

Virtual Reality / 3 hours, 3 credits

Students learn the theory of static graphic virtual spaces, the theory of dynamical graphic virtual spaces, the concept of Avatar, and the interactions in virtual spaces.

Game Programming / 3 hours, 3 credits

Acquire DirectX and game programming theories and cultivate technologies that can develop computer games based on basic knowledge.

Advanced Database / 3 hours, 3 credits

Among the various non-relational databases that emerged in the big data era, it deals with document-based databases and allows them to interact with databases through programming languages based on the query language MQL learning of the document-based database MongoDB.

Advanced C Programming and Lap practice / 5 hours, 4 credits

Focusing on the most basic C language of programming, learn the techniques of C programming, and cultivate the ability to implement programming through practice.

Machine Learning / 3 hours, 3 credits

It deals with the overall content of machine learning, a field of artificial intelligence. We analyze the pros and cons of the method of supervised learning and the method of unsupervised learning to learn how to choose the appropriate method for the case.

Data Engineering / 3 hours, 3 credits

It covers a pipeline across data collection, modeling, and analysis to handle real-world big data, and addresses data organization, parallel processing, and the latest programming paradigm suitable for queries for efficient data processing.

Data Base / 3 hours, 3 credits

Know the basic concepts of the database and learn how to design the database, the language that deals with the database, and the stability and completeness of the database.

Database Programming / 3 hours, 3 credits

It learns the design, language, stability, and completeness of the database. It deals with the intensified process of practical programming using the database as well as building it.

Multimedia Programming / 3 hours, 3 credits

Acquire theories and techniques for processing multimedia data. Overall, it introduces compression, transmission, and restoration of digital content. It also has an opportunity to present methods implemented through team projects.

Problem Solving and Lab Practice / 3 hours, 3 credits

Familiarize yourself with the basic concepts of C++ programming, such as class, inheritance, and merge, and learn the grammar of the language. Based on this, the ability to implement programming is cultivated through practice.

Problem Solving and Lab Practice:JAVA / 3 hours, 3 credits

It focuses on the techniques of the JAVA program and the understanding of JAVA. The main focus is on acquiring basic JAVA's programming skills.

Linear Algebra and Programming / 3 hours, 3 credits

We acquire linear algebra associated with vector and matrix operations.

Software Engineering / 3 hours, 3 credits

Systematically learns software engineering approaches that are essential for high-quality software development. We learn theories, techniques, and modeling notation for planning, analysis, design, implementation, and testing according to procedural and object-oriented software development methodologies.

Smart SW Education1, 2 / 3 hours, 3 credits

It learns programming languages, databases, and development tools, as well as authoring solutions, educational materials, curriculum, and open-source MOOC, as well as state-of-the-art SW education environments such as cultivating learner-centered problem-solving skills using intelligent information. Through this, it is a track to cultivate SW education experts who can realize learner-centered SW education that plans, designs, and implements SW necessary for software education. The goal is to develop the ability to remove entry and technology barriers and provide creative problem-solving skills-oriented education required by the future information society by using program coding technology barriers and intelligent information technology software.

Special lecture of software 1 / 3 hours, 3 credits

It covers the overall content of software development and management.

Special lecture of software 2 / 3 hours, 3 credits

It covers the overall content of software development and management.

Numerical Analysis / 3 hours, 3 credits

We deal with the basic concepts of approximation and error, and based on them, we introduce the basic theories and algorithms for solving equations, interpolation, numerical differentiation and integration, and analyze the errors accordingly.

Algorithms and Lab Practice / 5 hours, 4 credits

Algorithms refer to clear procedures for achieving certain specific goals. We introduce a general algorithmic technique that uses computers to solve different types of problems.

App Programming / 3 hours, 3 credits

Based on the Google Android framework, it is possible to develop applications by learning the functions of GUI programming, event processing, and message delivery.

Image Processing / 3 hours, 3 credits

We learn basic image processing methods and learn various image representations and compression methods. They also learn about topics such as virtual reality and video communication.

Introduction to Open Source Software / 3 hours, 3 credits

Through this lecture, students learn about various open-source communities and acquire related knowledge. This lecture provides students with access to open-source communities and programs and provides opportunities to experience open-source software design.

Open Source Software Engineering / 3 hours, 3 credits

Learn the overall theory of computer operating systems. Learn the concept of the operating system more effectively through practice.

Web Programming / 3 hours, 3 credits

It teaches web programming languages such as XHTML, CSS, JavaScript, Dynamic HTML, and XML, and learns web programming languages through practice.

Windows Programming / 3 hours, 3 credits

It learns the most basic Win32 API programming techniques in Windows-based program production and produces practical Windows applications.

Speech Recognition / 3 hours, 3 credits

Learn basic knowledge of the entire process of speech recognition, which is responsible for the main functions of AI technology, and detailed functions for each detailed module, and implement them simply through programming practice.

Speech Audio Processing / 3 hours, 3 credits

It deals with in-depth content on basic theory, editing techniques, and sound effect techniques acquired in digital sound subjects.

Discrete Mathematics and Programming / 3 hours, 3 credits

Due to the nature of the computer operating in a binary system, the application process mainly targets discrete data. We learn computer-related sets and mathematical backgrounds such as functions, matrices, Boolean algebra, and algorithms.

Artificial Intelligence / 3 hours, 3 credits

Learn about the history and overview of artificial intelligence, knowledge expression theory, reasoning, computer vision, Neural Networks, machine learning, and Expert Systems.

Internship 1 / 3 hours, 3 credits

While working as an intern at research institutes and small and medium-sized companies in Korea, they have an opportunity to experience the company and field. (This subject must be hired as an intern by an agreed company to apply for lectures.)

Internship 2 / 3 hours, 3 credits

While working as an intern at research institutes and small and medium-sized companies in Korea, they have an opportunity to experience the company and field. (This subject must be hired as an intern by an agreed company to apply for lectures.)

General Physics and Simulation / 3 hours, 3 credits

Learn the basic principles of physics that underlie natural phenomena. Various physical phenomena are reproduced using computer simulation, and related physical concepts are embodied through this. Unlike ordinary physical experiments, we utilize computers, so we also learn about the differences from real phenomena, and cultivate the ability to develop software for simulating natural phenomena.

Data Structure and Lab Practice / 5 hours, 4 credits

Information processing by computers is conducted on various data in the real world, and it is a design theory and experiment that reconstructs most complex data in an effective form for computer processing.

Independent Study and Career Skills/Senior Project 1,2 / 1 hours, 1 credits

This subject is a subject that conducts projects or prepares papers in the field of interest based on the major knowledge learned in the department before graduation, and aims to improve social stress by completing career education programs for entering society after graduation.

Augmented Reality / 3 hours, 3 credits

It deals with techniques that connect the real world to the virtual world using computer graphics.

Intelligence System / 3 hours, 3 credits

As an introduction of software technology to create an intelligent computer system, we think about how to present and implement data structures and algorithms for intelligent problem solving.

Creative Software Convergence Nomad / 3 hours, 3 credits

It is a modular class according to the student's career and learning needs, and it selects three modules for a customized course centered on students, and learns an overview of the basic department courses of SW Convergence University.

Computer Architecture / 3 hours, 3 credits

It learns about the functions, operating principles, configuration, and control methods of processors, storage devices, input/output devices, which are components of computer hardware.

Computer Graphics / 3 hours, 3 credits

We learn basic theories to efficiently describe two-dimensional or three-dimensional objects under a graphics environment, which is a means of visual representation of information, and cultivate graphics programming capabilities.

Computer Network / 3 hours, 3 credits

Learn the layered structure of computer networks and study related protocols and routing algorithms.

Computer Vision System / 3 hours, 3 credits

This subject lectures on technologies that analyze the characteristics of images such as image formation, object recognition, and image search and apply them to search.

Computer Animation / 3 hours, 3 credits

It learns the basic principles and application techniques of computer animation used not only in the animation field but also in the digital content field of games and movies. We carry out algorithm implementation projects for keyframe animation, motion capture, face animation, and natural phenomenon animation.

Patent and Foundation / 3 hours, 3 credits

Apply for a patent for your idea or use these ideas to learn the knowledge you need to start a business.

Pattern Recognition / 3 hours, 3 credits

We learn basic principles related to voice recognition, image recognition, and gesture recognition applied to user interface technology for interactive digital content.

Probability and Statistics Programming / 3 hours, 3 credits

Study probability theory, which is the basis of engineering, learn probability models of signals such as irregular variables and irregular processes, and apply them to programming.

C Programming and Lab Practice / 5 hours, 4 credits

It is a process of learning from the basics of programming one by one, focusing on the most basic C language in the field of computer science, and learning the techniques of C programming.

Capstone Design(Industrial-Educational Cooperation Project / 6 hours, 6 credits

Design and implement application programs or digital content using a combination of digital content technologies.

Human-Computer Interaction / 3 hours, 3 credits

Following the introduction of HCI concepts, we learn humans and their technical aspects, and practice through principles and small HCI projects such as methodology and various technologies, measurement methods, prototyping techniques, and evaluation of interaction design.

K-MOOC:Multimedia / 3 hours, 3 credits

Learn about multimedia concepts, multimedia components, multimedia standards, multimedia compression and synchronization, network/communication technology that enables multimedia applications, multimedia databases, and multimedia information retrieval.

SW Basic Design(Introduction to Industrial Project) / 3 hours, 3 credits

It learns functions such as project design, project management techniques, team dynamic activities, and practical program development, and operation principles, organization, and control methods.