College of Engineering

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School of Architecture

- Architecture & Urban Design
- Architectural Engineering

School of Chemical Engineering

- Chemical Engineering Materials
- Chemical Engineering Safety
- Chemical Process Engineering

School of Materials Science and Engineering

- Metallurgical Engineering
- Energy Nanomaterials
- Optoelectronic Materials

School of Mechanical Engineering

- Mechanical Engineering
- Mechanical & Automotive Engineering

School of Polymer Science and Engineering

- Polymer Engineering
- Fiber Science Engineering

Department of Biotechnology and Bioengineering

Department of Civil Engineering

Department of Electrical Engineering

Department of Energy and Resources Engineering

Department of Environment and Energy Engineering

Department of Industrial Engineering

Department of Computer Engineering

Department of Electronic Engineering

Department of Software Engineering

School of Architecture

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What is Architecture?

Architecture is a profession where technology, ecology, philosophy, art, and science combine to solve the problems of the building environment.

The buildings we live and work in shape our experiences, our memories, and the way we view the world. Homes, office buildings, opera houses, art galleries, schools, and factories are all designed by architects. It is the role of the architect to analyze a client's needs and to design a building which fulfills those needs. The architect then documents the design and manages the construction process. The architectural engineer develops new technologies and materials to construct buildings.

School of Architecture at Chonnam National University

Emphasizing the awareness of social and cultural contexts that underpin the architectural practice, encouraging a comprehensive and creative thinking ability among students, and researching the conditions of the environment of human dwelling, the School of Architecture remains committed to educating architects who can contribute to social progress and welfare.

Founded in 1952, the School of Architecture continues to make efforts to be a core architectural institute leading regional academic research and quality education open to the community.

In 2002, the Department of Architecture was reorganized into the School of Architecture with a five-year Bachelor of Architecture program and a four-year Bachelor of Architectural Engineering program. With a common curriculum in the first semester of studies, students can select and advance to one of the two programs in their second semester.

To achieve this goal, the School of Architecture provides an opportunity for students to understand the methods of creating buildings and architectural environments through design and experiments. The objective is to develop creative, scientific, and future-oriented architect engineers with a professional and comprehensive overview in order to contribute to the creation of architecture culture and academic development of Korea.

In addition, the nationally funded Bio-housing Institute is both designing and researching various aspects of environmentally-friendly architecture based on ecology, health, and sustainability. The goal of the Institute is to develop models of bio-housing through the integration of traditional materials and high technology, and to educate professionals who are equipped with original future technologies and expertise.

Undergraduate and graduate students of the School of Architecture are eligible for various scholarships and funding for overseas training.

▮ Architecture & Urban Design Major

The Architecture & Urban Major provides education with the recognition that architecture is not only to provide places in which human beings live and aesthetic structures which gives pleasure but also to become a public device where individuals and society, as a whole, can gather and interact. On such recognition the program has set to realize architectural and urban products that secure human dignity, fulfill social responsibility and pursue aesthetic beauty. Therefore, the goals of the Architecture & Urban major is to cultivate creative and internationalized professional architects and urban designers who understand socio-cultural interconnections through a competitive curriculum including lectures, design studios, and an internship for developing students' architectural and urban professional skills in a comprehensive manner.

▮ Architectural Engineering Major

Architectural Engineering helps students fulfill their roles as competent professionals who can design, construct, and manage safe and rational buildings and structures after graduation.

The Architectural Engineering Major intends to develop competitive talents in architectural environments at home and abroad. It pursues realistic architecture by studying engineering applications with a focus on curricula such as Architectural Construction, Architectural Structure, and Architectural Environment and Equipment.

■ Professors

Architecture & Urban Design Major

- Se-Gyu Oh, Ph.D.
  [Professor, Architectural and Housing Design, Sustainable Green Housing Design, Architectural Design and Renovation, Urban Renewal Design, oskar@jnu.ac.kr]
- Hyo-Won Lee, Ph.D.
  [Professor, Architectural Design, Design Theory, Planning and Research of Facility for the Aged, Louis I. Kahn, leehw@jnu.ac.kr]
- Uoo-Sang Yoo, Ph.D.
  [Professor, Architectural Design and Evaluation, usyoo@jnu.ac.kr]
- Seung-Hoon Han, Ph.D.
  [Professor, Architectural Planning & Design, hshoon@jnu.ac.kr]
- Min-Seok Lee, Dr.-Ing
  [Professor, Urban Design Planning, leeminseok@jnu.ac.kr]
- Yunnam Jeong, Ph.D.
  [Assistant Professor, Architectural Planning, ynj@jnu.ac.kr]
- Kyungsik Kim, M.Arch.
  [Assistant Professor, Architectural Design and Planning, kimks@jnu.ac.kr]
- Sanghun Joo, Ph.D.
  [Assistant Professor, Architectural history of Korea and Asia, Policy and Theory of Cultural Heritage, joosh924@jnu.ac.kr]

Architectural Engineering Major

- Jin-Kyu Song, Ph.D.
  [Professor, Reinforced Concrete, Performance Evaluation, Loess Reinforced Concrete, jgsong@jnu.ac.kr]
- Jae-Seung Hwang, Ph.D.
  [Professor, Structural Performance Enhancement against Wind and Seismic Loads, Sustainable Control Device, Structural Control, jshwang@jnu.ac.kr]
- Seong-Seok Go, Ph.D.
  [Professor, Construction Management, Engineering, Safety, Material, ssgo@jnu.ac.kr]
- Bang Yeon Lee, Ph.D.
  [Professor, Advanced Building Materials, bylee@jnu.ac.kr]
- Jong Kwan Ryu, Ph.D.
  [Professor, Architectural Environment & Acoustics, jkryu@jnu.ac.kr]
- Kanghyeok Yang, Ph.D.
  [Associate Professor, Construction Informatics, kyang@jnu.ac.kr]
- Wonjun Choi, Ph.D.
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■ Degree Requirements

Architecture & Urban Design Major

Architecture & Urban Design students are required to earn 160 credits to graduate, taking an average of 18 credits per semester. The program is based on the Bachelor of Architecture program which normally takes 5 years to complete.

Architectural Engineering Major

Architectural Engineering students are required to earn 140 credits to graduate, taking an average of 18 credits per semester. The program is based on the Bachelor of Engineering Program which normally takes 4 years to complete.

■ What Do You Study?

Architecture & Urban Design Major

Architecture Environmental Control System Design
Interior Planning
Reinforced Concrete Structure Design 1
Steel Structure Design 1
Asian Architecture
Region, Culture and Space
Advanced Course in Computer-Aided Architectural Design
Introduction to Urban Planning
Practical English
Contents of Urban Space
Theory of Contemporary Architecture
Architectural Estimation and Supervision
Regional Industry and Architecture
History of Western Architecture
Introduction to Building Structure
History of Korean Architecture
History of Modern Architecture
Architectural Mechanical System
Architectural Planning
Architectural Structure System
Practical Internship
Environmental Technology

Housing and Culture
Fundamentals of Computer-Aided Architectural Design
Environment-Friendly Architecture
Building Materials
Building and City Codes
Site Planning
Urban Planning and Rehabilitation
Construction Management
Professional Practice
Integrated Architectural Planning
Architectural Space and Society
Structural Mechanics
Architectural Renewal Planning
Architectural Design Theory and Presentation
Architectural Design Methodology
Basic Design Studio 1
Basic Design Studio 2
Architecture Design Studio 1
Architecture Design Studio 2
Architecture Design Studio 3
Architecture Design Studio 4
Architecture Design Studio 5
Architecture and Urban Design Studio
Research and Advanced Design Studio
Industry Cooperative Design Studio
Digital Architecture
Architecture, City and Culture
Urban Design and Landscape Architecture
Smart Building
Smart City

Architectural Engineering Major

Building Structure
Computer Science Foundation
Computer Science Application
Building Materials Experiment
System of Building Structure
Architectural Equipment Application
Architecture Environmental Technology Experiment
Architectural Estimate
Architectural Acoustics
Soil & foundation engineering
Building Code & Regulation
Architectural Management
Architectural Capstone Design 2
Architectural Engineering Design
Creative Architectural Engineering Design
Mechanics of Materials
Engineering Mathematics 2
Statics
Building Structural Mechanics 1
Architecture Environmental Technology
Building Materials
Architecture Environmental Control System Design
Construction Technology
Structure Dynamics
Architectural Equipment
Reinforced Concrete Structure Design 1
Steel Structure Design 1
Practical Internship
Architectural Capstone Design 1
Housing and Culture
Construction Method & Technique Design
Engineering Mathematics 1
Introduction to Creative Design
Building Information Modeling System
Smart Building Technology and System
Basic Design Studio 1
Building Energy Simulation
Zero Energy Building Technologies

■ Careers

There is a diverse and exciting range of career opportunities for architecture graduates. As well as a career in private architectural practice, career opportunities include Architectural Design, Interior Design, Architectural and Urban Planning, Construction, Structural/Mechanical Engineering, Public Authorities, Project management, Property Development, Research, Restoration, and Conservation.

School of Chemical Engineering

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What is Chemical Engineering?

The goal of the School of Chemical Engineering (SCE) is to promote the development of engineering education by improving standards and guidelines of educational programs for engineering colleges and related education, thereby performing certification and consultation, and ultimately producing competent engineers.

School of Chemical Engineering

The SCE was established in March 2002 by merging the existing faculty of Chemical Engineering and faculty of Applied Chemistry. The newly restructured School of Chemical Engineering comprises the following three departments to foster understanding that is necessary for the development of engineering: chemical engineering materials, chemical engineering safety, and chemical process engineering.

Professors

- Taek-Hyeon Kim, Ph.D.
  [Professor, Design and Synthesis of Drug, Organic Synthesis, thkim@jnu.ac.kr]
- Jong-Ho Kim, Ph.D.
  [Professor, Catalytic Chemistry, jonghkim@jnu.ac.kr]
- Moo-Sung Lee, Ph.D.
  [Professor, Polymer/Hybrid Materials, moosung@jnu.ac.kr]
- Hyung Jin Kim, Ph.D.
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- Do-Heyoung Kim, Ph.D.
  [Professor, Metal Organic Chemical Vapor, kdhh@jnu.ac.kr]
- Jong-Il Rhee, Ph.D.
  [Professor, Development for Optic Biosensors and Biochips, jirhee@jnu.ac.kr]
- Young-Dae Kim, Ph.D.
  [Professor, Rheology, Conduction Polymer, youngdae@jnu.ac.kr]
- Eun-Mi Han, Ph.D.
  [Professor, Opto-electronic Materials, emhan@jnu.ac.kr]
- Kwang Ha, Ph.D.
  [Professor, Organometallic Chemistry, hakwang@jnu.ac.kr]
- Sung-June Cho, Ph.D.
  [Professor, Production and Storage of Methane and Hydrogen, sjcho@jnu.ac.kr]
- Hyun-Yong Lee, Ph.D.
  [Professor, Multilayer structure transparent electrodes, hyleee@jnu.ac.kr]
- Yun-Sung Lee, Ph.D.
  [Professor, Lithium Secondary Battery,

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- Jong-Hoon Han, Ph.D.
  [Professor, Nano Carbon Convergence Materials, jhhan@jnu.ac.kr]
- Jun-Seok Ha, Ph.D.
  [Professor, Nano Photonic Devices, jsha@jnu.ac.kr]
- Chang-Kook Hong, Ph.D.
  [Professor, Solar Cells, Energy Engineering, Polymer Materials, hongck@jnu.ac.kr]
- Chang-Hyun Ko, Ph.D.
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- Jeong-Woo Yun, Ph.D.
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- Sang-Hyun Lee, Ph.D.
  [Professor, Semiconductor & carbon nanomaterials, leeshyun@jnu.ac.kr]
- Yong-Il Park, Ph.D.
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- Young-Si Jun, Ph.D.
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- Byung-Chol Ma, Ph.D.
  [Associate Professor, Process Safety Design, Process Risk Analysis, anjeon@jnu.ac.kr]
- Dae-Sung Song, Ph.D.
  [Associate Professor, Process Design, Process Optimization, Process Safety, dssong@jnu.ac.kr]
- Ji-Eun Lee, Ph.D.
  [Assistant Professor, Nanomaterials, jelee@jnu.ac.kr]
- Bo-Ram Gu, Ph.D.
  [Assistant Professor, Process Systems Engineering/Computational Fluid Dynamics, boram.gu@jnu.ac.kr]
- Ki-Ho Park, Ph.D.
  [Associate Professor, Chemical Process, Process design, Modeling, Optimization, kiho138@jnu.ac.kr]
- Donghun Kim, Ph.D.
  [Assistant Professor, Functional Nanostructured Materials, donghun99@jnu.ac.kr]
- Daehoon Han, Ph.D.
  [Assistant Professor, 3D/4D Printing, Smart Materials, Bioinspired Engineering, dhhan@jnu.ac.kr]
- Sangchul Roh, Ph.D.
  [Assistant Professor, Soft Matter, Colloid and Interface Science, scroh@jnu.ac.kr]

■ Degree Requirements

Students are required to earn 140 credits, with 84 credits from Chemical Engineering courses, and 40 credits from general courses.

Students in the ABEEK Program are required to earn 12 credits from general courses, 32 credits from MSC courses, and 75 credits from engineering topics courses.

■ What Do You Study?

General Courses

▮ Core Courses

Writing for Self-reflection and communication
Career Plan and Self Understanding
Mathematics 1
General Chemistry 1
College Physics 1
Chemistry Laboratory 1
Computer for Real Life
Mathematics 2

General Chemistry 2
College Physics 2
Chemistry Laboratory 2

Chemical Engineering Materials Major Courses

▮ Core Courses

Polymer Chemistry
Engineering Mathematics 1
Chemical Process Calculation 1
Instrumental Analytical Methods
Physical Chemistry 1
Organic Chemistry 1
Transfer Operations 1
Materials Science
Electro Chemistry
Introduction to Creative Design
Basic Experiment of Chemical Engineering Lab 1
Basic Experiment of Chemical Engineering Lab 2
Design of Chemical Engineering and Materials
Experiments for Chemical Materials
Chemical Engineering Lab.
Chemical Engineering Capstone Design

▮ Electives

MATLAB Programming
Chemistry of Interface
Introduction to Polymer Processing
Polymer Materials
Industrial Analytical Chemistry
Engineering Mathematics 2
Chemical Process Calculation 2
Chemical Process Thermodynamics
Chemical Process risk assessment
Chemical Process Control
Fundamentals of Photonics
Fuctional Polymers
Display Engineering
Inorganic Materials
Inorganic Chemistry
Physical Chemistry 2
Semiconductor·Photonic Devices Engineering
Semiconductor Device Fabrication
Reaction Engineering
Separation Process
Separation And Purification Processes
Nonuniform Reaction Engineering
Engineering Seminar 1
Engineering Seminar 2
Biochemical Engineering
Petrochemical Industry
Combustion and Explosion Protection Engineering
Organic Industrial Chemistry
Organic Reaction Mechanism
Organic Synthetic
Organic Chemistry 2
Medicinal Chemistry
Transfer Operations 2
Catalyst Chemistry
Carbon Materials Engineering
Plant Safety Facility
Fundamentals & Design to Chemical process
Numerical Analysis in Chemical Engineering
Chemical Safety Engineering
Chemical Engineering Termodynamics
Chemical Engineering Quality Control
Field Practice for Chemical Engineering 1
Field Practice for Chemical Engineering 2
Environmental Chemistry

Chemical Enginieering Safety Major Courses

▮ Core Courses

Introduction to Creative Design
Transfer Operations 1
Chemical Process Calculation 1
Physical Chemistry 1
Organic Chemistry 1
Engineering Mathematics 1
Basic Experiment of Chemical Engineering Lab 1
Basic Experiment of Chemical Engineering Lab 2
Chemical Engineering Lab
Chemical Safety Experiment
Chemical Engineering of Chemicals

Combustion and Explosion Protection Engineering
Chemical Precess risk assessment
Plant Safety Facility
Chemical Process Design
Chemical Engineering Capstone Design

▮ Electives

MATLAB Programming
Transfer Operations 2
Chemical Process Calculation 2
Organic Chemistry 2
Physical Chemistry 2
Engineering Mathematics 2
Basic Design of Chemical Engineering
Inorganic Chemistry
Materials Science
Chemical Engineering Thermodynamics
Reaction Engineering
Separation Processes
Chemical Process Control
Petrochemical Industry
Nonuniform Reaction Engineering
Separation Purification Processes
Chemical Precess Control System Analysis
Chemical Precess Thermodynamics
Numerical Analysis in Chemical Engineering
Electrochemistry
Polymer Chemistry
Energy Engineering
Engineering Economy
Patent based Research and Development
Environmental Engineering
Instrumental Analytical Methods
Chemical Engineering Quality Control
Industrial Safety Regulations
Engineering Seminar 1
Engineering Seminar 2
Technology Management
Chemical Equipment and Facilities
Energy Storage System Engineering
Measurement Sensor Engineering
Field Practice for Chemical Engineering 1
Field Practice for Chemical Engineering 2

Chemical Process Engineering Major Courses

▮ Core Courses

Introduction to Creative Design
Transfer Operations 1
Chemical Process Calculation 1
Physical Chemistry 1
Organic Chemistry 1
Engineering Mathematics 1
Basic Experiment of Chemical Engineering Lab 1
Basic Experiment of Chemical Engineering Lab 2
Nonuniform Reaction Engineering
Separation and Purification Processes
Chemical Process Thermodynamics
Chemical Process Control System Analysis
Numerical Analysis in Chemical Engineering
Chemical Engineering Lab
Chemical Engineering Intensive Lab
Chemical Process Design
Chemical Engineering Capstone Design

▮ Electives

MATLAB Programming
Transfer Operations 2
Chemical Process Calculation 2
Organic Chemistry 2
Physical Chemistry 2
Engineering Mathematics 2
Basic Design of Chemical Engineering
Inorganic Chemistry
Materials Science
Reaction Engineering
Separation Processes
Chemical Engineering Thermodynamics
Chemical Process Control
Organic Composite Materials
Petrochemical Industry
Energy Engineering
Electrochemistry
Inorganic Materials
Measurement Sensor Engineering

Combustion and Explosion Protection Engineering
Polymer Chemistry
Organic Reaction Mechanism
Particle Engineering
Transfer Phenomena
Chemical Safety Engineering
Computer Aided Design of Chemical Engineering
Catalyst Engineering
Engineering Seminar 1
Engineering Seminar 2
Green Chemistry Technology
Energy Storage System Engineering
Chemical Equipments and Facilities
Environmental Engineering
Instrumental Analytical Methods
Quality Control
Technology Management
Engineering Economy
Chemical Technology and Patent
Chemical Process risk assessment
Plant Safety Facility
Chemical Engineering Quality Control
Field Practice for Chemical Engineering 1
Field Practice for Chemical Engineering 2

■ Careers

Graduates obtain employment in chemical plants (oil refinery, petrochemical, fertilizer, synthetic resin, oil and fat, food industry, inorganic chemistry, explosives, cement, glass, dye, rubber, paint, pulp and paper, metal, and smelting) in all parts of the country, including the Yeocheon and Ulsan districts, thermo-electrical and nuclear power plants, steel mills, photoelectron fields (semiconductor component/equipment, LCD, and photo component manufacturing), textile-related fields, sales fields for trading companies, pharmaceutical fields, cosmetics fields, polymer-related fields, research institutes, and civil service.

School of Materials Science and Engineering

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What is Materials Science and Engineering?

Materials Science and Engineering (MSE) is an interdisciplinary field that deals with the discovery and design of new or high-performance materials that constitute modern civilization and industrial developments. The field involves studying materials through the materials paradigm: synthesis, structure, properties, and performance. It incorporates elements of physics and chemistry and is at the forefront of nanoscience and nanotechnology research. The mechanical, electrical, optoelectronic, and electrochemical properties of metals and ceramic materials are utilized for transportation machinery, semiconductor devices, energy and environmental devices such as batteries, fuel cells, solar cells, and medical applications.

School of Materials Science and Engineering

In order to keep up with the worldwide trend and make the most of its interdisciplinary nature, the Department of Metallurgical Engineering and the Department of Ceramic Engineering were integrated in 1999 into the School of Materials Science and Engineering (SMSE) with two majors. In 2002, in response to regional and national industrial demands, the Optoelectronic Materials major was additionally established. Currently, SMSE consists of approximately 360 undergraduate students, 80 graduate students, and 16 faculty members. Since 2007, SMSE has implemented the ABEEK curriculum, and the Materials Science and Engineering Program was officially accredited in 2014.

Students are encouraged to aim for comprehensive knowledge and understanding of Materials Science and Engineering in general until their fourth year, when they choose a major to focus on. For the last decade or so, SMSE has conducted major large-scale education programs such as NURI, LINC, and CK-1. These programs provide undergraduates with scholarships and opportunities for language and engineering training courses (such as 6 Sigma, TRIZ, etc.), industrial internships, and domestic and international excursions.

Undergraduate students also greatly benefit from the research experience provided by the laboratories operated by the faculty members. The faculty's research activities, indicated by eminent national projects such as WCU, BRL, Get-Future, and BK21+, as well as numerous industrial projects and collaborations, are further supported by the continued studies of motivated undergraduate students in the graduate course.

■ Professors

- Ho-Sung Kim, symmetry@jnu.ac.kr
  [Crystal Structure Analysis & Crystal Growth]
- Kwangmin Lee, kmlee@jnu.ac.kr
  [Nano- & Bio-materials]
- Youngman Kim, kimy@jnu.ac.kr
  [Mechanical & Thermal Characterizations of Thin Films]
- Sung-Kil Hong, skhong@jnu.ac.kr
  [Light Metals, Mold & Automotive Parts Materials]
- Jin-Hyeok Kim, jinhyeok@jnu.ac.kr
  [Photonic Electronic Thin Film Growth & Characterization]
- Jaekook Kim, jaekook@jnu.ac.kr
  [Design, Synthesis, Characterization of Nano Energy Materials]
- June Key Lee, junekey@jnu.ac.kr
  [Semiconductor Process Design]
- Jong-Sook Lee, jongsook@jnu.ac.kr
  [Electroceramics]
- Sun-Ju Song, song@jnu.ac.kr
  [Ionics, Energy Materials]
- Chan-Jin Park, parkcj@jnu.ac.kr
  [Corrosion & Energy Materials, Materials Electrochemistry]
- FISHER JOHN GERARD, johnfisher@jnu.ac.kr
  [Green Energy Materials]
- Jaeyeong Heo, jheo@jnu.ac.kr
  [Nanodevices & Materials for Energy]
- Hoonsung Cho, cho.hoonsung@jnu.ac.kr
  [Biomaterials]
- Yeongho Kim, ykim2023@jnu.ac.kr
  [Next-generation Semiconductor]
- Tae-Hoon Kim, thk@jnu.ac.kr
  [Multiscale Microstructure Analysis]
- Kootak Hong, kthong@jnu.ac.kr
  [Advanced Electronic Materials and Devices]

■ Degree Requirements

Students are required to earn at least 140 credit hours (73 major required courses, 45 general courses and 22 elective courses), which normally takes four years of full-time study. Students have the option to double major or to earn additional submajor within Materials Science and Engineering or in other programs.

■ What Do You Study?

Instrumental Analytical Methods
Engineering Mathematics
Introduction to Engineering Design
Materials Science Seminar 1/2/3/4
Introduction to Materials Science and Engineering 1/2
Special Lecture on Industrial Topics 1/2
Engineering Internship
Thermodynamics in Materials
Crystal Structures and Defects
Materials Engineering Project 1/2/3
Electrical and Magnetic Properties of Materials
Mechanical Properties of Materials
Electrical Engineering for Materials Engineers
X-ray and Electron Diffraction
Taguchi Method
Capstone Design 1/2
Design and Machining
Physical Chemistry
Numerical Methods for Materials Science and Engineering
Nanocrystalline Materials and Biomaterials

Metallurgical Engineering Major

Mechanics of Materials

Ferrous Alloys
Metallography
Ferrous Production Metallurgy
Solidification Engineering
Nonferrous Materials
Metalworking
Corrosion and Oxidation
Materials Electrochemistry
Phase Transformation
Foundry Engineering
Materials Joining
3D Printing and Metal Powder Processing
Manufacturing Process of Light Metals

Energy Nanomaterials Major

Phase Equilibria
Diffusion and Crystal Defect
Electroceramics
Solid State Chemistry
Materials in Energy Applications
Theory and Phenomena of Sintering
Interfacial Engineering
Nano Composite Materials
Solid State Physics
Introduction to Organic Chemistry
Amorphous Energy Materials
Nanoceramics processing

Optoelectronic Materials Major

Electromagnetics
Quantum Mechanics
Optoelectronic Materials
Thin Film Process Engineering
Semiconductor Device Physics 1/2
Semiconductor Materials and Processing
Electronic Display Engineering
Optoelectronic Device Engineering
Optical Fiber Communications
Semiconductor Device Design
Sensor Materials Engineering
Optics

■ Careers

Graduates are currently playing major roles in various industrial fields of steel, automotive, semiconductor, display, optical communication, and energy storage devices. Many students study further in graduate courses and are trained for the research and development career path.

School of Mechanical Engineering

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■ What is Mechanical Engineering?

Mechanical engineering encompasses a broad spectrum of engineering that revolves around the conception, fabrication, installation, and operation of engines, machinery, and manufacturing processes. This field engages a multitude of applications, ranging from the fundamental principles of dynamics, control systems, thermodynamics, heat transfer, and fluid mechanics, to the resilience of materials, materials science, electronics, and mathematics. It stands as an innovative and comprehensive academic discipline, where scientific imagination is concretely realized through avenues like mechatronics, nano/micro system technology, IT-driven intelligent mechanical systems, thermo-fluid dynamics, and energy systems.

Technological progress within the realm of mechanical engineering entails methodical materialization of technology via the application of scientific principles and meticulous engineering designs. With its ever-evolving nature, mechanical engineering continues to pave the way for modern industrial expansion, forming the bedrock of the impending industrial landscape. At its core, mechanical engineers assume pivotal roles across traditional sectors such as automotive, aerospace, architecture, civil engineering, plant management, energy production, and domestic appliances. Moreover, their influence is destined to shape future technologies, spanning from smart mobility, robotics, semiconductors, and energy materials to displays, sensors, sustainable energy solutions, micro-fluidics, high-precision optics, multiscale composites, AI, and deep learning.

■ School of Mechanical Engineering

The inception of the School of Mechanical Engineering at JNU dates back to 1970. Currently, the school boasts a faculty contingent of 22 members, catering to the academic journey of 600 undergraduate students and 80 graduate students. Our primary objectives encompass delivering a stellar education to both our undergraduate and graduate cohorts, alongside pioneering research endeavors in the realm of mechanical engineering.

The School of Mechanical Engineering has achieved noteworthy success through various government-backed initiatives, including the National Project to Foster Engineering Colleges ('94~'98), Brain Korea 21 (BK21, '99~'05), New University for Regional Innovation (NURI, '04~'09), post-BK21 ('06~'13), and CK-1 ('14~'19) programs. In 2013, the school was once again selected for the BK21+ project ('13~'20). These endeavors have consistently aimed at attracting exceptional new students, offering

substantial scholarships, facilitating short-term overseas language training and diverse educational activities, securing accomplished faculty members, nurturing collaboration with local industries, and enhancing educational facilities and laboratories.

Starting from 2023, the school has been designated as the Center for Education & Innovation in Future Vehicle Technology Convergence. By integrating ICT-based eco-friendly car characterization education, we are actively fostering regional strategic industry leaders and global creative talents. Presently, we are committed to furnishing world-class educational and research environments, state-of-the-art facilities, and scholarships through significant academic and research funds such as BK21-Four, Basic Research Lab (BRL), and Regional-Leading Research Center (RLRC).

The School of Mechanical Engineering is dedicated to ensuring that all students align with the swiftly evolving educational landscape, both domestically and internationally. Alongside this commitment, we offer inventive research prospects vital for pivotal industries and research establishments, aimed at preparing students for meaningful contributions within relevant sectors. A fundamental curriculum is mandatory for all students, expected to be completed by the initial semester of their junior year. Subsequently, students can opt for a major in either mechanical engineering or mechanical & automotive engineering. Moreover, it is worth highlighting that the School of Mechanical Engineering has recently garnered recognition from the government as a pivotal department in the advanced arena. Commencing from 2024, there will be an augmentation in the undergraduate admission capacity to accommodate over 130 students. This expansion is poised to facilitate the cultivation of an increased number of skilled professionals within the expansive realm of mechanical engineering.

Mechanical Engineering Major

The mechanical engineering major provides a foundational array of courses encompassing key areas within mechanical engineering. These include fundamental subjects like fluid dynamics, materials science, solid mechanics, controls, manufacturing processes, thermodynamics, and heat transfer. Additionally, students will engage in advanced computer courses focused on design principles and applications.

Mechanical & Automotive Engineering Major

The Mechanical & Automotive Engineering major delivers specialized expertise in the cutting-edge technological advancements within the realm of automotive applications of mechanical engineering. This encompasses a comprehensive understanding of internal combustion engines, vehicle dynamics and aerodynamics, utilization of industry-standard CAD tools, and exploration of renewable energy sources and alternative fuels.

■ Professors

• Ki-Ju Kang, Ph.D.
[Professor, Mechanical Metamaterials, jkang@jnu.ac.kr]

• Bo-Seon Kang, Ph.D.

[Professor, Sprays, Optical Measurements, Fluid Mechanics, bskang@jnu.ac.kr]

- Hyun Wook Kang, Ph.D.
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- Seong-Yong Ko, Ph.D.
  [Professor, Medical robots, Intelligent robots, sko@jnu.ac.kr]
- Woohyun Kim, Ph.D.
  [Associate Professor, Modeling, analysis and control of thermal systems, whkim@jnu.ac.kr]
- Chang-Sei Kim, Ph.D.
  [Associate Professor, Dynamics and Control, Biomedical System, ckim@jnu.ac.kr]
- Chang-bae Moon, Ph.D.
  [Associate Professor, Mobile Robot / Autonomous Vehicle, cbmoon@jnu.ac.kr]
- Gyuhae Park, Ph.D.
  [Professor, Noise/Vibration, Structural Health Monitoring, image processing, gpark@jnu.ac.kr]
- Jinsoo Park, Ph.D.
  [Assistant Professor, Microfluidics / Flow Visualization, jinsoopark@jnu.ac.kr]
- Seoung-Yun Seol, Ph.D.
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- Young-Soo Yang, Ph.D.
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- Dong-Weon Lee, Ph.D.
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- Bong-Kee Lee, Ph.D.
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- Wonoh Lee, Ph.D.
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- In-Su Jeon, Ph.D.
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- Ki Joon Heo, Ph.D.
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- Soonwook Hong, Ph.D.
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- Ayoung Hong, Ph.D.
  [Assistant Professor, Autonomous Intelligent Robotics, ahong@jnu.ac.kr]

■ Degree Requirements

The undergraduate programs are meticulously crafted to equip students with the essential comprehension and skills necessary to confront the complexities of contemporary technological demands within the realm of mechanical engineering. A minimum of 140 credit hours is mandatory for completion (comprising 80 from Department courses and 18 from elective courses), typically spanning a four-year duration of full-time study. Furthermore, students have the opportunity to pursue double majors or minors, facilitating a broader academic horizon and enriching their educational journey.

■ What Do You Study?

Advanced Mechanical Engineering
AI based Thermofluidic System
Air Conditioning and Refrigeration
Applied Fluid Mechanics
Applied Heat Transfer
Applied Robotic Systems
Applied Solid Mechanics
Applied Thermodynamics
CAD/CAM with Practice
Composite Materials in Mechanical Engineering
Compressible Flow
Control Engineering
Creative Engineering Design
Dynamics
Electric vehicles
Environmental Mechanical Engineering
Engineering Mathematics 1
Engineering Mathematics 2
Fluid Machinery
Fluid Mechanics
Fuel and Combustion Engineering
Fuel Cell Vehicles
Heat Transfer
Intelligent Vehicle
Internal Combustion Engine
Internship 1
Internship 2
Introduction of Electricity and Electronics
Introduction to Automotive Engineering
Introduction to Engineering Design
Introduction to MEMS(micro electro mechanical systems)
Kinematics of Mechanisms
Machine Element Design
Machine Learning for Mechanical Engineering
Manufacturing Processes with Practice
Measurement Engineering
Mechanical drawing
Mechanical Engineering Capstone Design 1
Mechanical Engineering Capstone Design 2
Mechanical Engineering Lab
Mechanical Engineering Seminar
Mechanical Materials
Mechanical System Design
Mechanical Vibrations
Mechatronics
Numerical Analysis
Optical Engineering
Propulsion Engineering
Reliability Engineering
Renewable Energy
Robot Engineering
Smart Manufacturing Engineering
Solid mechanics
Statics
System Dynamics and Signal Processing
Thermodynamics
Vehicle Dynamics and Control
Welding Engineering

■ Careers Options

Upon graduation, individuals are well-equipped to embark on diverse career paths encompassing fields such as engineering, electronics, the automobile industry, and construction firms. An alternate avenue is enrollment in a graduate program within the domain of mechanical engineering to further hone their expertise. Graduates possess the qualifications to assume specific roles such as technical public officials and government officers, leveraging their comprehensive understanding of mechanical engineering principles and applications to contribute effectively within governmental contexts.

School of Polymer Science and Engineering

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What is the School of Polymer Science and Engineering?

The primary goal of our department is to offer fundamental and cutting-edge academic and research programs. We provide educational programs with quality standards and guidelines and foster skillful polymer scientists and engineers.

School of Polymer Science and Engineering

Polymer Science and Engineering at Chonnam National University encompasses teaching and research and aims at developing scientists and engineers who can fill the need in industry, government, and academia. Our department consists of two majors: *Polymer Science and Engineering* and *Fiber Science and Engineering*.

Professors

- Yang-Il Huh, Ph.D.
  [Professor, Polymer Membranes, yihuh@jnu.ac.kr]
- Yoong Ahm Kim, Ph.D.
  [Professor, Nano Carbon Materials, yak@jnu.ac.kr]
- Jong-Jin Park, Ph.D.
  [Professor, Functional Polymer, Electronic Materials, jjpark@jnu.ac.kr]
- Hyeonseok Yoon, Ph.D.
  [Professor, Functional Nano Materials, hyoon@jnu.ac.kr]
- Mincheol Chang, Ph.D.
  [Professor, Polymer Semiconductor Materials & Devices, mcchang35@jnu.ac.kr]
- Hyungwoo Kim, Ph.D.
  [Professor, Polymer Synthesis, kimhw@jnu.ac.kr]
- Su-Mi Hur, Ph.D.
  [Associate Professor, Theory and Simulations for Soft Materials, shur@jnu.ac.kr]
- Doojin Lee, Ph.D.
  [Associate Professor, Smart Polymers Processing, dlee@jnu.ac.kr]
- Won Seok Chi, Ph.D.
  [Assistant Professor, Energy Material, wschi@jnu.ac.kr]
- Changhun Yun, Ph.D.
  [Assistant Professor, Electronic Polymer Materials, chyun2020@jnu.ac.kr]
- Yeongun Ko, Ph.D.
  [Assistant Professor, Polymer brushes, yeongunko@jnu.ac.kr]

■ Degree Requirements

Students are required to earn 140 credits for graduation, which includes 72 credits from School of Polymer Science and Engineering and 42 credits from general courses.

Students in the ABEEK Program are required to earn 9 credits from general courses, 32 credits from MSC courses, and 63 credits from engineering topics courses, out of total 140 credits.

■ What Do You Study?

Polymer Engineering Major Courses

▮ Core Courses

Mathematics 1
Mathematics 2
General Chemistry 1
General Chemistry 2
General Physics 1
General Physics 2
Chemistry Laboratory 1
Chemistry Laboratory 2
Writing for Self-reflection and communication
Computer for Real Life
Career Plan and Self Understanding
Introduction to Engineering Design
MATLAB Programming and Practice
Engineering Mathematics 1
Engineering Mathematics 2
Organic Chemistry 1
Physical Chemistry 1
Basic Engineering Lab.1
Basic Engineering Lab 2
Polymer Chemistry 1
Thermodynamics
Fluid Mechanics
Polymer Processing 1
Properties of Polymer 1
Engineering Lab. 1
Engineering Lab. 2
Separation Process

▮ Electives

Materials Science
Chemical Process Calculation 1
Energy Science and Technology
Organic Chemistry 2
Physical Chemistry 2
Chemical Process Calculation 2
Introduction to IT Convergence Engineering
Polymer Materials
Basic Design of Engineering
Polymer Chemistry 2
Instrumental Analytical Methods
Nano Surface Science
Functional Polymers
Reaction Engineering
Heat Transfer
Convergence Materials Testing
Computational Material Sience
Electronic Materials
Polymer Processing 2
Properties of Polymer 2
Polymeric Composite Materials
Rheology
Capstone Design 1
Capstone Design 2
Polymeric Nano-composites
Applied Engineering for Nano Materials
Biopolymer
Energy Materials
Electrochemistry

Fiber Science Engineering Major Courses

▮ Core Courses

Mathematics 1
Mathematics 2
General Chemistry 1
General Chemistry 2

General Physics 1
General Physics 2
Chemistry Laboratory 1
Chemistry Laboratory 2
Writing for Self-reflection and communication
Computer for Real Life
Career Plan and Self Understanding
Introduction to Engineering Design
MATLAB Programming and Practice
Engineering Mathematics 1
Engineering Mathematics 2
Organic Chemistry 1
Physical Chemistry 1
Basic Engineering Lab.1
Basic Engineering Lab 2
Polymer Chemistry 1
Unit Operation
Fiber Physics
Engineering Lab. 1
Engineering Lab. 2
Fiber Function Design
Synthetic Fibers
Fiber Assembly Engineering

Electives

Materials Science
Energy Science and Technology
Physical Chemistry 2
Organic Chemistry 2
Introduction to IT Convergence Engineering
Polymer Materials
Polymer Chemistry 2
Basic Design of Engineering
Instrumental Analytical Methods
Nano Surface Science
Color Science
Convergence Materials Testing
Computational Material Sience
Electronic Materials
Polymeric Composite Materials
Functional Fiber
Rheology
Capstone Design 1
Capstone Design 2
Property Design of Carbon Fibers
Polymeric nano-composites
Applied Engineering for Nano Materials
Biopolymer
Energy Materials
Electrochemistry

Careers

Graduates obtain an opportunity for employment in chemical plants (oil refinery, petrochemical, fertilizer, synthetic resin, oil and fat, food industry, inorganic chemistry, explosives, cement, glass, dye, rubber, paint, pulp and paper, metal, and smelting) in all over the country, thermo-electrical and nuclear power plants, steel mills, photoelectron fields (semiconductor component/equipment, LCD, and photo component manufacturing), textile-related fields, sales fields for trading companies, pharmaceutical fields, cosmetics fields, polymer-related fields, research institutes, and civil service.

Department of Biotechnology & Bioengineering

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What is Biotechnology & Bioengineering?

Biotechnology & Bioengineering is believed to be one of the key disciplines leading to solve some of the most challenging problems that face our world today. Biotechnology & Bioengineering is defined as the biological application of engineering principles or engineering equipment in biological systems, food, energy, and the environment as well as healthcare. Incorporating recent advances in science and engineering including the fields of biology, chemistry, medicine, electrical and mechanical engineering, and information technology, Biotechnology & Bioengineering allows us to understand the phenomena of life and develops effective biology-based technologies.

Department of Biotechnology & Bioengineering

Our department has been creatively fusing a broad area of bioengineering and life sciences to train and foster students to have an impact in corporate, professional and academic communities. Our mission aims to provide a fundamental bioengineering discipline grounded in basic sciences and the ability in realizing many various biological applications powered by practical and comprehensive curricula. It will allow students to acquire a high degree of confidence and motivation as bio-technologists and bio-engineers and to become engines in the fields of biotechnology including foods, medicine, pharmaceuticals, cosmetics, bioenergy and the environment.

Professors

- Jong-il Choi, Ph.D.
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- Seung Hwan Lee. Ph.D.
  [Metabolic Engineering, leesh@jnu.ac.kr]
- Sooim Shin, Ph.D.
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- Tae Wan Kim, Ph.D.
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- Kibaek Lee, Ph.D.
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- Changman Kim, Ph.D.
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- Youngung Seok, Ph.D.
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■ Degree Requirements

The undergraduate programs are designed to help students learn bioengineering disciplines as well as mathematics, physics, chemistry and biology. Students also obtain broad exposure to Chonnam National University's other great classes offered in other departments and colleges such as humanities and social sciences. Undergraduate students are required to earn at least 140 credits of coursework for graduation (a minimum of 69 units in department courses, a minimum of 37 units in liberal arts courses and a minimum of 34 units in elective courses). It normally takes four academic years of full-time study. Students may also undertake a second major or minor to broaden the scope of their studies.

■ What Do You Study?

▮ Core Courses

Writing for Self-reflection and Communication
General Physics 1
Mathematics 1
Mathematics 2
General Chemistry 1
Chemistry Laboratory 1
Career Plan and Self Understanding
General Biology 1
General Biology 2
Biology Laboratory 1
Biology Laboratory 2
Introduction to Engineering Design
Biochemical Separation Process
Bio Engineering 1
Biochemical engineering Lab. 1
Biochemical engineering Lab. 2
Biochemical engineering Lab. 3
Microbiology
Bioprocess Engineering 1
Biochemistry 1
Organic Chemistry
Physical Chemistry
Engineering Mathematics 1
Capstone Design
Biostatics and practice

▮ Electives

Bio Engineering 2
Biochemical Process Calculation
Applied Microbiology
Introduction to Bioengineering and Biotechnology
Transfer Operation
Bioreaction Engineering and Design
Bioanalytical Chemistry
Bioprocess Control
Bioinfomatics
Metabolic Engineering
Plant Design
Bio Engineering Seminar 1
Fermentation Technology and Design
Basic Research for Biotechnology & Bioengineering 1
Basic Research for Biotechnology & Bioengineering 2
MATLAB programing & Practice
Enzyme Engineering
Bioseparation and Purification Techniques
Special Lecture on Biotechnology and Bioengineering
Biomedical Engineering
Instrumental Analytical Methods
Protein Engineering
Introduction to Biomedical Engineering
Bioprocess Engineering 2
Biomaterials
Environmental Biotechnology
Biochemistry 2
Molecular Biology
Engineering Mathematics 2

Food Engineering
Genetic Engineering
Industrial Microgiology
Biomass and Bioenergy Laboratory
Bionano applications

Inorganic Materials
Inorganic Chemistry
Experimental Design analysis & Lab

Careers

Some undergraduate students continue their academic endeavor by entering graduate schools in Korea as well as abroad. Others take a position in academia, public and private research institutes, and the industry. Moreover, some become involved in bio-venture businesses quite successfully.

Department of Civil Engineering

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What is Civil Engineering?

The fields of civil engineering offer careers in the planning, design, construction and management of the built environment as well as in the interaction between the built environment and the natural environment. Civil engineering plays an essential role to our community. There are significant interdisciplinary challenges in refining and maintaining the quality and sustainability of the infrastructure of interconnected systems, which are important to our quality of life. These systems include transportation, highways, rapid transit lines, airports, civil structures, construction materials, land surveying, stream channels, pipelines and wastewater treatment systems. The response of this infrastructure to natural hazards and environmental interaction is a critical challenge in this area. The faculty and staff within the civil engineering department are committed to educating the next generation of engineers and leading the development of this field through research and outreach.

School of Civil Engineering at Jeonnam National University

The School of Civil Engineering is concerned with the control of the environment for the benefit of humankind. Civil engineers provide modern society with vital infrastructure and lifeline systems such as cities, roads, buildings, bridges, railroads, and water systems.

- 1951. 01: Establishment of Department of Civil Engineering
- 1999. 03: Reorganization of Departments of Civil, Earth, and Environmental Engineering
- 2002. 03: Reorganization of Departments of Civil, Geosystems, and Environmental Engineering
- 2009. 03: Reorganization of Department of Civil Engineering

Professors

- Tae-Jun Ha, Ph.D.
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- Inkyu Rhee, Ph.D.
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- Jong-in Rhee, Ph.D.
  [Professor, Coastal/Harbor Engineering jilee@jnu.ac.kr]
- Jae-min Kim, Ph.D.
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- Young-sang Kim, Ph.D.
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- Jeong-won Heo, Ph.D.

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- Chang-ho Rhee, Ph.D.
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- Jae-JIn Park, Ph.D.
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- Young-Uk, Ryu, Ph.D.
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■ Degree Requirements

The undergraduate programs are designed to help students develop the understanding and capabilities needed to meet the challenges of a modern technological society. Students are required to earn at least 130 credits (102 credits from Department courses and 28 from electives), which normally takes four years of full-time study to complete. The minor and the double major programs are offered to give students an opportunity to broaden the scope of their major fields.

■ What Do You Study?

▮ Courses

Introduction to Civil Engineering & Design
Surveying and Practice 1
Fluid Mechanics
Probability and Statistic
Hydraulics and lab
Mechanics of Materials
Civil Engineering Materials and Lab
Civil Engineering (AI)
Structural Mechanics
Engineering Mathematics 1
Engineering Mathematics 2
Surveying and Practices 2
Dynamics Hydrology
Applied Hydraulics
Environmental Engineering
Advanced River Hydraulics
Soil Mechanics and Lab 1
Design of Concrete Structures 1
Highway Engineering and Design
Transportation Engineering
Soil Mechanics and Lab 2
Photogrammetry
Design of Concrete Structures 2
Construction Works & Design
Water Supply, Sewage Engineering & Design
Steel Structural Engineering
Dam Engineering
Pre-stressed Concrete
Urban & Transportation Planning
Foundation Engineering & Design
Coastal & Harbor Engineering
Geospatial Information Surveying
Construction Environment Influence Valuation & Design
Environmental Impact Assessment & Design
Noise and Vibration
Bridge Engineering
Railroad Engineering
Transportation Engineering
Rock Engineering & Design
Design for Soil Structure
Pavement Engineering & Design
Practical Design of Civil Engineering
Water Resources Engineering
Basic Computer Programming & Practice

Physics Laboratory 1
Chemistry Laboratory 1
Educational Theory in Construction
Study and Guidance on Constructional Teaching
Constructional Technology Logic and Essay Writing
Teaching Children with Learning Disabilities
Practical Affairs for the Teaching Profession
Teaching Practice 1
Teaching Practice 2

■ Careers

Graduates are currently playing active roles in central and local government organizations (e.g., Ministry of Construction and Transportation, Ministry of Environment, etc.), public corporations (Korea Water Resources Corporation, Korea SH Corporation, Korea Rural Community Corporation, Korea Highway Corporation, etc.), and research institutes (e.g., Korea Institute of Construction Technology). Also, private companies and corporations dealing with bridges, harbors, roads, and dams prefer to hire environmental engineers. Some graduates go on to graduate school to further specialize in their discipline in the field of civil engineering.

Department of Electrical Engineering

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What is Electrical Engineering?

Electrical Engineering (EE) is based on sciences such as mathematics, physics, and chemistry. Electrical engineering students learn how to transform power sources such as fossil fuels, hydro-electricity, atomic, wind, solar light or heat, and tidal energy into electricity. Students learn how to transport this energy efficiently and steadily to distant places. Students also study how to transform electricity into other types of energy such as light, heat, and power. Ultimately, students search for the best materials, components, and systems when generating and transforming electricity.

Department of Electrical Engineering

The Department's primary educational goal is to train professionals who will play leading roles in the electrical engineering field. It also aims to cultivate students' abilities to earn careers in the industry by providing them with broad research opportunities that build on the academia-industry cooperation system.

The Department's goals can be broken down into the following practical aims:

- acquiring systematic knowledge and skills about general electrical engineering fields
- mastering the development, operation, and management ability of electrical application skills
- making effort toward the development of the electrical engineering industry.

The Department was chosen to participate in the Electrical Industry Basic Human Power Fostering Project and the New University for Regional Innovation Project by the Ministry of Commerce, Industry, and Energy. It provides students with various educational opportunities and scholarships. It recognizes the importance of rewarding scholarship systems to encourage outstanding students who have exceptional academic records and demonstrate good conduct, and welfare scholarship systems that support financially-limited students.

Professors

- Kyung-Woo Ryu, Ph.D.
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- Joon-Ho Choi, Ph.D.
  [Professor, Power System and Electrical Apparatus, joono@jnu.ac.kr]
- Sung-Jun Park, Ph.D.
  [Professor, Design of Electronic System Based on Micro Processors, sjpark1@jnu.ac.kr]
- Seon-Ju Ahn, Ph.D.
  [Professor, Smart Grid, sjahn@jnu.ac.kr]
- Yong-Hoon Choi, Ph.D.

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- Sang-Yun Yun, Ph.D.
  [Professor, Power System, drk9034@jnu.ac.kr]
- Dong-Hee Kim, Ph.D.
  [Associate Professor, Energy Mechatronics, kimdonghee@jnu.ac.kr]
- Young-Woo Lee, Ph.D.
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■ Degree Requirements

The undergraduate programs are designed to help students develop the understanding and capabilities needed to meet the challenges of a modern technological society. The students are required to take 140 credit hours (102 credits in a major of related courses and 38 credits in general studies courses), which normally takes four years of full-time study. The minor and double major programs are offered to give students an opportunity to broaden the scope of their major field.

■ What Do You Study?

▮ Major required

Engineering Mathematics
Vector Analysis
Applied Mathematics
Electrical Engineering Basic Lab
Power Electronics1
Electromagnetism 1
Electromagnetism 2
Circuit Theory 1
Circuit Theory 2
Automatic Control Engineering
Micro electronics Lab
Electric Machinery 1
Smart Power System Engineering1
Electric Machinery 2
Electronic Circuit

▮ Major Electives

Internship
Introduction to Engineering Design
Engineering Software Applications
Computer Programming Language for Engineers
Data Analysis and Optimization
Digital Logic Circuit
Design of Microprocessor Applications
High Voltage and High Current Engineering
Digital System Engineering
Renewable Energy System Engineering
Power IoT and Sensor
Modern Control
Smart Power System Engineering 2
Theory of Electrical Materials Properties
Illuminating Design
Electric Vehicle and control
Electrical Engineering Capstone Design
Power Distribution System Engineering
Display Electronics
Electrical Energy Storage Systems
Information and Communication Technology for Power System 1
Information and Communication Technology 1 for Power System 2
Power System Operation Practice
Electricity Market Theory and Practice
Recent technical trends in Smart Grid
Electric Circuit Basic Lab
Electrical Engineering Seminar
Power Electronics 2
Introduction to Artificial Intelligence

▮ Minor Required

Electromagnetism 1

Circuit Theory 1
Electric Machinery 1
Electric Machinery 2

▮ Minor Electives

At least 9 credit hours of the major courses should be chosen.

■ Careers

Thanks to the fundamental engineering characteristics of electrical engineering, graduates are obtaining distinction in all industrial positions, including key national industrial companies and IT venture companies.

In particular, many graduates are currently employed by KEPCO, Samsung Electronics, LG Electronics, and Hyundai Heavy Industries.

Department of Energy & Resources Engineering

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What is Energy & Resources Engineering?

These days, natural resources are essential to develop domestic economies. Each country is trying to secure natural resource stability due to a lack of resources. Currently, our government is making efforts to develop the technology of resource extraction and to encourage advanced resource engineers because the issue of gaining resources is not simply based on geopolitical situations. In order to meet the demands of the time, the Department of Energy & Resource Engineering deals with applied geology & geochemistry, geophysical prospecting, resource development engineering, petroleum engineering, mineral processing, mine safety & environment, drilling engineering, and resource economics.

Professors

- Kim Myungjun, Ph.D.
  [Professor, Hydro-metallurgy and Recycling, junkim@jnu.ac.kr]
- Lee Jong-Un, Ph.D.
  [Professor, Microbial Geochemistry, jongun@jnu.ac.kr]
- Lee Jeonghwan, Ph.D.
  [Professor, Petroleum & Natural Gas, jhwan@jnu.ac.kr]
- Kil Youngwoo, Ph.D.
  [Professor, Applied Geology & Geochemistry, ykil@jnu.ac.kr]
- Yoon Daeung, Ph.D.
  [Assistant Professor, Geophysical Prospecting, duyoon@jnu.ac.kr]

Degree Requirements

Students are required to earn 140 credits, with 48 credits from core courses within the Department, and 29 from general electives. Students will also be required to submit a graduate thesis, and demonstrate ability in a foreign language.

What Do You Study?

Core Courses

Applied Geochemistry and Lab
Energy & Resources Engineering Capstone Design
Engineering Mathematics 1
Exploration Geophysics & Design
Exploration of Geochemistry & Lab
Field Training
Hydrometallurgy and Lab.
Introduction to Creative Design
Petroleum Engineering Laboratory

Petrology And Lab.
Reservoir Engineering
Resource Development Engineering
Resource Economics
Resource engineering & CO2 utilization
Rock Mechanics and Design
Seismic Prospecting & Lab

▮ Electives

Engineering for CO2 Geological Storage
Engineering Mathematics 2
Environmental geology
Future Energy Resources Development Engineering
Geomicrobiology and Lab.
GPR and Electromagnetic Prospecting
Industrial Mineralogy and LAB
Introduction of Energy Resources Engineering
Introduction to A.I. for energy resources development
Mine Planning and Design
Mineral Processing & Plant Design 1
Mineral Processing & Plant Design 2
Mineralogy and Lab.
New and Renewable Energy Engineering
Numerical analysis
Petroleum Drilling Engineering
Petroleum geology
Petroleum Production Engineering
Python programming & practice
Resource evaluation and Policy design
Rock Blasting and Design
Safety Engineering for Resources Development
Science of Ore Deposits and Lab.
Tunnel Engineering & Design

■ Careers

Government Ministry

Ministry of Environment Republic of Korea, Ministry of Knowledge Economy

Institutes

Korea Institute of Geoscience and Mineral Resources(KIGAM), Korea Ocean Research & Development(KORDI), Korea Environment Institute, Korea Institute of Science & Technology Evaluation and Planning, etc.

Public Organization

Korea National Oil Corporation(KNOC), Korea Resources Corporation(KORES), Korea Rural Community Corporation, Korea GAS Corporation (KOGAS), etc.

Domestic Companies

SK, SK Energy, GS Caltex, SK E&C, GS E&C, Samsung C&T, Posco, Daewoo International Corporation, Daewoo Shipbuilding and Marine Engineering, STX Energy, etc.

The others

Mine Reclamation Corporation, Korea Energy Management Corporation, Korea Petroleum Association, etc.

Department of Environment and Energy Engineering

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What is Environment and Energy Engineering?

The main objectives of environment and energy engineering are controlled use and preservation of environment and developing new renewable energy. Environment and energy engineering applies engineering and scientific principles to protect human health and to maintain and improve eco-systems. Our graduates are trained to design, build, operate, and manage organizations and facilities that protect people and the environment by developing new renewable energy. Environment and energy engineering is generally treated as an independent engineering discipline by the engineering profession. We live amid intricate interactions and complex problems created between living beings and their environments, or by variabilities of nature itself. These problems can have disastrous consequences of enormous magnitude and are very difficult to resolve. Environmental researchers investigate these interactions to guard each being from the harmful effects of others.

Department of Environment and Energy Engineering at CNU

- 1992. 03: Establishment of Department of Environmental Engineering
- 1999. 03: Reorganization of Departments of Civil, Earth, and Environmental Engineering
- 2002. 03: Reorganization of Departments of Civil, Geosystems, and Environmental Engineering
- 2009. 03: Reorganization of Department of Environmental Engineering
- 2013. 03: Reorganization of Department of Environment and Energy Engineering

Professors

- Yong-Woon Lee, Ph.D.
  [Professor, Water Quality Management System, ywlee@jnu.ac.kr]
- Sung-Yong Cho, Ph.D.
  [Professor, Eco-Energy and Air Pollution Engineering, syc@jnu.ac.kr]
- Seong-Jun Kim, Ph.D.
  [Professor, Environmental Biotechnology, seongjun@jnu.ac.kr]
- Jeong-Hun Park, Ph.D.
  [Professor, Treatment of Contaminated Soils and Wastes, parkjeo1@jnu.ac.kr]
- Ho-Young Jung, Ph.D.
  [Professor, Environmental Energy Materials, jungho@jnu.ac.kr]
- Sok-Hee Jung, Ph.D.
  [Associate Professor, Microbial Fuel Cells Bioenergy, sokheejung@jnu.ac.kr]
- Yong-Gyun Park, Ph.D.
  [Associate Professor, Smart Water Grid and Water Digitalization, ygpark7@jnu.ac.kr]

■ Degree Requirements

The undergraduate programs are designed to help students develop both the understanding and capability needed to meet the challenges of a modern technological society. Students are required to earn at least 140 credit hours (69 from Department courses, 42 from cultural studies and 29 from electives), which normally takes four years of full-time study. Students may also earn double majors or minors as a means of broadening the scope of their studies.

■ What Do You Study?

▮ Core Courses

Introduction to Engineering Design
Renewable Energy
Environmental Chemistry
Water Quality Management and Practice
Environmental Microbiology
Environmental Reaction and Design Engineering
Environmental Biotechnology and Practice
Coping Engineering with Air Pollution and Climate Change
Design of Combustion Facilities
Waste Resource Treatment and Energy Engineering
Environmental Energy Engineering and Practice
Air Pollution Management
Energy System Design
Hazardous Wastes Management and Soil Remediation Engineering
Environmental Engineering Capstone Design
Environmental Electrochemistry

▮ Electives

Green Energy
Fluid Mechanics
Probability and Statistics
Engineering Mathematics 1
Introduction to Environmental Engineering
Environmental Ecology
Environmental and Energy Engineering Laboratory
Engineering Mathematics 2
Wastewater Treatment Engineering and Practice
Environmental Fundamental Laboratory
Environmental Engineering Laboratory 1
Environmental and Climate Change Impact Assessment
Atmospheric Particle Engineering and Experiments
Wastewater Treatment Engineering and Practice
Environmental Engineering Laboratory 2
Water Supply and Sewage Engineering
Energy Convergence Engineering
Waste Energy Engineering
Field Practice
Environmental Toxicology and Practice
Environment and Safety Engineering and Practice
Resources from Biomass
Bioenergy
Noise and Vibration
Environmental Chemistry of Soils
Industry-oriented Education and Practice
Environmental Process Design and Practice
Environmental Laws
Intellectual Properties in Environmental Energy Engineering

■ Careers

Graduates are currently playing active roles in central and local government organizations (e.g., Ministry of Environment), some public corporations (Korea Water Resources Corporation, Korea Environment Corporation, Korea Electric Power Corporation) and research institutes (e.g., National Institute of

Environmental Research, Korea Institute of Energy Research).

Graduates also have careers in business corporations dealing with environmental impact assessment, air pollution control facilities, wastewater treatment, hazardous wastes treatment, environmental remediation, new renewable energy, and waste recycling facilities. They are usually in charge of the environment and safety of their company. Some graduates go on to graduate school to further specialize in their discipline of environment or energy engineering.

Department of Industrial Engineering

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■ What is Industrial Engineering?

Industrial Engineering (IE), which plays a more important role in modern society than ever before due to the advent of the 4th industrial revolution, is a discipline that focuses on design, management, and improvement of systems composed of humans, machines, materials, energy, and information in a rapidly changing industrial environment. IE is primarily concerned with how to organize people, machineries, information, technologies, money, and materials to produce and distribute products and services more efficiently. Its main objectives are to improve the productivity, safety, and resilience of systems and to find their optimal operation schemes. It is an interdisciplinary program, using engineering analyses, design principles and methods as well as natural scientific theories, such as mathematics and physics, management, software-related studies, artificial intelligence, and professional knowledge of social sciences.

■ Department of Industrial Engineering

In the department of Industrial Engineering (IE), students learn about the design, management, and improvement of systems composed of human beings, machines, materials, energy, and information under rapidly changing industry surroundings, ultimately to determine the optimal operation schemes of a system and to improve system productivity and efficiency. The department of IE teaches students to analyze the cardinal characteristics of the industry and the business environment, and trains them how to utilize various methods towards optimal design, management and operation under given circumstances. The educational goals of IE program are to help students cultivate their management skills as well as engineering proficiency, to guide them to develop their problem solving and decision making skills, and to encourage them to be competent engineering leaders in a wide range of work domains.

Students are expected to obtain strong academic basics in undergraduate programs that are developed to offer classical as well as modern subjects in the field of IE in a systematic and logical manner.

■ Professors

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■ Degree Requirements

Students are required to earn 130 credits to graduate, which compulsorily include 30 credits from liberal arts courses, 15 credits from department core courses, 33 credits from department electives, and 21 credits from the other courses in their own major, minor, or double major.

■ What Do You Study?

▮ Core Courses

Basics of computer programming
Introduction to Probability and Statistics
Operations Research 1
Production Management 1
Capstone Design for Industrial Engineering

▮ Electives

Guides for University Students
Problem solving and algorithms
Introduction to Industrial Engineering
Introduction to Engineering Design
Engineering Mathematics
Case Studies of Industrial Engineering
Engineering Economy
Special Topics in Industrial Engineering
Work Systems Engineering
Manufacturing engineering
Matrix and Linear Algebra
Application of C Programming
Object-Oriented Programming
Management of Technology
DB Modeling
Data Analysis and its Applications
System Analysis & Design
Human Interface Engineering
Operations Research 2
Introduction to Data Mining
Design Engineering
Design of Experiments
Knowledge Engineering
Creative Problem Solving and Starting Up a Venture Business
Quality Control
Software Applications for Industrial Engineering
Production Management 2
Special Topics in Systems Engineering
Human Factors Engineering
Artificial intelligence and applications
Financial and Management Analysis
Quality Engineering
MachineLearning
Complex Systems Engineering
Service Engineering
Simulation and S/W Practice
Systems optimization
Reliability Analysis & Design

Marketing and Technological Innovation Strategy
Case Studies in Industrial Systems
System Safety Engineering
Product development engineering
Project Management

Careers

Graduates often find lucrative careers in the manufacturing industry. Alumni have also found positions in academia, civil service, IT, and so on. (For a list of those job positions, see http://ie.jnu.ac.kr/joblist/.) The degree promises to be even more valuable in the future.

Department of Computer Engineering

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■ What is Computer Engineering?

The goals of Computer Engineering (CE) are to introduce concepts in computer, information and communications engineering in an integrated manner; to motivate basic concepts in the context of real applications; to illustrate a logical way of thinking about problems and their solutions; and to convey excitement about the profession. These goals are attained through the analysis, construction, and testing of systems that incorporate concepts from a broad range of areas within computer, information and communications engineering.

■ Department of Computer Engineering

Electronic appliances, communication equipment, medical equipment, and information service systems that are easily seen in our daily lives result from the combination of electronic circuit technology, imbedded computer technology, and software operation technology. The combination of hardware and software occurs simultaneously in all the current industries and the combination of computer-based IT and other technologies can manufacture high value products. As hardware manufacturing technology becomes more diversified and generalized, engineers with hardware and software-related knowledge are needed in various fields of the industry.

Computer and Information Communications Engineering is the study of the technologies of mobile equipment such as Smartphones, and software technologies needed for the manufacturing of network systems such as clouds, internet service systems, etc. Courses include logic circuits, basic circuit theory, computer structures, digital synthesis design, etc. In addition, communication theory, data communication, and computer networking are taught for the understanding of information communication systems and intelligence systems, multimedia systems, imbedded systems, and computer medical systems as well as generic IT application systems.

In Computer and Information Communications Engineering, the concepts of hardware and software are taught and understood through experimentation. The combination of SOC (System on a Chip) design technology and computer OS helps students understand the technology needed for applied systems in IC components such as MP3 players. Also, understanding data communication and multimedia transmission technology software helps them experience futuristic multimedia systems, such as smart TVs, and students operate robots and vehicles through programming and acquire knowledge. Courses also provide chances for field experience in connection with industry (companies). Customized scholarship programs benefit

students in school and after graduation with the cooperation of prominent local companies, Samsung Electronics, LG Innotek, Hynix Semiconductor, Inc, and LG Display among others.

■ Professors

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■ Degree Requirements

Computer Engineering students are required to earn 140 credits including 12 credits from liberal arts, 26 credits from MSC courses, 36 credits from CE compulsory courses, 28 credits from CE electives, and 38 credits from general electives.

■ What Do You Study?

▮ Core Courses

Introduction to Engineering Design
Engineering Mathematics 1
Logic Circuits Design
Linux System & Practice
Linear Algebra
Discrete Mathematics
C Programming & Practice
Advanced Computer Programming & Practice
Data Structures
Computer System Architecture
Probability and Statistics
Operating System
Artificial Intelligence
Embedded Software
Computer Engineering Project1(Capstone Design)
Computer Engineering Project2(Capstone Design)

Electives

Software Programming Basics & Practice
Basic Circuit Theory
IoT Computing
Data Communication
Signals and System Engineering
Open Source Application
Data Base Systems
Digital Signal Processing
Software Engineering & Application
System IC Design
Web Programming
Digital Communication Engineering
Microprocessors
Neural Networks and Deep Learning
Computer Graphics
Computer Convergence Seminar
Computing Algorithm
Virtual Reality
MachineLearning
Digital Image Processing
Mobile Communication System
Smart Vehicle System
Embeded System
Intelligent ICT Convergence Seminar
Computer Networks
Reinforcement learning
Routing Protocol
Distributed Systems
Big Data System
Advanture Project
AI Semiconductor design
Computer Information Security
Cloud Computing
Communications and Future Technology
Human Interface
Field Practice of Intelligent ICT Convergence
Field Practice of Computer Engineering

Careers

Graduates of Computer Engineering are actively working in various fields of society such as domestic companies, TV stations, and in public and venture companies as high-ranking public officers or patent agents.

Otherwise, they continue their studies at graduate schools for masters or doctoral degrees and become professors at universities or leading researchers in many industrial institutes or laboratories headed by large domestic companies and national and public laboratories. They include Samsung, LG, Daewoo, Hyundai, SK Hynix, TV stations, financial companies, KEPCO (Korea Electric Power Corporation), KT, SKT, NHN, ETRI, etc.

Department of Electronic Engineering

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What is Electronic Engineering?

Historically, Electronic Engineering, as a study to create, deliver, transform, and manage different forms of "information", includes telecommunications, radio wave engineering, semiconductor devices, design of the integrated circuit, control/robotics, and signal processing.

It is an area of engineering study to learn electronic appliances, telecommunication devices, software & hardware for industrial electronic equipment in terms of its principles, design, and manufacturing. Electronic Engineering has a distinctive nature of highly integrated technology and fast-moving innovations, where it continuously evolves with the rapid development of integrated circuits and computers.

In other words, it expanded from the hardware itself to the areas for system and applied software, which is now becoming an intellectual study in the fourth industrial revolution.

Particularly, control/robotics, signal processing, design of integrated circuits, etc. closely interconnected with the artificial intelligence technology; hence, it generates high-valued system and services.

This study emphasis professional knowledge and creative thinking which is suitable for the new wave of the fourth industrial revolution; further, focuses on making a comprehensive syllabus consisting of theory and design, hands-on experiments, and advanced education enabling autonomous project handling.

Department of Electronic Engineering

Electronic Engineering is everywhere in our daily appliances such as smartphones, televisions, game consoles, etc.; thus, it gives practitioners the benefits to broadly apply it to lots of areas. In particular, as the professors of the Electronic Engineering faculty of Chonnam National University focus on, the concerned studies embrace various applications to the modern technologies, including telecommunication, signal processing for image & sound, biometric & medical technologies, intellectual control, etc.

In addition, Electronic Engineering has distinctive characteristics of integration of different technologies as well as innovation-oriented nature. Furthermore, as a leading technology in the industry, it encourages the development of other disciplines at the time of its convergence with other technologies. Especially, it is essentially associated with pure electronics industries such as semiconductors, smartphones, etc., which involve technology-intensive but fast-growing businesses. Hence, such businesses demand a large number of highly educated manpower; accordingly, it gives students opportunities for quality jobs.

The faculty emphasizes logical reasoning and forward-thinking to deal with the wave of the fourth

industrial revolution. To do so, it mainly aims for students to be suitably qualified as experts in the electronic engineering discipline by developing their own competencies and encompassing: (i) a balanced syllabus having both theoretical and practical (design) classes; (ii) task-based experiments and practice; and (iii) an advanced educational program based on hands-on projects for students to enhance their creativity in practice.

■ Professors

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■ Degree Requirements

Electronic Engineering undergraduate students are required to earn 140 credits including 20 credits from liberal arts education courses, 32 credits from MSC courses, 32 credits from EE compulsory courses, 27 credits from EE electives, and 29 credits from general electives.

■ What Do You Study?

▮ Core Courses

C Programming & Practice
Engineering Mathematics 2
Advanced Programming Project
Circuit Theory 1
Logic Circuits Design
Basic Circuit Experiment
Microelectronics Lab.
Electronic Circuit 1
Electromagnetism 1
Signal and Systems
Basic Project of Electronic Engineering

Control Engineering
Communication Theory
Microprocessor Capstone Design
Microwave Engineering
Digital Image Processing
Capstone Design
Digital System Design

▮ Electives

Introduction to Engineering Design
Electronic Engineering Seminar
Engineering Mathematics 1
Probability and Statistics
Linear Algebra
Circuit Theory 2
Data Structures
Digital Signal Processing
Electromagnetism 2
Electronic Circuit 2
Physical Electronics
Digital Communication Engineering
Integrated circuit Design
Semiconductor Engineering
Intelligent Control
RF Circuit Design
Embedded System
Artificial Intelligence
Data Networks
Semiconductor Process Technology
SOC Design
Robots Engineering
TCP/IP Networks
AI Semiconductor designy

■ Careers

Many alumni who studied Electronic Engineering at Chonnam National University show good working performance in various organizations such as companies, TV broadcasting centers, government-run corporations, venture companies, public institutions, etc.

For another career path, some students continue their studies at graduate schools for masters or doctoral degrees so that they become either professors at universities or leading researchers in technical institutes or laboratories. The researching job for the professionals are not limited to those but include the conglomerates such as Samsung, LG, LIG, Hyundai, SK Hynix, Korea Electric Power Corporation(“KEPCO”), KT, SKT, NHN, etc. in addition to the public organization such as Korea Broadcasting System (“KBS”), ETRI, etc.

Department of Software Engineering

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■ What is Software Engineering?

It has been increasingly crucial to foster the software industry. With the growing need for software and artificial intelligence professionals, the basic goal of the Department of Software Engineering is to train professional programmers to participate in software system development.

By cultivating the ability to use various types of programming languages, acquiring basic theories and applied technologies necessary for designing software systems, and then going through the process of developing Linux-based systems and systems used on the Internet, the curriculum of the department aims to nurture essential high-level manpower.

In addition, basic knowledge and software development skills in artificial intelligence, cloud service, embedded systems, and mobile and IoT (Internet of Things) fields, which have emerged as the main trends in the computer technology field, will be cultivated.

■ Department of Software Engineering

Now the world is in a software supremacy struggle. It accounts for 52.4% of the automobile industry, 40.9% of the medical industry, and 51.4% of the warplane industry.

Korea was ranked 10th in the world economy due to a combination of basic industries such as automobile, steel, electronics, and software industries. However, as the demand for manpower in software development increases, the supply of highly-skilled people is insufficient. The majority of people working in the software industry are non-specialists.

Technologies and methods in developing and utilizing computer software are taught in software engineering. There are many departments for computer engineering in other universities, but there are only a few universities specializing in computer software. Software Engineering at Chonnam National University trains talented persons in combined software technology to lead the future information society. CNN Money announced the top 100 jobs in America, based on quality of life, and software designer was ranked at the top. Software designers are technicians developing and utilizing software, and making blueprints that are equivalent to those of an architect.

Microsoft, the leader in the global operation systems market; Apple, the leader in the intelligent mobile phones market with the iPhone; Google the dominant force in the information search market (and currently gaining a foothold in telecommunications); and Naver, leading the domestic information search market

are all prominent software companies.

These companies have also grown rapidly in recent times. Dear young people, full of passion and dreams, challenge yourselves and embrace the learning. Software engineering awaits you. Find your own Blue Ocean and become an important person in the infinity of cyberspace.

Machines like Smart phones enable us to access anything. Mobile phone operation systems such as Android, iOS, or Windows as well as game or utility apps, can be made and installed by you.

■ Professors

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  (Artificial Intelligence)
- Seungwon Kim, Ph.D.
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  (VR(Virtual Reality) / AR(Augmented Reality))
- Taejune Park, Ph.D.
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  (Information Security / Network Security)

■ Degree Requirements

Software Engineering undergraduate students are required to earn 140 credits including 12 credits from liberal arts education courses, 26 credits from MSC courses, 64 credits from CE compulsory courses & CE electives, and 38 credits from general electives.

■ What Do You Study?

Software Engineering Major Courses

▮ Core Courses

C Programming & Practice
Introduction of Engineering Design
Engineering Mathematics 1
Java Programming & Practice
Linear Algebra
Discrete Mathematics
Linear Algebra
Data Structures
Computer Architecture

Probability and Statistics
Data Base Systems
Theory of Software Engineering
Operating Systems
Career Exploration
Algorithm
Computer Networks
Software Engineering Integrated Project (Capstone Design)
Theory of Programming Languages

▮ Electives

Logic Circuits
Linux System
Software Engineering Basic Projects
C++ Programming & Practice
Object-oriented Design Project
Windows Programming Project
Data Communication
Problem Solving Project
Intelligent HCI
Computer Graphics
Network Programming
Database Design Project
Mobile Application Software
Industry-academic Cooperation Project (Capstone Design)
Web Programming & Practice
Embedded Software
Theory of Computation
Machine Learning
Digital Image Processing
Software Reverse Engineering
Artificial Intelligence
Intelligent ICT Convergence Seminar
Computer & Networks Security
Virtual Reality
Deep Learning
Distributed Systems
Compilers
Intelligent ICT Convergence Field Practice
Practical Software Projects 1
Practical Software Projects 2

■ Careers

Graduates of Software Engineering are actively working in various fields of society such as domestic companies, global software platform companies, and in public and venture companies as high-ranking civil servants or patent agents.

Otherwise, they continue their studies at graduate schools for masters or doctoral degrees and become professors at universities or leading researchers in many industrial institutes or laboratories headed by large domestic companies and national and public laboratories.

* Careers and Employment after Graduation

- **IT/SW development/game-related fields**: Social open markets (social commerce) such as Kakao Corporation, Naver (Line), eBay Korea, Coupang, Timon, WeMakprice, Netmarble, Gamevil Com2uS Corporation, Nexon, and N Media Platform, etc.

- **Public corporations and public institutions**: Korea Electric Power Exchange (KPX), Korea Electric Power Corporation (KEPCO), KEPCO KDN, KEPCO KPS, Internet & Security Agency (KISA), Korea Tobacco and Ginseng Corporation (KT&G), Korea East-West Power, Korea Southern Power, Incheon International Airport Corporation, KORAIL, Korea Hydro & Nuclear Power, Korea Information Society Agency, Forestry

Cooperative, etc.

- **Telecommunication/Broadcasting/Electronics**: SK Telecom, SK Broadband, KT, LG U+, Nuri Telecom, Lotte Data Communication Company, KBS, KBC, MBC, Samsung Electronics, LG Electronics, LG Display, LG Innotek, Doosan, Amkor Technology Korea, Korea Alps, etc.

- **Hospitals/public service/financial sector/media companies/accounting firms**: Computing department at university hospitals, public servants in IT fields, Kwangju Bank, Kookmin Bank, Nonghyup Bank, Maeil Economic Daily, EY (Ernst & Young Global Limited) Hanyoung, Customs Office (HTNS Customs Corporation), etc.