

Graduate School of Advanced Engineering Department of Materials Science and Technology

Diploma Policy

1. In the master's program, the following knowledge and skills are aimed “to create a better society by proactively solving issues using novel perspectives in the field of materials science”. A master’s degree (Master of Engineering) is accredited and awarded to those who have acquired the necessary credits in the Department of Materials Science and Technology, had their master’s thesis recognized as having reached the standard required and passed a consequent examination.

Not only an advanced level of knowledge of the fields of materials science and technology, but also research skills and liberal arts are required for the master’s diploma, Also, a graduating student will acquire the following abilities:

- (1) The sense of ethics required of a researcher or technician who is active in the international community.
- (2) The level of expertise to independently identify and solve problems by surveying and analyzing information.
- (3) The ability to conduct and lead creative research activities.
- (4) The ability to independently evaluate the reliability of science and technology from the viewpoint of the harmony of human beings, societies and the global environment.

2. The doctoral program aims to train researchers who can “conduct creative research activities based on advanced knowledge and skills in materials science and technology, and contribute to the society based on those knowledge and skills”. A doctoral degree (Doctor of Engineering) is accredited and awarded to those who have completed required courses in the program for a specified period, who have acquired the credits required for doctor’s diploma, have had their doctoral dissertation that has reached the required level, passed a consequent examination including an examination of the general academic ability.

Not only a highly sophisticated level of knowledge in the fields of materials science and technology, but also an advanced level of research skills and liberal arts are required. Also, a graduating student will acquire the following abilities:

- (1) The ability to develop new knowledge in advanced research fields on an international level
- (2) The flexible thinking, deep insight and the highly sophisticated level of expertise and ability to discover, set, and solve the problems.
- (3) The ability to conduct and lead independent and creative research activities.

Curriculum Policy

The curriculum of the Department of Materials Science and Technology is designed based on the department policy “expanding the framework of the existing engineering, to integrate and develop basic science with unrestricted ideas, improve advanced materials technology, and create new interdisciplinary fields.” In the master’s program, the aim is to “develop personnel who will contribute to the society from a new perspective based on expertise in materials science.” In the doctoral program, the aim is to “develop personnel who will contribute to the society by conducting creative and innovative research activities based on an advanced knowledge of materials science.”

1. The master's degree program is designed based on the basic academic ability and wide range of liberal arts acquired in the bachelor's degree program. Specialized Courses, Courses in the liberal arts, and Research Guidance, are part of a curriculum to foster personnel who not only possess the ability to carry out research and development with a high degree of expertise, but also have an in-depth knowledge and viewpoint that is not confined to the conventional materials engineering background.
 - (1) In Courses in the liberal arts, to enhance the sense of ethics, culture, values, communication skills in order to be active as a researcher and engineer on a global basis.
 - (2) In Specialized Courses, students will acquire specialized knowledge in the field of materials

science and cultivate the creativity necessary to solve problems in the development of advanced technology. The curriculum is organized in order to help students take on learning independently, and train the thinking skills, judgement and expression necessary for researchers and engineers. In addition, the curriculum is designed to meet diverse learning needs by enabling students to take courses in other graduate schools and other majors; and providing opportunities for interdisciplinary learning and cross-disciplinary exchange.

- (3) Research Guidance aims not only to improve the ability to globally survey academic information and research and development trends globally in the field of materials science, but also the ability to solve problems in research and development, utilizing specialized knowledge and skills. Students will practically improve their communication skills through giving research presentations at international conferences.

2. The doctoral program is designed based on the advanced academic ability and wide range of liberal arts acquired in the master's degree program. The combination of "Research Guidance" and "Liberal Arts" studies help students to become specialist of materials science with ability to carry out research works independently or to become creative researchers for solving problems in interdisciplinary and advanced fields from global viewpoint.

(1) In "Research Guidance", the students will develop the ability to express the research results of their own specialized field through research presentations at domestic and international academic meetings, writing academic papers and making discussions with academic advisors, as well as opportunities for cross-disciplinary exchange, etc. Improve the ability to express, research and development promotion skills, and communication skills. In addition, in collaboration with international researchers, they will be cultivated with the qualities to carry out creative and leading research and development activities not only in their own specialized fields but also in a wide range of fields.

(2) In courses of "the Liberal Arts" , to enhance the sense of ethics, culture, values, communication skills in order to be active as a researcher and engineer on a global basis and, thereby, contribute to science and technology in the international community.

Admissions Policy

Based on the department policy of the Department of Materials Science and Technology, "expanding the framework of the existing engineering, to integrate and develop basic science with unrestricted ideas, improve advanced materials technology, and create new interdisciplinary fields," the following types of students are sought.

1. The master's program: based on the basic academic ability and a wide range of education acquired in the bachelor's program, those who aim to acquire the thinking ability, judgment ability, expressive ability, etc. necessary for solving problems independently in the fields of materials engineering, or those who aim to acquire the abilities necessary for occupations that require specialization.
2. The doctoral program: those who are willing to carry out creative research independently beyond the framework of existing engineering, based on the specialized knowledge and research ability acquired in the master's program.
3. Those who have a wide interest in science and technology and social trends from a global perspective, and who are willing to collaborate with diverse people as scientists and engineers with excellent expertise.

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

(General entrance examination)

The university seeks those who have specialist knowledge of the field, English ability, thinking

skills and communication skills commensurate with the characteristics of both the admissions and curriculum policy; and those who have the determination to conduct independent research. In the master's program, candidates will be selected through an examination of documents submitted, a written examination, qualifications, officially recognized qualification results and interview. In the doctoral program, candidates will be selected 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 university seeks those who have the professional knowledge, English ability, thinking, communication skills beyond the scope of the major commensurate with the characteristics of each major, and those who have the determination to conduct independent research. Candidates will be selected through an examination of documents submitted, essay and interview.

(Special selection for working people, foreign student entrance examination)

The university seeks those who have acquired experience in research institutes or companies, have a positive attitude toward learning, and/or have skills acquired abroad. In the master's program, candidates will be selected through an examination of documents submitted, qualifications / results of officially recognized qualification and interview. In the doctoral program, students will be selected through an examination of documents submitted, written examinations, and an oral examination of their master's thesis / research plans.