

Syllabus

COEN 237 Internet Architecture and Protocols Department of Computer Engineering Santa Clara University

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Course website:
Office Hours:

Summer Quarter 2007
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<http://www.cse.scu.edu/~mwan2/tcpip/>
Tuesday & Thursday 9:00-9:30pm

Course Description

In-depth study of computer networking algorithms and protocols at Layer 3+. Topics include Internet Protocols (IPv4, IPv6, ICMP), addressing (ARP), auto-configuration (DHCP), inter- and intra-domain routing (RIP, OSPF, and BGP), transport protocols (TCP), multicast routing and transport, name services (DNS), end-to-end services. Protocols for the next-generation Internet will also be discussed.

Prerequisites

Computer Networks (COEN233).

Required Textbooks

1. "TCP/IP Protocol Suite, 3rd Edition", by Behrouz A. Forouzan, McGraw-Hill, 2006
2. "TCP/IP Illustrated, Vol. 1, The Protocols", by W. Richard Stevens, etc. Addison Wesley, 1993

Recommended Textbooks

1. "TCP/IP Illustrated 3 Volume Set", by W. Richard Stevens, etc. Addison Wesley, 2002
2. "Internet Routing Architectures, 2nd Edition", by Sam Halabi, Cisco Press, 2001
3. "Interconnections, 2nd Edition: Bridges, Routers, Switches, and Internetworking Protocols", by Radia Perlman, Addison-Wesley, 1999
4. "Routing in the Internet, 2nd Edition", by Christian Huitema, Prentice Hall 1999
5. "Routing TCP/IP Volume I & II", by Jeff Doyle, Cisco Press, 1998 & 2001

References

1. "Computer Networks, A System Approach, 4th Edition", by Larry L. Peterson and Bruce S. Davie, Morgan Kaufmann Publishers, 2007
2. "Computer Networking: A Top-Down Approach Featuring the Internet, 4th Edition", by James Kurose, Keith Ross, Addison-Wesley, 2007
3. "Data Communications and Networking, 4th Edition", by Behrouz A. Forouzan, McGraw-Hill, 2006
4. "Mastering Networks, An Internet Lab Manual", by Jorg Liebeherr, Magda El Zarki, Addison-Wesley, 2004

5. "Network Systems Design using Network Processors", by Douglas E. Comer, Prentice Hall, 2004
6. "Computer Networks, 4th Edition", by Andrew S. Tanenbaum, Prentice Hall, 2003
7. "Design Network Security, 2nd Edition", by Marike Kaeo, Cisco Press, 2003
8. "Converged Network Architectures, Delivering Voice and Data over IP, ATM, and Frame Relay", by Oliver C. Ibe, John Wiley & Sons, 2002
9. "OFDM Wireless LANs" A Theoretical and Practical Guide", by Juha Heiskala, John Terry, Sams Publishing, 2002
10. "Fixed Broadband Wireless Access, Networks and Services", by Oliver C. Ibe, John Wiley & Sons, 2002
11. "Digital Communications, 4th Edition", by John G. Proakis, McGraw-Hill, 2001
12. "The Essential Guide to RF and Wireless, 2nd Edition", by Carl J. Weisman, Prentice Hall, 1999
13. "Unix Network Programming, Volume 1: Network APIs – Sockets and XTI and Volume 2: Interprocess Communications", by Richard Stevens, Prentice Hall, 1997 & 1998

Grading Policy

Course grade is determined based on the total score (maximum 1000 points + up to 200 optional bonus points for extra work) from:

1. Mid-term and final exams of 250 points each (close book with one A4 note and a calculator.) Makeup exams (must have a very good reason for makeup) are much difficult than normal exams.
2. Two programming assignments of 100 points each (late penalty: 20 points/day.) Makeups are more difficult too.
3. A group (prefer 2-3 people in a team) programming term project of 300 points (late penalty: 60 points/day.) No makeup is allowed.
4. Bonus assignments will be assigned at each lecture with 10 points each. Due before next lecture begin. The solution for bonus point will be posted on my protected web page. No late work accepted for bonus assignments. 75-80% of exam questions are similar to bonus.
5. Class average targeted at **B+**.

Table 1: Grade-score table

1000	950	900	850	800	750	700	650	0
-	-	-	-	-	-	-	-	-
1200	999	949	899	849	799	749	699	649
A	A-	B+	B	B-	C+	C	C-	F

Course Schedule (Tuesday & Thursday 7:10pm-9:00pm)

Table 2: Course Schedule

#	week	Readings	Remarks
1	6/19 6/21	introduction	submit due 6/21
2	6/26 6/28	Internet Protocol	
3	7/3 7/5	ARP and RARP	program #1 due 7/1

4	7/10 7/12	ICMP	
5	7/17 7/19	UDP, TCP, SCTP	program #2 due 7/15 problem due 7/17
6	7/24 7/26	RIP, OSPF, BGP	mid-term exam 7/24 group & topic due 7/26
7	7/31 8/2	multicast, BOOTP, DHCP	paper presentation 7/31 8/2
8	8/7 8/9	application layer	proposal due 8/7
9	8/14 8/16	wireless and mobile	
10	8/21 8/23	multimedia	final exam 8/23
11	8/28		project defense 8/28

Reminder

- No cheating, and no register complaint without talking to me first.
- No incomplete. Due date for withdraw is August 24.
- No sit-in or audit the class except formally registered.
- Read files under /home/mwang2/tips for help.
- Handouts, assignments, and solutions will be posted on the web. You should check the class web site at least once a week. You are responsible for printing and bring the handout to the class.
- Put a cover page posted my website on top of each of your submitted written/hardcopy assignment.
- Office hours: Tuesday & Thursday 9:00pm-9:30pm.

Honor Code

All students taking course in the school of engineering agree, individually and collectively, they will neither give nor receive unpermitted aid in examinations or other course work that is to be used by the instructor as a basis of grading.

Disability Accommodation Policy:

To request academic accommodations for a disability, students must contact Disability Resources located in The Drahmman Center in Benson, room 214, (408) 554-4111; TTY (408) 554-5445. Students must provide documentation of a disability to Disability Resources prior to receiving accommodations.