

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 (Master's Program)

○Program for Symbiotic Science and Technology

The educational goal of the Program for Symbiotic Science and Technology is to foster researchers and highly skilled professionals who can contribute to solving serious global energy, environmental, food, and resource issues and to building a resilient and sustainable society. To this end, the Program cultivates advanced expertise in engineering, chemistry, aquatic biology, data science, and the Internet of Things (IoT), as well as the ability to explore cutting-edge technologies. It also aims to develop researchers and highly skilled professionals capable of addressing environmental resilience and smart city development from a nature-positive perspective.

○Program for Frontiers of Marine Science

The educational goal of the Program for Frontiers of Marine Science is to foster researchers and highly skilled professionals who possess the ability to develop technologies related to marine renewable energy, such as offshore wind, tidal current, and wave power, as well as the

promotion of marine area utilization. The Program also cultivates a comprehensive perspective on environmental issues and specialized, interdisciplinary knowledge required in marine field settings.

○Program for Water and Environmental Science

The educational goal of the Program for Water and Environmental Science is to foster researchers and highly skilled professionals who can address international environmental issues surrounding the water environment from multifaceted and multidimensional perspectives. The Program enables students to acquire advanced water treatment technologies and water environment assessment technologies, while developing the ability to play an active role globally in the field of water and environmental science.

Diploma Policy of the Department of Integrated Science and Technology (Master's Program)

A master's degree, namely Master of Engineering, Master of Fisheries Science, Master of Environmental Science, Master of Information and Data Science, or Master of Philosophy, shall be conferred upon students who have been enrolled for at least two years, have earned the credits prescribed in the designated educational program (30 credits or more), have acquired the following abilities, and whose master's thesis has satisfied the degree review criteria.

1. As individuals who can contribute to planetary health, students have acquired deep specialized knowledge, broad interdisciplinary knowledge, professional practical skills, technological creativity, and the ability to identify and solve problems.
2. Students have the ability to contribute to the development of a technological society that coexists with nature.
3. Students have acquired a global perspective that enables them to play an active role internationally with advanced professional practical skills.

Curriculum Policy of the Department of Integrated Science and Technology (Master's Program)

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

The Program designates Compulsory and Elective Courses according to each program—the Program for Symbiotic Science and Technology, comprising six fields, the Program for Frontiers of Marine Science, and the Program for Water and Environmental Science—thereby enabling students to acquire advanced specialized knowledge and abilities.

1. Through Common Courses, students acquire advanced modes of thinking that foster new creation, as well as fundamental knowledge for entrepreneurship. By taking interdisciplinary omnibus courses, students also acquire broad-based knowledge.
2. Through Field-Specific Collaborative Courses, students acquire interdisciplinary knowledge useful for research.
3. Through Field Specialized Courses, students acquire advanced foundational expertise in their respective fields.
4. Through Advanced Specialized Courses, students acquire deeper specialized knowledge while cultivating high levels of technological creativity and the ability to identify and solve problems.
5. In all courses, Seminars and Special Research are designated as Compulsory Courses. Through these courses, students develop the ability to plan and conduct research, cultivate international communication skills, and acquire a global perspective that enables them to play an active role internationally.
6. Through Regional Collaboration Exercises, students cultivate the practical ability to identify and solve problems in interdisciplinary fields.

Admission Policy of the Department of Integrated Science and Technology (Master's 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 in at least one of the following fields: engineering, fisheries science, environmental science, or information and data science.
2. Applicants should have the willingness to contribute to the development of a technological society that coexists with nature.
3. Applicants should have an interest in issues involving the interrelationship between the Earth and human society, such as global warming, the depletion of energy, food, and water resources, and health and medical challenges. They should also have the

motivation to address these issues from a broad, comprehensive perspective by bringing together technologies and knowledge from engineering, chemistry, fisheries science, environmental science, and information and data science.

4. Applicants should have the willingness to contribute to the building of a sustainable society by promoting research related to marine science and technology, water environment technologies, national resilience and disaster mitigation in harmony with the environment, fisheries resources, the creation of functional materials, IoT, and data science.