Graduate School of Fisheries and Ocean Sciences

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Graduate Studies in the Graduate School of Fisheries and Ocean Sciences

The Graduate School of Fisheries and Ocean Sciences was authorized by the Ministry of Education to open eight academic units (Department of Aquaculture, Ocean Environmental System Program, Department of Ocean Engineering, Department of Marine Production Management, Power System Engineering, Marine Food Science and Technology, Department of Aqua life Medicine) with an entrance quota of 30 applicants in October 2005. The Graduate School of Fisheries and Ocean Sciences offers night classes, and its master's program requires two-and-a-half years to complete. Applicants who apply for any program in the school are required to hold a bachelor's degree from a domestic or international university. This Graduate School aims to educate students on basic and practical theories and to provide research development that is applied to harbors, marine transport, marine resources, fishing industries, fish-raising industries, marine bio-manipulation, and food industries.

Degree Requirements

Credit Requirements

Applicants who apply for admission into the master's degree program should have one of the following qualifications at the time of application:

- Thesis degree: more than 24 credits
- Non-thesis degree: more than 36 credits

Foreign Language (English) and Comprehensive Final Examination

- Students taking the foreign language test should acquire more than 12 credits.
- The comprehensive final examination consists of three subjects. Applicants taking the examination should acquire more than 18 credits.

Preparation of Thesis

The master's thesis should be prepared using the Guidelines for the Preparation of Theses, available from the Graduate School.

Submission of Thesis

Students who pass the foreign language test and comprehensive final examination, and complete degree program requirements or are expected to complete the degree program requirements in the semester of submission can submit a thesis.

■ Advisors

The Department Head may designate a faculty member for each student upon admission to guide them in their studies.

■ Limitations on Advisors

A faculty member may not be assigned more than three students to advise per year.

Department of Power System Engineering

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■ Graduate Studies in Power System Engineering

Power System Engineering is an academic field combining the mechanical engineering and the electrical/electronics engineering. Power System Engineering deals with the design, manufacture, control, and management of power machinery, thermal-fluid machinery, electrical/electronics machinery, etc. The Department of Power System Engineering aims for nurturing experts with state-of-the-art technology in the field of power system engineering. The department consists of five laboratories: internal combustion engine, hydraulic-pneumatic control, heat-fluid, applied mechanics, and electro-mechanical energy conversion.

■ Degree Requirements

To earn a master's degree, graduate students should pass a foreign language test and a comprehensive final examination. Also, the students should have one of the following qualifications:

- Thesis degree: more than 24 credits
- Non-thesis degree: more than 36 credits

■ What Do You Study?

Advanced Gas Turbine
Advanced Solid Mechanics
Advanced Air Conditioning
Advanced Measurement System
Advanced Engineering Mathematics
Advanced Machine Tools
Advanced Machine Design
Advanced Mechanical Vibration Dynamics
Advanced Engine Design
AdvancedInternal Combustion Engine
Advanced Dynamics
Analysis of Dynamic System
Advanced Robotics
Advanced Mechatronics
Advanced Numerical Analysis
System Design(Capstone Design)
Advanced Combustion Engineering
Advanced Thermal Power Engineering
Advanced Thermodynamics
Advanced Heat Transfer
Advanced Hydraulics-Pneumatics Control
Advanced Hydraulic Engineering
Advanced Fluid Machinery
Electromagnetic field theory
Designand Control of Automatic System
Advanced Electric Machinery
Advanced Motor Control Theory
Advanced Accurate Machining
Advanced Optimal Design

Professors

- Kyong-Uk Yang, Ph.D.
  [Professor, Hydraulic-Pneumatic Control, yangku@jnu.ac.kr]
- Woo-Gyeong Wang, Ph.D.
  [Professor, Internal Combustion Engine. wangwk@jnu.ac.kr]
- Myung-Soo Choi, Ph.D.
  [Professor, Mechanical Vibration, engine@jnu.ac.kr]
- Kyung-Hun Shin, Ph.D.
  [Assistant Professor, Electric Machine. kshin@jnu.ac.kr]

Laboratories

- Applied Mechanics Lab
- Hydraulic-Pneumatic Control Lab
- Internal Combustion Engine Lab
- Heat-Fluid Lab
- Electro-Mechanical Energy Conversion Lab

Department of Aqualife Medicine

Contact Information
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■ Graduate Studies in Aqualife Medicine

The Department of Aqualife Medicine revolves around the exploration of fish disease management and prevention strategies. Our department is composed of eight main laboratories: pathogenic microbiology, histopathology, fish disease diagnosis, environmental physiology, preventative medicine for fish, fish pharmacology, clinical fish pathology, fish virology and clinical diseases.

■ Degree Requirements

To get a master's degree, students must accumulate over 24 credits over a minimum of 2 years and 6 months. Graduate students are also able to earn research credits according to graduate school regulations. Special graduate school students may earn up to 6 credits in principle; this may be adjusted to within 3 credits with the President's approval. The foreign language and comprehensive examinations are administered in February and August of each year.

■ What Do You Study?

Research Methodology
Advanced Ontogeny
Advanced Invertebrate Anatomy
Microbial Genetics
Molecular Studies in Fish Pathology
Advanced Aquatic Toxicology
Applied Fish Pharmacology
Advanced Fish Immunology
Advanced Fish Histopathology
Advanced Fish Anatomy
Applied Aqualife Microbiology
Advanced Diagnostic Fish Pathology
Advanced Fish Pathology
Advanced Fish Disease and Nutrition
Prevention of Epizootics
Advanced Environmental Analysis
Advanced Environmental Physiology

■ Professors

- Eunheui Kim, Ph.D.
  [Professor, Pathogenic Bacteriology and Genetics, ehkim@jnu.ac.kr]
- Jung Sick Lee, Ph.D.
  [Professor, Fish and Shellfish Anatomy, ljs@jnu.ac.kr]
- Myung-Joo Oh, Ph.D.
  [Professor, Fish Virology and Parasitology,

ohmj@jnu.ac.kr]
• Heung-Yun Kim, Ph.D.
[Professor, Fish Physiology and Toxicophysiology, hykim@jnu.ac.kr]
• Sung-ju Jung, Ph.D.
[Professor, Fish Pathology and Immunology, sungju@jnu.ac.kr]
• So Young Kang, Ph.D.
[Professor, Fish Pharmacology and Pharmacognosy sykang1@jnu.ac.kr]
• Toyohiko Nishizawa, Ph.D.
[Professor, Virology and Cell Biology jjnishi@jnu.ac.kr]
• Wi-Sik Kim, Ph.D.
[Associate Professor, Clinical diseases, wisky@jnu.ac.kr]

Department of Maritime Police Science

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■ Graduate Studies in Maritime Police Sciences

Due to South Korea being a peninsula and therefore facing the sea on three sides and the geopolitical nature of the region, there is growing importance for maritime law enforcement. We are therefore aiming at cultivating professionals in the Maritime Police and strengthening competitiveness in the workforce through further education. In addition, the academic and research-based composition of Maritime Police personnel with experience in various research fields are required to improve the organization.

■ Degree Requirements

To get a master's degree, students must accumulate over 24 credits over a minimum of 2 years and 6 months. Graduate students are also able to earn research credits according to graduate school regulations. Special graduate school students may earn up to 6 credits in principle per semester; this may be adjusted to within 3 credits with the President's approval.

■ What Do You Study?

Advanced Criminal Law
Advanced Law of the Sea
Advanced Marine Engine
Advanced Vibration Analysis
Advanced Fisheries Law
Advanced Marine Safety
Advanced Criminology
Studies in Maritime Law
Advanced Marine Navigation
Studies in public law
Advanced Response of Marine Oil Pollution
Advanced Fisheries Management
Advanced Computer Aided Design
Studies in Maritime Traffic Law
Basic Studies in International Law
Advanced Criminal Procedure
Advanced Seamanship of Naval Vessel
Advanced Marine policing
Organization and Management
Advanced Theory of police Investigation
Advanced Ship Dynamics

■ Professors

- Dal-hyun Park, Ph.D.
  [Professor, Criminal Law, dhpark328@jnu.ac.kr]
- Duck-jong Jang, Ph.D.
  [Professor, Marine Safety, Navigation, Marine Pollution

response, jdj@jnu.ac.kr]
• Ki-Soo Lee, J.S.D.
[Professor, Criminal Law, Police Science, kslee@jnu.ac.kr]
• Ho-Sam Bang, Ph,D.
[Professor, International Law of the Sea, Maritime Law, hosamms@jnu.ac.kr]

Department of Marine Bio Food Science

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■ Graduate Studies in Marine Bio Food Science

In the marine field, the Department of Marine Bio Food Science is leading the study of food material, quality, process, storage, distribution, sanitation, safety, and processing technologies.

The basic characteristics of marine food, marine products and development of multiple processing, the use of special functional ingredients for continued exploration concentrated focus on basic scientific literacy and to foster talent and value of marine food acquiring knowledge about the features and, Fisheries with the increase in food hygiene safety technical, process knowledge, quality improvement, the study of the spread of seafood by practicing in the field of marine fisheries industry to increase adaptability to lead the marine biotechnology industry is to nurture talent.

■ Degree Requirements

To obtain a master's degree, students must accumulate over 24 credits over a minimum of 2 years and 6 months. Special graduate school students may earn up to 6 credits in principle to semester. The foreign language and comprehensive examinations required are administered in February and August of each year.

■ What Do You Study?

Food Quality Control
Advanced Food Microbiology
Advanced Bio chemistry
Advanced Food Engineering
Advanced Food Enzymes
Advanced Nutritional Chemistry
Food Rheology
Advanced Food Preservation1
Advanced Canned Food1
Advanced Lipid Chemistry
Advanced Glucose Chemistry
Advanced Food Toxicology
Advanced Food Hygiene
Food Color Chemistry
Advanced Bioactive Substances
Food Stuff Technology
Marine Bioactive Substances
Advanced Antibiotics
Advanced Food Research
Advanced Food Chemistry
Food Analysis Technology
Advanced Food Flavour Chemistry
By-products Processing
Organoleptic Evaluation
Advanced Fermentation Technology
Lipid Food
Advanced Instrumental Analysis
Advanced Sea Weed Processing

Advanced Applied Microbiology
Nutritional Biochemistry
Functional Food Chemistry
Physical Properties of Food
Advanced Food Preservation2
Advanced Canned Food2
Advanced Vitamin Chemistry
Advanced Food Biotechnology
Advanced Food Analysis
Management for Food Hazard Point
Advanced Fisheries Chemistry
Advanced Food Additives
Advanced Seaweed Chemistry
Advanced Marine Resources Processing
Food Resources Processing

Professors

- Dong-Soo Kang, Ph.D.
  [Professor, Fisheries Chemistry, dskang@jnu.ac.kr]
- Sun-Jae Kim, Ph.D.
  [Professor, Food Safety, foodkims@jnu.ac.kr]
- Gin-Nae Ahn, Ph.D.
  [Professor, Marine Biotechnology, gnahn@jnu.ac.kr]
- Sun-Hee Cheong, Ph.D.
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Department of Marine Production Management

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URL: http://marine.jnu.ac.kr

■ Graduate Studies in Marine Production Management

The future of the marine environment requires sustainable management of marine biological resources such as the management of fisheries, high-quality seamanship skills and safe navigation, and marine reorganization with an emphasis on marine ecology awareness. The aim is to train competent and creative marine technical personnel and experts who will lead the marine production and shipping industry by educating theoretical and practical skills on marine production, marine navigation, and fishery systems.

■ Degree Requirements

To earn a master's degree, students must accumulate over 24 credits over a minimum of 2 years and 6 months. Graduate students are also able to earn research credits according to the appropriate graduate school regulations. Special graduate school students may earn up to 6 credits in principle; this may be adjusted to within 3 credits with the President's approval.

■ What Do You Study?

Thesis Research
Writing Thesis
Advanced Seamanship
Theory of Ship's Position Error
Theory of Vessel Motion
Fisheries Engineering
Fisheries Oceanography
Fishing Gear Engineering
Advanced Fishing Gear Design
Mechanice Fishing Gear Materials
Fishing Behavior
Advanced Fishing Technology
Fishing Physics
Fishing Vessel Ability
Fishing Machinery
Advanced Fishery Biology
Fisheries Data Processing
Fishing Ground Mechanism
Artificioa Reet Engineering
Fishing Mechanism
Advanced Pelagic Fishery Technology
Acoustics Fishing Methodology
Measuring Instrumentin Navigation
Advanced Theory of Navigation
Advanced Navigation
Advanced Fisheries Law
International Marine Law
Advanced Marine Mateorology
Oceangraph Environmentalism

Professors

- Doo-Jin Hwang, Ph.D.
  [Professor, Fisheries Acoustics, djhwang@jnu.ac.kr]
- Taeho Kim, Ph.D.
  [Professor, Fisheries Engineering, kimth@jnu.ac.kr]
- Hyong-Ho Shin, Ph.D.
  [Professor, Ship Navigation, hhshin@jnu.ac.kr]
- Jihoon Lee, Ph.D.
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Laboratories

- Fishing gear and Measurement technology Lab
- Navigation Lab
- Fishing gear·Fishing Methodology Lab
- fishery system Lab
- Fishery Resources and Information Lab

Department of Aqualife Science

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■ Graduate Studies in Aqualife Science

The Department of Aqualife science is designed for aquaculture awareness and the conservation of aquatic organisms.

The main target areas are fishery aquaculture and seaweed aquaculture through the study of resource ecology, ecosystem modeling, reproductive biology, Advanced Bio-diversity and Conservational Biology, fish physiology, fish feeds, and Aquafarm Environmental Ecology studies.

The purpose of this program is to produce experts and researchers in the field of aquaculture through intensive study and study of both basic and applied sciences.

■ Degree Requirements

Master's degree candidates are required to earn 24 credits over a minimum of 2 years and 6 months. Ph.D. candidates are required to earn an additional 36 credits. All graduate students are required to submit a thesis prior to graduation and pass a comprehensive exam and a foreign language exam. Students are encouraged to take 9 credits in their first semester. If their grade point average exceeds 4.0 in a semester, they are allowed to take up to 12 credits the following semester. Students are not allowed to take more than 6 credits of courses taught by their academic advisor in the first semester.

■ What Do You Study?

Advanced Genetics (3)
Advanced Developmental Biology (3)
Advanced Ichthyology (3)
Fishery Invertebrate Zoology (3)
Advanced FishFeeds (3)
Algal Physioecology (3)
Aquafarm Environmental Ecology (3)
Crustacea Culture (3)
Endocrinology (3)
Advanced Marine Fish Culture (3)
Management and Pathology of Aquatic Organism (3)
Invertebrate Zoology Culture of SeaWater (3)
Advanced Breeding Science (3)
Advanced Cell Biology (3)
Fish Population Dynamics Management (3)
Advanced Fisheries Administration (3)
Advanced Limmnology (3)
Advanced Feed Biology (3)
Advanced Biochemistry (3)
Advanced Fishery Animal Nutrition (3)
Advanced Phycocultivation (3)
Reproductive Ecology (3)
Advanced Marine Ecology (3)
Invertebrate Zoology Culture of FreshWater (3)

Taxnomy of Invertebrate (3)
Advanced Fish of Fresh-Water Culture (3)
Fish Ecology (3)
Semina 3 (3)
Semina 4 (3)
Semina 2 (3)
Thesis Research (3)

■ Professors

- Won Kyo Lee, Ph.D.
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- Kyoung Ho Kang, Ph.D.
  [Professor. Invertebrate Culture
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- Kyeong Ho Han, Ph.D.
  [Professor. Ichthyology Ecology and Taxonomy.
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- Kang Hee Kho, Ph.D.
  [Professor. Molecular Physiology
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- Sang Duk Choi, Ph.D.
  [Professor. Aquaculture Environment Ecology
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Naval Architecture and Ocean Engineering

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Graduate Studies in Naval Architecture and Ocean Engineering

Naval architecture and ocean engineering focuses on research and education in a variety of areas from basic theory to advanced technology on ships and offshore structures. The final goal of the Department lies in the design and production of reliable and cost-effective transport systems and offshore structures which can carry out missions successfully in harsh ocean environments. The research scopes of naval architecture consist of resistance and propulsion, propulsors, structures and materials, motion and maneuverability, noise and vibration, and welding. Ocean engineering involves various scopes of technical problems that arise during the design, construction, load-out, and operation of various forms of structures developed to meet the needs of the offshore petroleum and construction industries. Research on the ocean environment itself is also one of the major research fields of the Department. To meet increasingly complex technical demands, the Department extends research fields to cover rigorous analysis of detailed subjects using powerful computers. In particular, it offers on-board training courses on university-owned research and training ships.

Degree Requirements

To earn a master's degree, students must accumulate over 24 credits over a minimum of 2 years and 6 months. Graduate students are also able to earn research credits according to the appropriate graduate school regulations. Special graduate school students may earn up to 6 credits in principle; this may be adjusted to within 3 credits with the President's approval.

What Do You Study?

Advance measurements engineering (3)
Advance manufacturing automation (3)
Ecosystem Engineering (3)
Advance manufacturing engineering of ship (3)
Advanced Theory of Ship Design (3)
Advance materials Science of ship (3)
Advanced Theory of Ship Propulsion (3)
Advanced Theory of Ship Resistance (3)
Advanced Fisheries Oceanography (3)
Advanced Numerical Methods (3)
Advanced Coastal Oceanography (3)
Advance welding process (3)
Advanced Hydrodynamics (3)
Finite Element Method (3)
Advanced Optimal Design (3)
Advanced Theory of Special Ships (3)
Advanced Potential Theory (3)
Sediment Transport and Littoral Processes (3)

AdvancedCoastalandHarborEnginering (3)
Coastal Numerical Modelling1 (3)
Coastal Numerical Modelling2 (3)
Advanced Marine Measurement (3)
Advanced Ocean Geoinformatics (3)
Introduction to Ocean Thought (3)
Advanced Dynamical Oceanography (3)
Advanced Operational Oceanography (3)
Advanced Ocean Remote Sensing (3)
Advanced Ocean Information Analysis (3)
Turbulent Diffusion Theory in the Ocean (3)
Advanced Marine Environmental Engineering (3)

Professors

- Moon-Ock Lee, Ph.D.
  [Professor, Environmental Hydraulics (Coastal Oceanography), leemo@jnu.ac.kr]
- Ok-Sam Kim, Ph.D.
  [Professor, Manufacturing Engineering of Ship, kos@jnu.ac.kr]
- Il-Heum Park, Ph.D.
  [Professor, Coastal and Ocean Engineering, parkih@jnu.ac.kr]
- Jong-Kyu Kim, Ph.D.
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- Hee-Jong Choi, Ph.D.
  [Professor, Ship Design, chiohj@jnu.ac.kr]
- Jee-Hun Song, Ph.D.
  [Professor, Ship Structural Vibration, jhs.@jnu.ac.kr]

Department of Environmental Oceanography

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Graduate Studies in the Ocean Environmental Systems

The Department of Ocean Environment Systems aims to carry out scientific and technological studies of the marine environment, the origin of life on earth. For students aspiring to be marine researchers, the Ocean Environment System Program is designed to provide advanced training in a specialized field.

Degree Requirements

To earn a master's degree, students must accumulate over 24 credits over a minimum of 2 years and 6 months. Graduate students are also able to earn research credits according to graduate school regulations. Special graduate school students may earn up to 6 credits in principle; this may be adjusted to within 3 credits with the President's approval.

When students take lectures offered in the special graduate school (including supplementary subjects), master's degree candidates must achieve a grade of C or higher, while Ph.D. candidates must achieve a grade of B or higher.

What Do You Study?

Advanced Aquatic Environmental Processes (3)
Advanced Biology of Water Pollution (3)
Advanced Chemical Oceanography (3)
Advanced Coastal Oceanography (3)
Advanced Community Ecology (3)
Advanced Ecology of Fisheries Resources (3)
Advanced Estuary Ecology 1 (3)
Advanced Estuary Ecology 2 (3)
Advanced Evolutionary Ecology (3)
Advanced Fisheries Oceanography (3)

Major Electives

Advanced Geological Oceanography 1 (3)
Advanced Geological Oceanography 2 (3)
Advanced Intertidal Ecology (3)
Advanced Marine Biology of Benthos (3)
Advanced Marine Conservation Biology (3)
Advanced Marine Conservation Ecology (3)
Advanced Marine Ecology (3)
Advanced Deep Sea Biology (3)
Advanced Marine Planktology (3)
Advanced Marine Pollution (3)
Advanced Marine Pollution Control (3)
Advanced Marine Pollution Ecology (3)
Advanced Marine Sedimentology (3)
Advanced Marine Zooplanktology (3)
Advanced Ocean Bio-Genetics (3)
Advanced Ocean-Ecotoxicology 1 (3)
Advanced Ocean-Ecotoxicology 2 (3)
Advanced Ocean Environmental Condition (3)
Advanced Physical Oceanography 1 (3)
Advanced Physical Oceanography 2 (3)

Advanced Red Tides (3)
Environment Analysis of Fishing Area (3)
Environment of Fisheries Oceanography (3)
Fisheries Physical Oceanography (3)
Fluid Dynamics for Oceanography (3)
Instrumental Analytical Chemistry (3)
Marine Environmental Ecology (3)
Ocean Animal Behavior (3)
Ocean Eco-informatics (3)
Paleo Oceanography 1 (3)
Paleo Oceanography 2 (3)
Regional Oceanography (3)
Water Quality Control of Aquatic Culture Systems (3)
Zooplankton Taxonomy (3)

■ Professors

- Yang Ho Yoon, Ph.D.
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- Yeon Gyu Lee, Ph.D.
  [Professor, Marine Geology, lyg6342@jnu.ac.kr]
- Hyo-Sang Choo, Ph.D.
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- Hyun Chool Shin, Ph.D.
  [Professor. Marine Benthic Ecology, shinhc@jnu.ac.kr]
- Hyeon Seo Cho, Ph.D.
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- Ho Young Soh, Ph.D.
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- Ihn-Sil Kwak, Ph.D.
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