Course Description (Department of Software Engineering)

Wireless and Mobile Networks
This course focuses on all technical and practical aspects of Wireless and Mobile Networks. Wireless and Mobile Networks are any type of computer network that uses wireless data connections for connecting network nodes. Topics include Wireless Networking Trends, Key Wireless Physical and Link Layer Concepts, Wireless Local Area Networks, Wireless Personal Area Networks, WiMAX (Physical layer, Media access control, Mobility and Networking), Ad Hoc Networks, Wireless Sensor Networks, Wireless Mesh and Multi-Hop Relay Networks.
Operating System
The goal of this lecture is that the make a survey of structures of an operating system kernel, process synchronization primitives, interrupt handlers, and device drivers. Details of the run-time environment supporting high level languages for concurrent programming and organization of multiprogramming and multiprocessing systems is mentioned also. Resource allocation models, problem of deadlocks, scheduling, memory management , virtual memory, I/O control and file systems are discussed too
Computer Graphics
This course introduces mathematical methods for 2D and 3D modeling. Also, various graphics algorithms such as scale-conversion, painting, shading, rotation, clipping,and hidden surface algorithm are studied.
Pattern Recognition
This course introduces basic theories for pattern recognitions. Also, various probabilistic methods such as HMM and techniques including neural networks are studied.
Artificial Intelligence
In this course, we will study the most fundamental knowledge for understanding AI. We will introduce some basic search algorithms for problem solving; knowledge representation and reasoning; pattern recognition; fuzzy logic; and neural networks.
Image Processing
This course introduces basic theories for image processing such as analog and digital image characteristics, point processing, neighborhood processing, image transform, image restoration, image coding and analysis. Also, various applications are studied.
Multimedia

This courses introduces basic theories about multimedia such as image, audio and videos. Multimedia format, compression, transmission and standards are considered. Also, various multimedia applications are studied.

Data Mining

Data mining is concerned with the extraction of novel knowledge from large amounts of data. This course introduces and studies the concepts, issues, tasks and techniques of data mining. Topics include data preparation and feature selection, association rules, classification, clustering, evaluation and validation, scalability, spatial and sequence mining, and data mining applications.

Software Engineering

This course introduces concepts, theories, tools and methods for the specification, development, management, and evolution of software systems in the perspective of software engineering.

Distributed Processing

This course introduces the basics of distributed computing, Includes the internetworking, ditributed object, remote procedure call. security, naming service, peer-to-peer system and web service.

Information Retrieval

This course studies the theory, design, and implementation of text-based information systems, so it covers basic and advanced techniques for text-based information systems: efficient text indexing; Boolean and vector space retrieval models; evaluation and interface issues; Web search including crawling, link-based algorithms, and Web metadata; text/Web clustering, classification; text mining.

Natural Language processing

This course covers a broad range of topics in natural language processing(NLP), including word and sentence tokenization, syntacticanalysis (parsing), semantic analysis(meaning extraction),pragmatics and discourse. Various applications of NLP including machine translation, sentiment analysis, information extraction, question answering, and text data mining are also covered. We will also introduce the underlying theory from probability, statistics, and machine learning that are crucial for the field, and cover fundamental algorithms like n-gram language modelingand vector-space models of meaning. This course mostly focuses on the Korean language processing.

Embedded Systems

In this course, we study the basics of embedded Linux system porting, setting and programming. Also in the lab. graphic user interface tools like GTk and Qt system applications are programmed.

Computer Network
A computer network is a telecommunications network which allows computers to exchange data. This is an introductory course on computer networks, specifically the Internet. It focuses on explaining how the Internet works. It also explains the principles of how to design networks and network protocols. Students gain experience understanding Internet protocol specifications as statements of what a system should do.
Mobile Computing
This course introduces the basic concept of mobile computing, development environment, and its applications. Especially major topic is Java-based application development.
Computer Security
This subject provides an explanation of basic contents of IT security. It focuses on the symmetric and public-key cryptography, cryptographic hash functions, authentication protocols, digital signatures and certificates. Course goal is introduction to algorithms and fundamentals of security protocols and technics. The main goal of this subject is introduction to cryptography.
Computer Architecture
This course introduces the basic concept of computation, memory, control and I/O system. In addition, advanced topics such as pipeline processor, multiple processor and special purpose computer are explained.
Network Computing
This course introduces the fundamental problems of computer networking, from sending bits over wires to running distributed applications. For each problem, we explore the design strategies. Topics include error detection and correction, multiple-access, bandwidth allocation, routing, internetworking, reliability, quality of service, naming, content delivery, and security. As we cover these topics, you will learn a detailed understanding of widely-used networking technologies.
Embedded Software
Selection of the application of actual embedded with practical business skills by looking to deploy a system also focus on cultivating.
Object-Oriented System Development Methodology
Topics include the differences of the traditional software development and object-oriented software development. It also includes the development of simple system using the development tool.