Department	Department of Pure and Applied Mathematics
Course	Master, Doctor
Degree	Master(Engineering/Science), Doctor(Engineering/Science)

1. Diploma Policy	Mathematics is a discipline for recognizing, understanding, and describing all things in the universe, and for this reason, it was born at the cradle of civilization and has evolved along with the development of society. Today, the results of mathematics are used throughout our daily lives, and the value of mathematics to future science and technology is becoming increasingly important. To support the development of the vast field of mathematics, the Department of Pure and Applied Mathematics provides education to cultivate human resources who can pioneer the latest mathematical theories and contribute mathematics to society. To achieve this goal, specialists in the fields of basic mathematics, such as algebra, geometry, and analysis, and applied mathematics, such as phenomena, information, and statistics, are brought together to provide a diverse and advanced system of specialized education and research guidance. In the master's program, each student researches under the faculty members' guidance and produces a master's thesis, which is reviewed, and if the student is recognized as having the knowledge and ability to search for the truth in the field of pure and applied mathematics from the perspective of natural science, the student is awarded a master's degree in science. The degree of Master of Engineering is awarded to students who are recognized as having the skills and abilities to apply basic knowledge of engineering in the field of applied mathematics. In the doctoral course, students conduct original research under research guidance, publish several papers in international journals and conferences, and summarize the research results in a doctoral dissertation. When the doctoral dissertation is judged to ensure that the student has the advanced knowledge of natural science and the ability to clarify new truths, the Doctor of Science's degree will be conferred. If the student is recognized as having a broad knowledge of engineering and the skills and abilities to realize applications, the student will be awarded the degree of Doctor of Engineering.
2. Curriculum Policy	In the first year of the master's program, students take lecture courses in the department to acquire a broad knowledge of algebra, geometry, analysis, phenomena, information, statistics, and other fields. In the second year of the master's program, students acquire basic knowledge and problem-solving skills in their area of specialization through seminars. In the second year of the master's program, students acquire the sense and ability to understand and work out unsolved problems in their specialized fields and submit a master's thesis as a result. The themes of the master's thesis can be broadly classified into two categories: one is a master's thesis in pure or applied mathematics that contributes to the search for truth from the perspective of natural science. The other is a master's thesis in engineering that contributes to the application of basic engineering knowledge in the field of applied mathematics. In the first year of the doctoral program, students find a good balance between high-level knowledge in their area of specialization and a wide range of knowledge in their related areas. Students are encouraged to conduct original research under research guidance and to publish several papers in international journals and conferences. In the second year, students acquire the attitude and ability to proactively solve open problems in their area of specialization. In the third year, students write doctoral dissertations. The doctoral dissertation can be divided into two main categories. A doctoral dissertation is a doctoral thesis in science that contributes to advanced knowledge of natural science and the elucidation of new truths. The other is a doctoral dissertation in engineering, which contributes to the application of a wide range of knowledge in engineering to the realization of technology.

Learning Outcome 1	To aquire advanced knowledge of the natural sciences and the ability to elucidate new truths through research in pure mathematics.
Learning Outcome 2	To acquire a broad knowledge of engineering through research in applied mathematics and the skills and abilities to realize applications.
Learning Outcome 3	To aquire the creative ability to elucidate mathematically the phenomena of modern society and modern science toward the construction of new theories.
Learning Outcome 4	To be able to promote research and contribute the results to society through international communication skills.
Learning Outcome 5	To acquire the ability to solve problems independently and make comprehensive judgments based on analytical, thinking, and reasoning skills, and to be able to contribute to future science and technology.
Learning Outcome 6	

Department	Department of Applied Mechanics and Aerospace Engineering
Course	Master, Doctor
Degree	Master(Engineering), Doctor(Engineering)

1. Diploma Policy	While the scope of science and technology is expanding rapidly over time, cutting-edge fields are constantly evolving and moving toward sustainable societies. In order to solve the global environmental and energy problems that our society is facing today, advanced expertise in a wide range of science and engineering fields related to materials, energy, environment, and information is required. Therefore, it is essential to develop excellent human resources who can proactively utilize such knowledge. The objective of this major is to contribute to society by developing engineers and researchers who can contribute to the creation of new scientific value and technological innovation, as well as true human resources who can play an active role internationally, through applied mechanics, which is the foundation of all industries, and cutting-edge research and technological development of aerospace engineering based on applied mechanics. In order to achieve this objective, specialists in applied mechanics and aerospace engineering are brought together to provide advanced professional education and research guidance. In the master's course, students engage in research and development under the research guidance of faculty, and compile their research results into a master's thesis. A master's degree in engineering is conferred upon those who are recognized as having skills and abilities to apply basic engineering knowledge in applied mechanics and aerospace engineering through their master's thesis presentation. In the doctoral course, students engage in the most advanced research under the research guidance of faculty, publicize their research results both domestically and internationally, and compile them into a doctoral thesis. A doctor's degree in engineering is conferred upon those who are recognized as having a broad knowledge in applied mechanics and aerospace engineering, and high abilities to develop advanced research fields.
2. Curriculum Policy	In order to develop human resources who have skills and abilities to apply basic knowledge in applied mechanics and aerospace engineering, and play a trailblazing role in these fields, we provides lecture courses to learn the latest theories and technologies in each field, advanced lecture courses to learn advanced specialized knowledge in specific fields, seminar courses to cultivate the ability to widely apply specialized knowledge, and research guidance. In the master's course, students will develop the ability to think logically and multilaterally about various problems by applying basic knowledge, the ability to find problems and solve them, and presentation and communication skills through master's thesis research involving cutting-edge research in their specialized field. On the other hand, the doctoral course develops those with high abilities to actively lead cutting-edge research in their specialized field, and to build new concepts, theories, and technologies, for scientific and technical development in the field through the doctoral thesis research. Students will acquire strong communication skills to promote mutual understanding with society, and a rich international perspective by publicizing their research results domestically and internationally.

Learning Outcome 1	Students will acquire skills and abilities to apply basic knowledge in applied mechanics and aerospace engineering.
Learning Outcome 2	Through research in applied mechanics and aerospace engineering, students will acquire advanced skills to discover problems, provide solutions to them, and explain the solutions logically.
Learning Outcome 3	Students will acquire high abilities to build new concepts in advanced research fields in applied mechanics and aerospace engineering and to play a trailblazing role in these fields.
Learning Outcome 4	Students will acquire strong communication skills to promote mutual understanding with society, and a rich international perspective by publicizing research results in applied mechanics and aerospace engineering domestically and internationally.
Learning Outcome 5	We will foster human resources who have comprehensive judgment based on analytical ability, thinking power, and applied skills, in addition to the ability to solve problems proactively, contributing to future science and technology.
Learning Outcome 6	

Department	Department of Electronic and Physical Systems
Course	Master, Doctor
Degree	Master(Engineering/Science), Doctor(Engineering/Science)

1. Diploma Policy	The Department of Electronic and Physical Systems (EPS) ventures into a new interdisciplinary academic field that involves systemization by functional discoveries and functional integrations, with electrons and photons as intermediaries, for the purpose of understanding self-integration of atoms and molecules as basic materials and formation of higher-order structures, as well as for the creation of functional systems ranging in dimensions from nanometers to micrometers by using ultrafine processing technologies. With the advancement in technology brought about by the physical phenomena of electrons and photons, many core industries are engaged in promoting the development of electronic and photonic materials, devices and their system applications. Following the development of large-scale integrated circuits, the scope of on-chip systems, an extension from the development of large-scale integrated circuits, is also becoming broader, and their digitization becomes the foundation of a prosperous and highly information-oriented society. Addressing the strong social demand of utilizing advanced technologies of electronics and photonics for economy revitalization, EPS provide students with highly specialized education programs on electronics and photonics with the foundation of physics. In addition, research activities in EPS are mainly divided into four areas: Material Science, Electronics, Photonics, and Information Systems. For each master student, it is required to carry out research under the supervision of an academic supervisor on a topic in one of the above four areas. Each master candidate is encouraged to participate in academic conferences and other research activities and must be able to complete his/her master thesis. A master's degree of science will be granted if the master thesis is approved and recognized as having scientific knowledge and ability to explore the truth of natural sciences. Meanwhile, a master's degree of engineering will be granted if the master thesis is approved and recognized as having basic knowledge of engineering and ability to apply the natural sciences to engineering problems. For each doctoral student, it is required to carry out independent and original research under the supervision of an academic supervisor and co-supervisor in one of the above four areas. Each doctoral candidate must be able to complete his/her doctoral dissertation with substantial achievements published in peer-reviewed international journals and/or academic conferences in the relevant field. A doctoral degree of science will be granted if the doctoral dissertation is approved and recognized as having advanced knowledge of natural science and high ability in unraveling new truths. Meanwhile, a doctoral degree of engineering will be granted if the doctoral thesis is approved and recognized as having a wide range of specialist knowledge in the subject areas and having the ability to apply them to create new applications.
2. Curriculum Policy	EPS aims to offer highly specialized programs on electronics and photonics with the foundation of physics by promoting education on knowledge and skills for engineering problems. For this purpose, seminar courses and research guidance are compulsory in both the master's and doctoral programs, and students will be able to acquire the ability of problem-solving and critical reasoning, cultivate the sense of manufacturing, and develop the skill in systematic thinking. Advanced specialized subjects in a diverse set of areas such as material science, electronics, photonics, and information systems are provided in consistent with the corresponding seminar courses and research activities so that students are able to obtain specialist knowledge in each area, learn to think from different angles and perspectives, develop flexible thinking ability, and acquire an enterprising spirit. Students will be assigned to a laboratory to carry out research on a topic in one of the four areas. To obtain the degree, each student should be able to acquire the basic ability to carry out research from research planning to implementation and make the achievement to be published, and then be able to complete his/her master thesis and/or doctoral dissertation.

Learning Outcome 1	To gain specialist knowledge and ability to explore the truth of natural sciences
Learning Outcome 2	To obtain a wide range of specialist knowledge in engineering and acquire the ability to apply them to create new applications.
Learning Outcome 3	To cultivate creativity in building new theory and implementing novel technology through investigation of unexplained natural phenomena and unachieved engineering systems using the knowledge of specialized and advanced mathematics and physics.
Learning Outcome 4	To develop international communication skills so as to promote research activities and to make contributions to our society.
Learning Outcome 5	To make contributions to future science and technology through independent research utilizing analysis, thinking, reasoning, and presentation skills.
Learning Outcome 6	

Department	Department of Computer Science and Communications Engineering
Course	Master, Doctor
Degree	Master(Engineering), Doctor(Engineering)

1. Diploma Policy	Amidst the rapid advance of network and computer technologies, the academic field of ICT (Information and Communications Technology), the key technology for driving social activities as well as science and technology forward, is bringing about fusions of different information-related disciplines, creating new information-related academic fields, and thereby causing social changes. Our department aims to conduct research and education in ICT-related academic fields and to produce graduates with a high level of expertise. Furthermore, in order to realize this goal, the department provides diverse and advanced specialized education and research guidance based on global perspectives, given by experts in each of the three core academic fields: Information and Communications, Information Science, and Information Engineering. In the Master's program, students will conduct research under the guidance of faculty members and summarize the research findings as a Master's thesis. If, by reviewing the thesis, the department recognizes the student as having the skills and ability to apply basic engineering knowledge in the fields of information and communications, information science, and information engineering, the student shall be awarded a Master's Degree in Engineering. In the Doctoral program, students will conduct novel research under the supervisors' guidance, publish multiple papers at international conferences and journals, and completes a Doctoral dissertation that integrates the research findings. If, through a doctoral dissertation review, the student is recognized to have a broad knowledge of engineering as well as the skills and abilities to put it into practice, the student will be awarded a Doctor of Engineering degree.
2. Curriculum Policy	The three academic fields of Information and Communications, Information Science, and Information Engineering are making rapid progress, and it is extremely difficult to maintain an advanced educational environment without the coordination of these closely related fields. Moreover, it is recognized that development in a cyclical manner is essential, with the results of one area serving as the basis for the development of the other. Therefore, this department has established two fields of study, Information Science and Engineering, and Information Communications. There are five divisions under Information Science and Engineering: namely Computer-Human Interaction, Information Networks, Advanced Computing, Software, and Information Architecture. Under Information Communications, there are three divisions: Information and Communications Systems, Communications Networks, and Media and Content. Through organic linkages between these fields and divisions, curriculums are provided that enable students to learn the theories and practice of Information and Communications, Information Science, and Information Engineering in a well-balanced and self-directed manner.

Learning Outcome 1	Students will develop the ability to think and act from a global perspective on the roles and responsibilities of information and communications, information science, and information technology in the real world.
Learning Outcome 2	Students will be able to understand the demands of modern society for information and communications, information science, and information technology, and to acquire the ability to identify and solve problems.
Learning Outcome 3	Students will acquire broad knowledge of engineering and the skills and ability to apply it, through research on information and communications, information science, and information engineering.
Learning Outcome 4	Students will develop advanced communication skills such as logical writing, oral presentation, discussion, and teamwork, which are required of professional engineers, and the ability to independently carry out and organize work under self-defined constraints and conditions.
Learning Outcome 5	
Learning Outcome 6	

Department	Department of Intermedia Studies
Course	Master, Doctor
Degree	Master(Engineering), Doctor(Engineering)

1. Diploma Policy	The Master of Engineering degree requires students to show advanced abilities of problem solving and value creation and to have skills to perform actively in various fields, including engineering and intermeida art, with understanding of science and technology, and to write up a master's thesis to demonstrate them. In addition, the Doctor of Engineering requires a doctoral dissertation to prove the student's ability of exploring novel fields and performing successfully in the world.
2. Curriculum Policy	In the master's course, students learn basic, advanced, and interdisciplinary knowledge of science/technology and art/design in various lecture courses. Laboratory-based classes provide them the opportunity to develop skills of understanding social and personal needs and designing media, expression, technology, and/or scientific idea to respond to such needs. Research-based courses and master thesis cultivate abilities of problem solving and value creation by integrating science/technology and art/design. In addition, the Doctor of Engineering requires a doctoral dissertation to prove the student's ability of exploring novel fields and performing successfully in the world.

Learning Outcome 1	Able to understand basic, advanced, and interdisciplinary knowledge of science/technology and art/design.
Learning Outcome 2	Able to use and explore science and advanced technology for novel media expressions.
Learning Outcome 3	Able to create and promote advanced media with consideration of international trends.
Learning Outcome 4	Able to design media, expression, technology, and/or scientific idea with understanding social and personal needs.
Learning Outcome 5	Able to solve problems, create values, and explore novel fields.
Learning Outcome 6	

Department	Department of Materials Science
Course	Master, Doctor
Degree	Master(Engineering/Science), Doctor(Engineering/Science)

1. Diploma Policy	In our department, we cover many fields of study from iron and steel to non-ferrous metals and other novel materials, and introduce a very unique mathematical approach towards developing new materials that can support the next generation industry. We aim also to develop in our students all the skills they need to commit themselves to research, development, and application of novel materials at their workplace. Concretely, they stand on a solid basis related to the fundamentals of materials from courses on thermodynamics, crystallography, and structural mechanics, and advance to studies on a variety of materials, from micromaterials to large-scale macromaterials through a hierarchically interwoven curriculum that is grounded on topology. Computational homology for mathematical materials science, advanced computing for simulation of materials, big-data analysis, and materials development for space or extreme environment applications are some examples of methodologies that can be mastered. Those who fulfill one of the following criteria are awarded a diploma. Master of Engineering Those who have ability to apply materials science to concrete problems from an engineering viewpoint. Master of Science Those who have ability to seek fundamentals of materials science from a natural science viewpoint. Doctor of Engineering Those who have developed advanced skills for applying materials science to concrete problems from an engineering viewpoint. Doctor of Science Those who have developed advanced skills for seeking fundamentals of materials science from a natural science viewpoint.
2. Curriculum Policy	In the Department of Materials Science, in addition to preparing skilled professionals that can work at key materials manufacturers at the Fundamental Materials Division, we also set the Advanced Materials Division to enable our graduates to fulfill the needs of the next generation industry. Our education and research activities are conducted through these two branches in a way that covers a broad range of fields and applications.

Learning Outcome 1	The skills needed for building a proper theory of fundamental mathematics, or designing mathematical methods and high-accuracy numerical simulation methods are developed, for in-depth theoretical analysis of phenomena related to materials science.
Learning Outcome 2	The skills that enable evaluation of deformation and strength of materials in multi-scale, fracture events and functionalities through experimental and simulation approaches are developed for achieving high-quality mechanical structural materials with improved strength, durability, light-weight, and functionality.
Learning Outcome 3	The skills that enable deep understanding of the fundamental phenomena involved in the fabrication and processing of metallic materials, and development of novel fabrication and processing techniques for maintaining sustainable growth of society are developed.
Learning Outcome 4	The skills needed for understanding the most fundamental properties of materials using quantum mechanics, solid state physics, crystallography, statistical mechanics and X-ray spectroscopy from a microscopic viewpoint are developed.
Learning Outcome 5	
Learning Outcome 6	