

Syllabus for Introduction to Computer Networks (SWE3022-42), Fall 2021

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Office hour: Wednesday 14:00-15:00

Class Web page: <https://icampus.skku.edu/>

Welcome to SWE3022-42!

In this course, you will be exposed to the introduction to Computer Networks. The goal of this course is to provide graduate students with the knowledge about computer networks that are used by computers and mobile computing devices (e.g., Smartphones, Tablets, and Laptops) for various services through cloud. This course decomposes the Internet technology (as the core of computer networks) into multiple layers and explains protocols required for those layers. That is, based on the OSI (Open Systems Interconnection) model, this course divides the Internet architecture into Physical layer, Data link layer, Network layer, Transport layer, and Application layer and then articulates the protocols necessary for running services in each layer. Our classes will be delivered in the form of flipped class, consisting of pre-class video lecture and class discussion. I hope you will enjoy this computer networking course!

Detailed Class Information

When: Tuesday 13:30-14:45, Thursday 12:00-13:15

Where: WebEx Online

- Meeting Link:
<https://skku-ict.webex.com/skku-ict/j.php?MTID=m52c43567654de52ac496cda84911cc73>
- Meeting Number: 170 137 2609
- Password: #skku-comnet-21

Teaching assistant: Patrick Lingga

- Graduate Student: Department of Computer Science and Engineering
- Research Lab: IoT Lab
- Office: 85461 in Corporate Collaboration Center
- Office Hours: Wednesday 14:00-15:00
- Phone: 031-299-4106
- Email: patricklink888@gmail.com

Textbooks:

1. Main Textbook: “Computer Networking: A Top-Down Approach”, 7th edition, by James F. Kurose and Keith W. Ross, Pearson, published in 2016.
2. Supplemental Textbook: “Computer Networks”, 6th edition, by Andrew S. Tanenbaum, Nick Feamster, and David Wetherall, Pearson, published in 2019.

Coursework: Four homework assignments (including programming in C), group activities, one midterm exam, and one final exam. (See schedule on the following pages.)

1. Group Activities

Each group consists of three (or two) students. Group activity aims at bringing up the thinking power of the students with three challenging problems from the day’s class once a week. Problems are (i) narrative questions and (ii) calculation questions. In one class, groups will work for the group activity, make their answers in pptx, and submit their slides to icampus. In another class, they will present their answers. The course TA will grade the submitted slides.

2. Homework Assignments

Four homework assignments are based on textbook and relevant articles. Most homework assignments will have several problems and one article reading (e.g., journal or conference articles related to computer networks). Homework 3 is one programming assignment. For the programming assignment, the program should be implemented in C or C++. The implementation by other programming languages (e.g., Java and Python) will not be accepted!

- **Homework 1 and 2:** Problem Solving
- **Homework 3:** Problem Solving and Socket Programming
- **Homework 4:** Problem Solving and Network Simulation

3. Exams

The exams will be closed-book tests in class by course schedule. It is noted that the final exam is a non-cumulative test, including the topics that are covered after the midterm exam. Make-up will be considered only in the event of a documented last-minute medical or other emergency.

Grading: Grades will be based on attendance (3%), a weighted average of 4 assignments (20%, weighted equally), group activities (20%), midterm exam (27%), and final exam (30%). The guideline for grade is based on the following absolute scale for the total score 100: $A+ \geq 85$, $A \geq 80$, $B+ \geq 75$, $B \geq 70$, $C+ \geq 65$, $C \geq 60$, $D+ \geq 55$, $D \geq 50$, $F < 50$. The final grade boundary will be determined according to the guideline above and the class attitude along with the university grading policy.

Notes for Attendance:

1. When you are absent from class three times or more, you will be given F grade.
2. Absence with a reasonable reason without pre-notice will be considered one late attendance.
3. Two late attendances are equivalent to one absence.

Important class policies (Please read carefully!): To qualify for full credit, each homework assignment must be submitted in its entirety before class on the due date. Work submitted after class will not be accepted. Also, all work must be done independently. I encourage you discuss assignment problems in general terms with your classmates, but the final answer must be your own. Copying from homework of other students, from the instructor's manual, or from the material in the Internet will be regarded as cheating, leading to F grade. The cheating for the term project from other people's work or the Internet will let you fail in this course with "F" grade.

Web page: The information about the course will be posted on the course page in icampus (<https://icampus.skku.edu/>). The group activities and homework assignments are posted here. You need to submit your group activity slides and homework reports to the icampus course page. The page will also have an online forum through a web board, where students can discuss material related to the course. Please check the class web page regularly for the notices.

Course Schedule

The schedule may be changed at instructor's discretion. Readings refer to chapters that are relevant to two textbooks. Topics marked with a '*' are not in the textbooks, but in the paper list announced in class.

Week	Topic
1 (8/31, 9/2)	Course Introduction Introduction to Computer Networks
2 (9/7, 9/9)	Link Layer and Local Area Networks (1/2)
3 (9/14, 9/16)	Link Layer and Local Area Networks (2/2)
4 (9/21, 9/23)	Network Layer (1/2) Note: 9/21 has no class as Chuseok, i.e., Korean Thanksgiving Day
5 (9/28, 9/30)	Network Layer (2/2) Note: 9/28 has no class as Confucius' Birth Day
6 (10/5, 10/7)	Wireless and Mobile Networks (1/2)

7 (10/12, 10/14)	Wireless and Mobile Networks (2/2)
8 (10/19, 10/21)	Review for Midterm Exam Midterm Exam
9 (10/26, 10/28)	Transport Layer (1/2)
10 (11/2, 11/4)	Socket Programming
11 (11/9, 11/11)	Transport Layer (2/2)
12 (11/16, 11/18)	Computer Network Simulation: SMPL and OMNeT++
13 (11/23, 11/25)	Multimedia Networking
14 (11/30, 12/2)	Application Layer
15 (12/7, 12/9)	Review for Final Exam Final Exam

Assignment Schedule

HW Number	Out	Due
HW1	9/14	9/28, 13:30
HW2	9/28	10/12, 13:30
HW3	11/2	11/16, 13:30
HW4	11/16	11/30, 13:30

Exam Schedule

Exam	When	Where
Midterm Exam	10/21 (Thursday), 12:00-13:15	icampus Online
Final Exam	12/9 (Thursday), 12:00-13:15	icampus Online