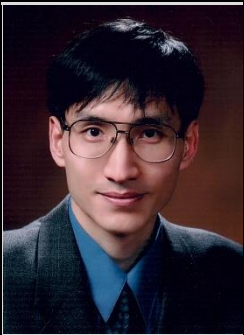


# Extended Syllabus (2024 Fall Semester)

<b>Course Title</b>	지능형 통신 시스템	<b>Course Number</b>	CSE4060
<b>Credit</b>	3	<b>Enrollment Eligibility</b>	
<b>Class Time</b>	화요일, 목요일 (15:00~16:15)	<b>Classroom</b>	01

	<b>Prof. Sungwook kim (김승욱)</b>	<b>Homepage:</b> <a href="http://network.sogang.ac.kr/">http://network.sogang.ac.kr/</a>
	<b>E-mail:</b> <a href="mailto:swkim01@sogang.ac.kr">swkim01@sogang.ac.kr</a>	<b>Telephone:</b> (02) 705-8932
	<b>Office:</b> AS 903 <b>Office Hours:</b> M,W,F 11:00-17:00 am or by appointment	

## I Course Overview

1. Description
<p>이 과목은 기존의 데이터 통신 개론 과목을 개편하여 새로 개설된 교과목입니다. 개편된 이후 강의는 한국어로 진행됩니다. 전반부는 (중간고사 전) 기존의 데이터 통신 개론 과목 중 1학기 과목인 ‘컴퓨터 네트워크’에서 다루지 못한 부분인 데이터 통신의 기초이론과 원리에 대해 설명합니다. 후반부는 (중간고사 후) 네트워크 보안, 네트워크 트래픽 분석, 시뮬레이션 개론, 차세대 무선 통신 기술과 동향, 그리고 지능형 통신 시스템의 기초이론을 다룰 예정입니다.</p>
2. Prerequisites
<p>선수과목 필요없음.</p> <p>Students must have a working knowledge of fundamental data structures and associated algorithms. For some of the practical aspects of the course, a working knowledge of mathematics is expected. An undergraduate course in data communication and networks is helpful but not required.</p>

3. Course Format (%)					
Lecture	Discussion	Experiment/Practicum	Field study	Presentations	Other
100 %	0%	0%	0%	0%	0%

4. Evaluation (%)							
mid-term Exam	Final exam	Quizzes	Presentations	Projects	Assignments	Participation	Other
45 %	45 %	0%	0%	0%	10 %	0 %	0 %

## II Course Objectives

The objective of this course is to introduce, study and discuss the main issues in data communications and intelligent communication systems. It will include layered communication architectures, transmission techniques, protocol design, network organization, implementation techniques and communications security issues, and network traffic analysis.

## III Course Format

Lecture based approach.

Topics to be covered include: data communication concepts and techniques in a layered network architecture, communications switching and routing, types of communication, network congestion, network topologies, network configuration and management, network model components, layered network models (OSI reference model, TCP/IP networking architecture) and their protocols, various types of networks and their features.

## IV Course Requirements and Grading Criteria

Homework 10%  
Mid. Exams 45%  
Final Exam 45%

## V Course Policies

**Attendance and Work:** All students should attend class unless discussed with the instructor.

**Note:** If you have a disability which will make it difficult for you to carry out the work as outlined here, or you need special accommodations/assistance due to a disability, please contact professor.

## VI Materials and References

### Textbook

**Data Communications and Networking 5th Edition** by Behrouz A. Forouzan

**Reading Materials (Lecture Note)**

### References

- 1) James F. Kurose and Keith W. Ross, Computer Networking: A Top-Down Approach, Pearson Addison-Wesley.
- 2) Reading materials

Class WWW site: <http://network.sogang.ac.kr/>

## VII Course Schedule

<b>Week 1</b>	<b>Learning Objectives</b>	
	<b>Topics</b>	Introduction / Network Models
	<b>Class Work (Methods)</b>	Lecture
	<b>Materials (Required Readings)</b>	
	<b>Assignments</b>	
<b>Week 2</b>	<b>Learning Objectives</b>	Introduction to Physical Layer / Digital Transmission
	<b>Topics</b>	

	<b>Class Work (Methods)</b>	Lecture
	<b>Materials (Required Readings)</b>	
	<b>Assignments</b>	
<b>Week 3</b>	<b>Learning Objectives</b>	
	<b>Topics</b>	Analog Transmission / Bandwidth Utilization
	<b>Class Work (Methods)</b>	Lecture
	<b>Materials (Required Readings)</b>	
	<b>Assignments</b>	Homework #1
<b>Week 4</b>	<b>Learning Objectives</b>	
	<b>Topics</b>	Transmission Media / Switching. Error Detection And Correction
	<b>Class Work (Methods)</b>	Lecture
	<b>Materials (Required Readings)</b>	
<b>Week 5</b>	<b>Assignments</b>	
	<b>Learning Objectives</b>	
	<b>Topics</b>	Wired LANs : Ethernet / Other Wired Networks
	<b>Class Work (Methods)</b>	Lecture
	<b>Materials (Required Readings)</b>	
	<b>Assignments</b>	

<b>Week 6</b>	<b>Learning Objectives</b>	
	<b>Topics</b>	Data Link Control (DLC) / Media Access Control(MAC)
	<b>Class Work (Methods)</b>	Lecture
	<b>Materials (Required Readings)</b>	
	<b>Assignments</b>	Homework #2
<b>Week 7</b>	<b>Learning Objectives</b>	
	<b>Topics</b>	Network Management / Multimedia
	<b>Class Work (Methods)</b>	Lecture
	<b>Materials (Required Readings)</b>	
	<b>Assignments</b>	
<b>Week 8</b>	<b>Learning Objectives</b>	
	<b>Topics</b>	Wireless LANs / Other Wireless Networks
	<b>Class Work (Methods)</b>	
	<b>Materials (Required Readings)</b>	
	<b>Assignments</b>	
<b>Week 9</b>	<b>Learning Objectives</b>	
	<b>Topics</b>	Network Security

	<b>Class Work (Methods)</b>	Lecture
	<b>Materials (Required Readings)</b>	
	<b>Assignments</b>	
<b>Week 10</b>	<b>Learning Objectives</b>	
	<b>Topics</b>	Traffic Modeling for Wireless IP
	<b>Class Work (Methods)</b>	Lecture
	<b>Materials (Required Readings)</b>	
	<b>Assignments</b>	
<b>Week 11</b>	<b>Learning Objectives</b>	
	<b>Topics</b>	Traffic modeling method (1)
	<b>Class Work (Methods)</b>	Lecture
	<b>Materials (Required Readings)</b>	
	<b>Assignments</b>	Homework #3
<b>Week 12</b>	<b>Learning Objectives</b>	
	<b>Topics</b>	Traffic modeling method (2)
	<b>Class Work (Methods)</b>	Lecture
	<b>Materials (Required Readings)</b>	

	<b>Assignments</b>	
<b>Week 13</b>	<b>Learning Objectives</b>	
	<b>Topics</b>	Simulation concept
	<b>Class Work (Methods)</b>	Lecture
	<b>Materials (Required Readings)</b>	
	<b>Assignments</b>	
<b>Week 14</b>	<b>Learning Objectives</b>	Monte_Carlo Simulation
	<b>Topics</b>	
	<b>Class Work (Methods)</b>	
	<b>Materials (Required Readings)</b>	
	<b>Assignments</b>	
<b>Week 15</b>	<b>Learning Objectives</b>	
	<b>Topics</b>	Wireless Evolution / Cellular wireless network
	<b>Class Work (Methods)</b>	Lecture
	<b>Materials (Required Readings)</b>	
	<b>Assignments</b>	Homework #4
<b>Week 16</b>	<b>Learning Objectives</b>	

	Topics	Final Exam
	Class Work (Methods)	
	Materials (Required Readings)	
	Assignments	

### **FLEXIBILITY IN SYLLABUS:**

The syllabus will remain flexible, although modifications would typically be rare and few. Still, if a major disaster happens during the semester I may opt to focus on that for a while. I may also discover that it is beneficial to consider other selected topics or issues, as time passes. If changes are made, these will be made known through a variety of means to you.

### **CONTACT**

For more information about this course, please contact me or the Network Lab. at AS 901.

<http://network.sogang.ac.kr/>

### **Instructor : Prof. Sungwook kim**



Sungwook Kim received the BS, MS degrees in computer science from the Sogang University, Seoul, in 1993 and 1995, respectively. In 2003, he received the PhD degree in computer science from the Syracuse University, Syracuse, New York, supervised by Prof. Pramod K. Varshney. He has held faculty positions at the department of Computer Science of ChoongAng University, Seoul. In 2006, he returned to Sogang University, where he is currently an associate professor of department of Computer Science & Engineering, and is a research director of the Network research laboratory (Network Lab.). His research interests include resource management, adaptive QoS control and game theory for wireless network management.