Graduate School of Advanced Engineering
Department of Applied Physics

Diploma Policy

1. In the master's program, the department aims to "cultivate human resources who, based on their expertise in physics, can contribute to the development of mankind by pursuing new principles, technologies, and concepts that will bring about innovations in order to revolutionize society". The Department of Applied Physics accredits and awards a master's degree (Master of Engineering) to those who have attended courses in the program for a specified period, have acquired the necessary credits, and had their master's thesis recognized as having reached the standard required.

A graduating student will acquire the following abilities:

(1) The ability to think logically and critically and to solve problems based on advanced specialist knowledge, research skills, and education, both in the fundamentals of physics and its applications.

(2) Recognition of the importance of physics and its potential for application, and the ability to disseminate and teach this to society on the basis of empathy and high ethical standards.

(3) Possess the international perspective and dialogue skills enabling the ability to deal with issues in the fundamentals of physics and its applications.

2. In the doctoral program, the department aims to "cultivate human resources who, based on advanced specialized knowledge of physics, can conduct original and creative research activities and can develop new principles, new technologies, and new concepts in order to proactively bring about innovations that will change society". The Department of Applied Physics accredits and awards a doctoral degree (Doctor of Engineering) to those who have acquired the necessary credits and have had their doctoral dissertation recognized as having reached the standard required, passed a consequent examination, and an examination of general academic ability.

A graduating student will acquire the following abilities:

(1) Advanced, in-depth specialist knowledge and independent research skills that enable the discovery of areas in need of further innovative research in a specialist field. Furthermore, the ability to guide researchers and professionals in their field of expertise.

(2) The high ethical standards that enable one to objectively evaluate and convey the results of fundamental and applied physics in regard to science and technology in general. Furthermore, the ability to exercise leadership as a professional with a high degree of competence and to take on the challenge of creating the seeds of new industries, and to contribute to building a sustainable society.

(3) The international perspective and dialogue skills that enable one to take the initiative in addressing international challenges in one's field of expertise, or related fields.

Curriculum Policy

1. In the master's program, the curriculum is based on the aim to "develop human resources who can contribute to the development of mankind and who, on the basis of their expertise in physics, can pursue new principles, new technologies and new concepts that will bring about innovations that will transform society". The curriculum is organized to realize the objectives of human resource development in the field of applied physics through specialized courses, liberal arts courses, and Research Guidance.

(1) In order to acquire advanced specialist knowledge, there are not only specialized courses, but there are also introductory courses and non-specialized courses provided.

(2) Courses in the liberal arts are provided to cultivate the basic knowledge, communication skills, and ethical standards and internationality required of those involved in research and development. In order to cultivate a

broad interdisciplinary perspective and deeper academic knowledge, omnibus subjects are arranged with experts from other institutions specializing in various fields.

(3) Research Guidance helps students acquire the knowledge and experience necessary to develop their research skills. Students acquire the ability to objectively evaluate and express their research results by presenting them at conferences. Compiling the results of two years of research into a master's thesis under the guidance of a supervisor, provides students with the ability to analyze and convey the content of their research.

2. In the doctoral course, students are trained to "conduct original and creative research activities on the basis of advanced expertise in physics and, moreover, independently pioneer new principles, new technologies, and new concepts that will bring about innovations in order to revolutionize society". The curriculum is organized to realize this objective, by further organizing Research Guidance and liberal arts courses, on the basis of the advanced specialized knowledge and research skills developed in the Master's program.

(1) Research Guidance not only helps students develop the ability to accurately express the results of their research in specialized fields through presentations at domestic/international conferences and the publication of academic papers, but also fosters those who can be internationally active in the future. Under the guidance of supervisors, students will gain the ability to analyse, evaluate, and convey the results of three years of research in a doctoral thesis.

(2) Courses in the liberal arts not only foster the training of future personnel involved in research and development, but they also support the attainment of better communication skills, a deeper understanding of ethics, and a greater sense of internationality. In order to develop an interdisciplinary perspective, a wide range of classes are available from a variety of experts specializing in various fields, providing opportunities for interdisciplinary exchange.

Admissions Policy

Based on the educational philosophy of the Department of Applied Physics, which is "to contribute to the development of mankind by developing human resources with the broad knowledge and creative ability to generate innovations that transform society through new principles, new technologies, and new concepts based on a physics perspective", the department seeks a wide range of applicants through a variety of selection methods:

1. The master's degree program seeks those who have acquired the basic professional skills and knowledge of liberal arts cultivated in the bachelor's program, and those who are motivated to explore new areas of applied physics to become researchers, engineers and educators with a broad knowledge of the fundamentals of physics and its engineering applications.
2. The doctoral program seeks those who are not only willing to conduct and further develop creative research in fundamental physics and its engineering applications based on the research skills developed in the master's program, but also those who are motivated to contribute to society through their research and to be active from an international perspective.

Evaluation methods for the types of abilities required for the admissions policy in differing entrance examinations:

(General entrance examination)

For the master's program, the Department of Applied Physics seeks those with specialist knowledge of physics, English language skills, the ability to think and express themselves, and the attitude to carry out their own research. Candidates will be tested through an examination of documents submitted, foreign language ability, and an oral examination of scholarly aptitude. For the doctoral program, candidates will be tested through an examination of documents submitted, and an oral examination of their master's thesis/ research plans.

(Recommendation entrance examination)
In the master's program, the Department of Applied Physics seeks those who have professional knowledge, English ability, thinking and communication skills commensurate with the characteristics of physics, and those who have the determination to conduct independent research. Candidates will be selected through an examination of documents submitted and interview.

(Special selection for working people, foreign student entrance examination)
For the master's course, selection is based on an examination of documents submitted, the results of qualifications and examinations, and an oral examination of basic academic skills, etc. For the Doctoral course, selection is based on an examination of documents submitted, a master's thesis, and an oral examination of research results and research plans that have been conducted at research institutions, etc. The special selection of mature students is conducted only in the doctoral program.