets): 4
- Opnet Projects (7 labs) : 4
- Mini-Exam #1 & #2: 6
- Final Exam: 6

Policy

Course policy for late submission of homework problems or opnet labs is mentioned below:

- 50% of the whole point for delivery up to three days after the deadline.
- 20% of the whole point for delivery up to one week after the deadline.
- Do not even think of submission after more than one week delay!

Tentative Course Outline:

Session No	Topic	Readings	HW	Lab	
1 (91.06.25)	Introduction; course overview and objectives.	—	—		
2 (91.06.27)	Computer Networks and the Internet	Network Structure (Edge, Core, and Access)	Ch#1 Section#1.1 - 1.3	Lab#1: Intro. to Opnet	
3 (91.07.01)		Delay, loss and throughput, protocol layering	Ch#1 Section#1.4-1.5		
4 (91.07.03)		protocol layering, History	Ch#1 Section#1.5-1.7	Set#1, Due: 91.07.10	
5 (91.07.08)	Application Layer	Principals, HTTP, FTP	Ch#2 Section#2.1-2.3	Lab#2: Application	
6 (91.07.10)		Mail, DNS, DHCP	Ch#2 Section#2.4-2.5	Set#2, Due: 91.07.17	
7 (91.07.15)	Transport Layer	Introduction, Multiplexing and demultiplexing, UDP	Ch#3 Section#3.1-3.3	Lab#3: TCP	
8 (91.07.17)		TCP	Ch#3 Section#3.4-3.5	Set#3, Due: 91.08.24	
9 (91.07.22)		Congestion Control	Ch#3 Section#3.6-3.7		
10 (91.07.24)	Network Layer and Routing	Network layer, virtual circuits and datagram networks	Ch#4 Section#4.1-4.2	Lab#4: Routing	
11 (91.07.29)		Principles of routing and switching	Ch#4 Section#4.3		
12 (91.08.01)	Mini-Exam#1 (closed book), covering chapters #1 to #3				
13 (91.08.06)	Network Layer and Routing	IP	Ch#4 Section#4.4		
14 (91.08.08)		Routing algorithms	Ch#4 Section#4.5		
91.08.13	Holiday				
15 (91.08.15)	Network Layer and Routing	Internet routing, Broadcast and multicast routing	Ch#4 Section#4.6, 4.7	Set#4, Due: 91.08.22	
16 (91.08.20)	Link Layer and Local Area Networks	Link layer services; error correction and detection	Ch#5 Section#5.1-5.2	Lab#5: Ethernet	
17 (91.08.22)		Multiple access protocols; link layer addressing	Ch#5 Section#5.3-5.4		
18 (91.08.27)		Ethernet; hubs and switches	Ch#5 Section#5.5-5.6		
19 (91.08.29)		PPP	Ch#5 Section#5.7	Set#5, Due: 91.09.13	

Session No	Topic	Readings	HW	Lab
91.09.04	Holiday			
20 (91.09.06)	Mini-Exam#2 (closed book), covering chapter #4,5			
21 (91.09.11)	Wireless and mobile networks	Wireless Links	Ch#6	Lab#6: Wireless
22 (91.09.13)		Mobility Management	Ch#6	
23 (91.09.18)	Multimedia Networking	Fundamental Concepts of Multimedia Systems	Ch#7	Lab#7: Multimedia Networking
24 (91.09.20)		QoS	Ch#7	
25 (91.09.25)	Cloud Computing	Cloud Computing	Handout	
26 (91.09.27)	Network Design	Case Study	Handout	Set#7, Due: 91.09.04
27 (91.10.02)	Network Design	Case Study	Handout	
28 (91.10.04)	Course Review	Course Review	Handout	
Monday (91.10.25) – 15:00 PM - Final Exam				