



Computer Networks

FALL 2017 SWE3022-41

TUES 09:00-10:15/THUR 10:30-11:45 (ROOM 26312)

Course Description: Students develop a thorough understanding of foundation principles, architectures, and techniques employed in computer networks. A network is viewed as a hierarchy of layers, or abstract machines. Each layer uses services offered by lower layers to in turn provide enhanced service to the next higher layer. These layers form a protocol suite. The focus is on protocols and mechanisms used in the Internet's TCP/IP protocol suite, including the design and operation of both wide-area and local-area networks.

- **Instructor:** Dr. Hyunseung Choo, Engineering Building 2, Rm 27304, FON (031)290-7145
URL: <http://monet.skku.edu> (course pages), E-mail: choo@skku.edu
Office Hours: Tue 10:30 – 12:00 (on campus)
- **Graduate Teaching Assistant:** Mr. S. Yeom, Engineering Building 2 Rm 27301 (x7224)
Email: sanggil12@skku.edu
- **Textbook:** “Computer Networks: A Top-Down Approach” by B. Forouzan and F. Mosharraf,
McGraw-Hill Science Engineering, 2013, ISBN: 978-0-07-352326-2
- **Recommended Texts:**
 - “Computer Networking: A Top-Down Approach Featuring the Internet (7th Edition)” by James Kurose and Keith Ross, Addison Wesley
 - “Computer Networks (5th Edition)” by Andrew S. Tanenbaum, Prentice Hall
 - “Computer Networks: A Systems Approach (5th Edition)” by L. L. Peterson and B. S. Davie, Morgan Kaufmann Publishers
- **Prerequisites**
 - Problem Solving and Programming (C/C++)
 - Data Structures, Design and Analysis of Algorithms
- **Student Work**

Homework assignment and Programming project, 2 Midterms, and Final exam
- **Grading Policy:**

Homework and Project (20%), Attendance (10%),
Midterm1 (20%), Midterm2 (20%, Programming Exam), Final exam (30%)



- **Learner Outcomes**

Students will be able to...

1. Understand concepts of computer networking, including protocol layering, algorithm design
2. Understand network protocols covering the application layer, the transport layer, the network layer, and the data link layer of the TCP/IP stack
3. Understand local area networks, wide area networks, wireless networks, and multimedia networks
4. Implement network applications using sockets.
5. Analyze network protocols with Wireshark

- **Course Details:**

1. All in-class lectures are delivered in English and also provided as E+ lectures on i-Campus system.
2. Assigned readings are from the textbook and suggested to complete before each class. At least, you should read the introductory material at the beginning of each chapter.
3. Assignments **must be** submitted at the beginning of the class on the due date. Late submissions will be accepted with **10% penalty each day**.
4. All exams are closed-book, closed-notes cumulative exams and cover the material up to the point mentioned one week prior to the exam date.
5. Basically all works in this class must be done individually. Anyone cheating on work assigned in this class will receive a zero for that assignment, i.e. submitting the same programs with slight changes of variable names and tab sizes, etc.
6. You **MUST** have a computer access such as an account offered by SICE, or your own PC.
7. Anyone who misses an exam without prior approval of the instructor will have **-30 points** instead of 0, and there will be no makeup exams.
8. Hand phone rings during the lecture cost the weight of one absence, and two lates for the lecture cost one absence.
9. Instructor's accidental class skip will be announced through the web page 3 hours before the class. Hence, you have to check the class home page at least once a week.
10. Please note that improper attitude will be severely affected to your course grade.



● **Tentative Course Materials**

1. Introduction
2. Application Layer
3. Transport Layer
4. Network Layer
5. Data Link Layer
6. Software Defined Network/Network Function Virtualization

Are you ready for the new semester?



Tentative Course Schedule: Fall 2017

Topic	Readings	Assignments
1. Are you ready?	Syllabus	
2. Overview of the Internet, Protocol Layering	Chapter 1	
3. Protocol Layering, Internet History	Chapter 1	Homework #1
4. Wireshark Tutorial		Homework #2
5. Introduction, Client-Server Paradigm	Chapter 2	
6. Standard Client-Server Application (cont.)	Chapter 2	
7. Standard Client-Server Application (cont.)	Chapter 2	
8. Standard Client-Server Application	Chapter 2	
9. P2P Algorithms, Socket Programming	Chapter 2	MIDTERM 1
10. Introduction of Chapter 3	Chapter 3	
11. Transport-Layer, User Datagram Protocols	Chapter 3	
12. Transmission Control Protocol (cont.)	Chapter 3	
13. Transmission Control Protocol	Chapter 3	Homework #3
14. Introduction of Chapter 4	Chapter 4	
15. IPv4 Format and Addressing	Chapter 4	
16. DHCP, NAT, IP Forwarding and ICMPv4	Chapter 4	MIDTERM 2
17. Unicast Routing: Routing Algorithms	Chapter 4	
18. RIP and OSPF	Chapter 4	
19. BGP4, Multicast Routing and IPv6	Chapter 4	Homework #4
20. Introduction of Chapter 5, Data Link Control	Chapter 5	
21. Data Link Control	Chapter 5	
22. Medium Access Protocols	Chapter 5	
23. Link Layering Addressing, Internet Example	Chapter 5	
24. Ethernet Protocol, Other Wired Networks	Chapter 5	
25. SDN/NFV	Chapter 6	Homework #5 FINAL EXAM

NOTE:

1. Midterm #1 exams (9/28 Thur) will be scheduled at 10:25-11:55.
2. Midterm #2 programming exams (11/16 Thur) will be scheduled at 10:25-11:55.
3. Final exams (12/14 Thur) will be scheduled at 10:25-11:55AM. Do not forget it
4. Exam room will be noticed to the monet webpage.