

Educational Philosophy and Objectives of the Graduate School of Integrated Science and Technology

Educational Philosophy

By bringing together technologies and knowledge from engineering, chemistry, fisheries science, environmental science, and information and data science, the Graduate School contributes to technological innovation and the building of a sustainable society grounded in regional development through initiatives such as the development of renewable energy, the advancement of water environment technologies, national resilience and disaster mitigation in harmony with the environment, and the utilization of fisheries resources. Toward the realization of a carbon-circulating society, it creates cutting-edge technologies and fosters researchers and highly skilled professionals capable of addressing critical global challenges.

Objectives

Under the guidance of specialists in diverse fields, students acquire cutting-edge technologies and academic knowledge while studying advanced specialized fields, including those beyond their own disciplines. Through this process, the Graduate School aims to cultivate students' abilities to contribute to the resolution of a wide range of complex issues.

Educational Philosophy and Objectives of the Department of Integrated Science and Technology (Three-Year Doctoral Program)

○The Program for Symbiotic Science and Technology

The educational goal of the Program for Symbiotic Science and Technology is to cultivate researchers and highly skilled professionals who possess advanced specialized and interdisciplinary knowledge of engineering, chemistry, aquatic biology, and information and data science; can utilize data science and the Internet of Things (IoT) to address serious global challenges related to energy, the environment, food, and resources and to build a sustainable society; can conduct research independently with a strong sense of ethics and safety; and can lead efforts to build a sustainable society.

○The Program for Frontiers of Marine Science

The educational goal of the Program for Frontiers of Marine Science is to cultivate researchers and highly skilled professionals who possess advanced specialized and interdisciplinary knowledge required in marine field settings; have either the ability to advance creative research

and a broad perspective in the fields of marine renewable energy, including offshore wind, tidal-current, and wave energy, and the promotion of marine-area utilization, or the advanced technological expertise and capabilities needed to advance marine technologies and smart aquaculture technologies from a nature-positive perspective; and can create innovation as leaders of the next generation.

○The Program for Water and Environmental Science

The educational goal of the Program for Water and Environmental Science is to cultivate researchers and highly skilled professionals who possess advanced specialized and interdisciplinary knowledge in the field of environmental science; can advance creative research on water treatment technologies and aquatic environmental assessment technologies; can address international environmental challenges related to aquatic environments from a broad and comprehensive perspective; and can lead and advance cutting-edge research on a global scale.

Diploma Policy of the Department of Integrated Science and Technology (Three-Year Doctoral Program)

A doctoral degree, namely Doctor of Philosophy in Engineering, Doctor of Philosophy in Fisheries Science, Doctor of Philosophy in Environmental Science, Doctor of Philosophy in Information and Data Science, or Doctor of Philosophy, shall be conferred upon students who have been enrolled for at least three years, have earned the credits prescribed in the designated educational courses (15 credits or more), have acquired the following abilities, and whose doctoral dissertation has satisfied the degree review criteria.

1. As individuals who can contribute to planetary health, students have acquired advanced specialized and interdisciplinary knowledge, professional practical skills, the ability to promote creative research, the ability to explore issues, and problem-solving abilities.
2. Students have developed a strong sense of ethics and safety awareness as highly skilled professionals and researchers.
3. As practical leaders and researchers, students have acquired the communication skills and leadership abilities necessary to play an active role globally.

Curriculum Policy of the Department of Integrated Science and Technology (Three-Year Doctoral Program)

In accordance with Nagasaki University's Curriculum Policy, the Program organizes and implements its curriculum so that students can study systematically and independently.

1. Through "Cutting-edge Specialized Courses," students acquire the high level of specialized knowledge, ability to explore issues, and problem-solving abilities required of practical leaders and researchers.
2. In "Special Lectures," which are common courses, students take "Special Lectures in Integrated Science and Technology," consisting of lectures delivered in English with a view to international activity and poster-style research presentations, thereby acquiring interdisciplinary knowledge.
3. In "Special Seminars," which are common courses, students are required to take "Special Seminar in Integrated Science and Technology," taught by the student's secondary academic advisor, thereby cultivating comprehensive and applied abilities.
4. In "Off-Campus Research and Practical Training," which is a common course, students engage in research and practical training at off-campus collaborative research facilities, including international internships, as "Special Off-Campus Research," thereby addressing multifaceted problem-solving in their specialized fields.
5. Through "International Practical Courses," students acquire the skills necessary for research presentations and writing international academic papers as practical leaders and researchers.
6. Through "Entrepreneurship," students cultivate an entrepreneurial mindset and acquire the practical ability to create new businesses through entrepreneurship, leading to the resolution of social issues and the creation of social value.

Admission Policy of the Department of Integrated Science and Technology (Three-Year Doctoral Program)

Applicants are expected to possess the following academic knowledge and abilities, qualities, and aptitudes.

1. Applicants should have a high level of fundamental academic ability and professional practical skills equivalent to those expected at the master's level in at least one of the following specialized fields: fisheries and biological resources, chemistry and materials

science, environmental resilience, smart city design, electrical and mechanical systems, information and data science, water and environmental science, or marine science.

2. Applicants should have the motivation to acquire more advanced specialized knowledge and skills, and to engage in original research by applying them.
3. Applicants should have a strong sense of ethics and safety awareness as engineers, researchers, and highly skilled professionals.
4. Applicants should have a strong willingness to contribute to a circular society that takes into consideration the Earth and the natural environment.
5. Applicants should have the communication skills necessary to play an active role in international settings.