

Graduate School of Science and Engineering

Master's Program
Application Guide for International Students
【Engineering Division】

April 2021 Enrollment (2nd)

November 2020

University of Toyama

**Graduate School of Science and Engineering, Master's Program
(Engineering Division) [Master of Engineering]
Admission Policy**

[Admission Policy]

This course seeks those who can promote technological innovation from the viewpoints of materials, process and information, and those who have the makings as an engineer and a researcher to contribute to the preservation and improvement of the welfare of humankind and ecosystem.

[Basic Policy of Selection (types of examinations and evaluation methods)]

<General Admission>

Scholastic ability examination (oral and written) to know if a candidate has achieved basic scholastic ability of undergraduate level and to know the reason of a student's application and the motivation of learning.

<Special Admission for Adult Students>

Interview and submitted documents to know if a candidate has achieved basic scholastic ability of undergraduate level and to know the reason of a student's application and the motivation of learning.

<Special Admission for International Students>

Oral and written examination to know if a candidate has achieved basic scholastic ability of undergraduate level and to know the reason of a student's application and the motivation of learning, and to know if the candidate has linguistic ability appropriate for the education of master's course.

[Required Attributes and Abilities]

• **Fundamental Abilities**

To be willing to learn science in general centering around engineering and to have obtained the power of understanding, logical thinking and expressing oneself, that are necessary for the master's degree level of education.

• **Expert Knowledge**

To have obtained basic knowledge on engineering as readiness for acquiring expert knowledge in the master's degree level of education.

• **Ethical Perspective**

To have social ethical perspective and willingness to contribute to a society.

• **Creativity**

To have willingness to voluntarily grapple with problems in the field of engineering, in cooperation with others.

Contents

Application Guide for International Students (April 2021 Enrollment)

1 . Admission quota	1
2 . Eligibility requirements	1
3 . Selection methods	2
4 . Application period	2
5 . Application procedures	3
6 . Payment for entrance examination fee	4
7 . Approval of eligibility for application	6
8 . Announcement of successful applicants	6
9 . Admission procedures for successful applicants	6
10. Policy on personal information protection	7
11. IMPORTANT	7
12. Applicants with special needs	8
13. Corresponding about novel coronavirus infection (COVID-19)	8
Overview of Master's Programs of Graduate School of Science and Engineering, University of Toyama	9

1. Admission quota

Major	Admission quota
Electric and Electronic Engineering	A few
Intellectual Information Engineering	A few
Mechanical and Intellectual Systems Engineering	A few
Life Sciences and Bioengineering	A few
Environmental Applied Chemistry	A few
Materials Science and Engineering	A few

(Note) An applicant must consult the school of his/her major of interest in advance about his/her research plan.

2. Eligibility requirements

Applicants must have non-Japanese citizenship and hold the residence status of ‘Student’ at the time of admission as stipulated by the Immigration Control and Refugee Recognition Act, and meet one of the following qualifications. Those who are expected to obtain the residence status of ‘Student’ may also apply.

- (1) Those who have graduated from a Japanese university, or are expected to graduate by March 31, 2021.
- (2) Those who have received, or are expected to receive a bachelor’s degree from a Japanese university by March 31, 2021 according to the provisions of Article 104, Paragraph 4, Section 1 of the School Education Law.
- (3) Those who have completed, or are expected to complete 16 years of education in foreign countries by March 31, 2021.
- (4) Those who live in Japan and completed, or are expected to complete 16 years of education in correspondence courses from a foreign-affiliated educational institution by March 31, 2021.
- (5) Those who have been designated by the Minister of Education, Culture, Sports, Science and Technology (Ministry of Education Notification No.5, 1953).
- (6) Those who have completed, or are expected to complete 15 years of education outside Japan and who have been recognized by the Graduates School of Science and Engineering for Education, University of Toyama as having the prescribed credits with excellent academic results by March 31, 2021.
- (7) Those who are from counties where it does not take 16 years to graduate from university, and meet the following two conditions and have been recognized by the Graduates School of Science and Engineering for Education, University of Toyama as having academic abilities equivalent or superior to those of university graduates.
 - a) Those who, after completing university education, have been engaged or are expected to be engaged in research as research students or researchers for at least one year at university or research institutes equivalent to inter-university research institute by March 31, 2021.
 - b) Those who will reach the age of 22 by March 31, 2021.
- (8) Those who will reach the age of 22, and have been recognized by individual screening in the Graduates School of Science and Engineering, University of Toyama as having academic abilities equivalent or superior to those of university graduates.

- (9) Those who have completed, or are expected to complete by March 31, 2021, a program of a foreign university or a foreign educational institution (limited to which its comprehensive progress of education and research have been evaluated by an external personnel certified by its government or its related agency, or an institution designated as equivalent by the Minister of MEXT) which requires more than three years to graduate and have been awarded a degree equivalent to a bachelor's degree.
- (10) Those who have completed, or are expected to complete by March 31, 2021, a foreign university program offered at an educational facility in Japan that recognized as having foreign educational system and designated by the Minister of Education, Culture, Sports, Science and Technology. (only for those who are recognized as completing a 16-years of education of that country.)
- (11) Those who have completed a specialized course at a specialized training college designated by the Minister of Education, Culture, Sports, Science and Technology, after the date stipulated by the Minister of Education, Culture, Sports, Science and Technology, after the date stipulated by the Minister of Education, Culture, Sports, Science and Technology. (The terms of study must be four years or more, and must meet the other criteria stipulated by the Minister of Education, Culture, Sports, Science and Technology.)

Note : Please refer to page 6 for more information about the certification of case (6),(7),or (8).

3. Selection methods

- (1) Students eligible to enroll are selected based on the results of the academic ability assessment (written and oral) and submitted documents.
- (2) Academic ability will be determined by a written examination (Short Essay must be written in Japanese or English. Please select at the time of filling application) and an oral examination.
- (3) Examination date and location

Date	Item	Examination Subject	Time	Location	Remarks
February 3 (Wednesday), 2021	Arrival time		8:30	School of Engineering University of Toyama (Gofuku campus)	
	Written examination	Short essay	9:00-10:30		
	Oral examination	Oral examination	From 13:30		

(Notice) For the majors of Electric and Electronic Engineering, Intellectual Information Engineering, and Mechanical and Intellectual Systems Engineering, Japanese language proficiency will also be tested in the oral examination.

4. Application period

**All the application documents must be received
between January 7 (Thursday) and January 12 (Tuesday), 2021.**

Applications brought in person will be accepted between 9am and 4pm during the application period.

Applications sent by mail must arrive by 4pm, on January 12 (Tuesday).

However, applications arriving after the application period by registered express mail with a postmark (only in Japan) of January 11 (Monday) or earlier will be accepted.

5. Application procedures

Please prepare the following documents and submit them to the address below by the deadline of submission.

Please note that documents must be sent by registered express mail and marked ‘Graduate school application form enclosed’ in red on the envelope.

Address: Admission Office (Educational Affairs Division) of the School of Engineering
 University of Toyama
 3190 Gofuku, Toyama City, Toyama 930-8555, Japan
 Tel: 076-445-6399 (Int’l calls: +81-76-445-6399)

Application documents

Documents		Outline
①	Application form (prescribed form)	Please fill out the necessary information.
②	Certificate of graduation (or expected graduation)*	Please submit the original certificate issued by a school official. Those who have graduated, or are expected to graduate from the School of Engineering of the University of Toyama do not need to submit.
③	Academic transcript(s)*	The transcript(s) should be certified by a school official and be officially sealed in a school envelope. The transcript(s) using forgery copy prevention paper is not required to be enclosed in a sealed envelope.
④	Examinee ID card / Photo ID card (prescribed form)	Please use the designated form by the university. Fill out the necessary information and attach a photo of the applicant (H4cm×W3cm, upper body with no head covering, headshot taken within the last 3 months).
⑤	Envelope for return	This will be used for sending an admission card for examination. Please clearly state your name, address, and postal code on the envelope (23.5cm×12cm) and attach a 374-yen stamp to the envelop.
⑥	Certificate of Payment (Entrance Examination Fee)	Entrance Examination fee: 30,000yen Download and print out the Certificate of Payment. Cut along the dotted lines to get your certificate of payment. then paste it on its designated location in the application from.
⑦	Mailing label (prescribed form)	Please fill out your postal code, address, and name in the form.
⑧	Certificate of approval for taking examination (free form)	If you are currently enrolled in the Master's programs of another university, or employed by a company or public office, please submit a letter from your manager / head of department giving approval for you to take the examination.
⑨	Statement of purpose (prescribed form)	Must be written by the applicant himself / herself.
⑩	Research plan (prescribed form)	Must be written by the applicant himself / herself.

⑪	Pledge	<p>Security Export Control</p> <p>The University of Toyama has established the “University of Toyama Security Export Control Regulations” based on the “Foreign Exchange and Foreign Trade Act”, and strictly screening the International students in the perspective of providing technology and export of research equipment and materials. If International students who fall under any of the regulated items, you may not be able to get the permission to enrol, and receive the desired education at the university. There may be restrictions on your desired research activities. International students should consult their academic advisor before applying and are required to sign a pledge to comply the “Foreign Exchange and Foreign Trade Act” at the time of application. For more information, please visit the University website. [Reference]“University of Toyama Security Export Control Regulations” URL http://www3.u-toyama.ac.jp/soumu/kisoku/pdf/0110401.pdf</p>
⑫	Copy of the certificate of residence	<p>For a foreigner who currently lives in Japan, please submit a copy of the certificate of residence issued at the city hall of your residence. The document must clearly show your status of residence.</p>

* Documents written in a foreign language other than English must be accompanied by documents translated into Japanese or English.

Note:

- (1) Applicants who are eligible for requirement (2) in item 2, is required to submit the documents indicated separately (degree certificate, document certifying that you have applied to be awarded degree, etc.)
- (2) To make a request for application documents by mail, please enclose a return envelope (H33.2cm ×W24cm) clearly stating your name, address, and postal code with a 250-yen postage stamp affixed.

6. Payment of entrance examination fee

Please pay the entrance examination fee of 30,000 yen according to “Payment Flow of Entrance Examination Fee” on page The Entrance Examination Fee Payment

<https://e-apply.jp/n/toyama-gs-payment/>

Cautions

- The applicant must Pay the the handing fee in addition to the entrance examination fee
- Please enter the same personal information as the application for admission on the payment form. The entrance examination fee can be paid one week in advance to the application period.

No refund of fees is given for any reason except in the following cases:

- ① The applicant paid the entrance examination fee, but did not apply for admission to the University of Toyama (did not submit the application documents or the application documents were not accepted).
- ② The applicant paid the entrance examination fee twice.
- ③ The applicant paid more than the designated examination amount.

Note:

If you need to request a refund of the entrance examination fee, please be sure to paste the “Certificate of Payment (Entrance Examination Fee)” to the “Request for Refund of Entrance Examination fee Form” attached to this guideline and mail it to the University of Toyama.

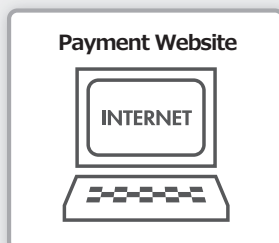
Address: Accounting Division of Financial Affairs Department
University of Toyama
3190 Gofuku, Toyama City, Toyama 930-8555, Japan
TEL: 076-445-6053 (Int’l calls: +81-76-445-6053)

Payment Flow of Entrance Examination Fee

Prepare an Email address, a computer that is connected to the Internet, and printer.



Your application is NOT complete until you have registered your information in the entrance examination fee payment website.
Send us the required documents and the entrance examination fee payment certificate to University of Toyama.

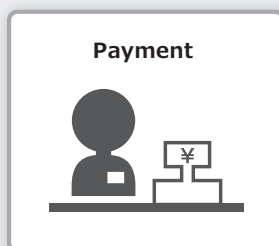


Payment Website

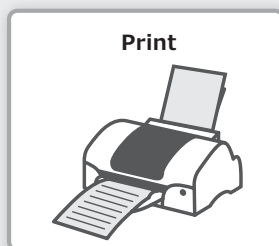
INTERNET



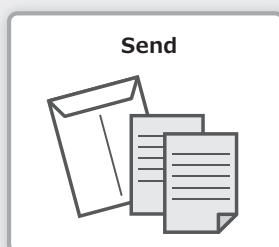
Register



Payment



Print



Send

STEP 1 Go to the Entrance Examination Fee Payment Website

The Entrance Examination Fee Payment Website

▶ <https://e-apply.jp/n/toyama-gs-payment/>
or

Official Website of University of Toyama

▶ <https://www.u-toyama.ac.jp/admission/graduate/index.html>

STEP 2 Register Personal Information

- 1) Make sure you follow the screen procedures and important notices.
- 2) Choose the payment method of entrance examination fee.
- 3) Enter the required information and record the payment processing number.

STEP 3 Pay Entrance Examination Fee

【Pay at the Convenience Store, Pay-easy ATM banks, Internet banking】

Make a payment at the convenience stores (Seven Eleven, Lawson, Ministop, Family Mart, Daily Yamazaki, and Seico Mart), Pay-easy ATMs of Post offices or Banks, and internet banking.

※ Payment can not be made at stores outside Japan.

【Pay with Credit Card】

Make sure the card number, expiration date, card holder name, and security code, to pay the fee.

(Accepted Credit Cards)

VISA, Master, JCB, AMERICAN EXPRESS, MUFG Card, DCCard, UFJCard, NICOS Card

STEP 4 Print out the Certificate of Payment

The Entrance Examination Fee Payment Website

▶ <https://e-apply.jp/n/toyama-gs-payment/>

Click on "Review" button to download and print out the Certificate of Payment. Cut along the dotted lines to get your certificate of payment, then paste it on its designated location in the application form.

STEP 5 Send all application documents

Send the form with pasted certificate of payment and all other application documents, via registered express mail at the post office, within the application submission deadline.

※ See the details of each school/graduate school for application guide.



● Make sure the information you enter is correct, as you will not be able to revise/change any of this information after registration is complete. However you may re-register the correct information and "revise" the information this way, as long as it is before you have made the payment.

※ Take notice that if you chose to pay with your credit card, the payment will be made as soon as you register your personal information.

7. Approval of eligibility for application

For a person who applies based on the eligibility requirements (6),(7), or (8) in item 2, we will conduct a preliminary review. Please prepare the documents relating to the certification of eligibility qualifications in advance, and submit with necessary documents (academic transcripts, letter of recommendation, etc.) by the deadline below.

Application deadline: Must arrive by 4 pm on December 4 (Friday), 2020.

Applications brought in person will be accepted between 9 am and 4 pm.

Applications sent by mail must arrive by 4 pm on December 4 (Friday), 2020.

8. Announcement of successful applicants

Successful applicants' ID numbers will be posted in front of the gate of Education and Research Building in the school of Engineering at 4 pm on February 12 (Friday), 2021 and the successful applicants will be notified individually.

The University will not accept any inquiries regarding the examination results by phone, fax, etc..

9. Admission procedures for successful applicants

The admission procedures are as follows. More details will be notified to each successful applicant.

(1) Deadline for admission procedures (April 2021 Enrollment)

Middle of March 2021 (subject to change)

(2) Expenses required for admission procedures

① Admission fee: 282,000yen (subject to change)

The above enrollment fee is the scheduled amount. If the admission fee is revised at the time of admission, a new admission fee will be applicable from the time of revision.

② Other expenses such as Personal Accident Insurance for Students Pursuing Education and Research will be required separately.

Note:

1. The tuition may be paid after admission. The exact amount of the fees and detailed method of payment will be explained at the time of the admission procedures. The tuition of academic year 2020 was 535,800 yen.

To cancel your admission to the University of Toyama, you must notify us in writing.

2. Individuals who have difficulty making payment of the admission fee and tuition fees due to financial problems or some other unavoidable circumstances, may apply for exemption or postponement of payment.

Individuals may also apply for a scholarship loan from organizations such as the Japan Student Services Organization.

(3) Caution: If you do not complete the admission procedures by the deadlines, you will be considered to have declined admission.

10. Policy on personal information protection

The personal information possessed by the University of Toyama shall be handled based on the “Act on the Protection of Personal Information Held by Independent Administrative Agencies, etc.” and “University of Toyama Personal Information Protection Policy”.

- (1) The names, addresses, and other personal information of applicants obtained through the application shall be used for ① admission and selection procedure, ② announcement of successful applicants, ③ admission procedure, ④ survey/study in the selection method of enrolled students, and ⑤ operations associated with these purposes.
- (2) Personal information obtained through the application, only of those who completed the admission procedure, shall be used for graduate school preparation programs prior to admission and/or post-admission operations related to ① academic affairs (school register, study guidance, etc.), ② student support (health care, application for tuition waiver/scholarship, career support), ③ collection of tuition, and ④ statistical survey and data analysis.
- (3) Only the applicant ID numbers, names and addresses of successful applicants may be used for contact with the Alumni Association and Cooperative Association which are affiliated organizations, NOTE: If you do not wish to have any contact with these organizations, please inform our Admission Office (Educational Affairs Division) of the school of Engineering.
- (4) In the use of personal information for various types of operations, some of the operations may be conducted by a vendor contracted with the relevant operations from our university (hereinafter referred to as “contractor”). When contracting the operations, all or part of the personal information obtained shall be provided to the contractor within the limit necessary to perform the contracted operations. We supervise the use of information to ensure compliance with confidentiality.

11. IMPORTANT

- (1) Application may not be accepted if applicants fail to submit any of the required documents.
- (2) If there is a shortage in the entrance examination fee payment, the application shall not be accepted.
- (3) Application documents cannot be changed once they have been submitted.
- (4) Application documents will not be returned in any circumstances once they have been submitted.
- (5) Be sure to bring the examinee ID card to the exam.
- (6) Applicants who do not take all the required examination will be automatically disqualified from the selection process.
- (7) Any information found to be incorrect at any stage will automatically lead to cancellation of the admission.
- (8) Please forward any inquiry about the application or other matters to the following address.

Address: Admission Office (Educational Affairs Division) of the school of Engineering
University of Toyama
3190 Gofuku, Toyama City, Toyama 930-8555, Japan
Tel: 076-445-6399 (Int'l calls: +81-76-445-6399)

12. Applicants with special needs

The University provides consultation for applicants with special needs who may require special arrangements during the entrance examinations or in classes after enrollment. Please contact our Admission Office (Educational Affairs Division) of the school of Engineering prior to the application process.

Applicants with special needs may submit a medical certificate issued by a doctor and supporting documents specifying following information.

- Type(s) of disabilities, and the degree of severity
- Request for special arrangements required during the entrance examinations
- Request for special arrangements required in class
- Situation of daily life and other related information

- ① Consultation deadline: December 4 (Friday), 2020
- ② Contact: Admission Office (Educational Affairs Division) of the School of Engineering
University of Toyama
3190 Gofuku, Toyama City, Toyama 930-8555, Japan
TEL: 076-445-6399 (Int'l calls: +81-76-445-6399)

13. Corresponding about novel coronavirus infection (COVID-19)

The contents of these guidelines for recruitment of students in light of the spread of the novel coronavirus infection (COVID-19).

Please be sure to obtain the latest information from the following website.

<https://www.u-toyama.ac.jp/>

Master's Programs of Graduate School of Science and Engineering [Engineering Division]

1. Major Overview

(1) Electric and Electronic Engineering

The Master's Program in Electric and Electronic Engineering is composed of three divisions: (1) Electric Systems Engineering, (2) Communication and Control Engineering, and (3) Electronic Materials and Device Engineering. The curriculum covers a wide range of topics on electric and electronic engineering. Research topics include the generation and control of electric energy, communication and control engineering, development of new electronic materials and devices, and computer simulation. The latest trends in electric and electronic engineering, such as communication and broadcasting, assistive robotics for aging societies, nano- and bioelectronics, and neuroscience, are also part of our research. The mission of the Master's Program in Electric and Electronic Engineering is to provide students with an advanced education and research opportunities, thereby preparing future engineers to address new challenges. The Master's Program will increase your employment prospects in leading companies in the fields of electric, mechanical, and chemical engineering.

Educational field	Overview	Specialized subjects
Electric Power System Engineering	We conduct education and research on advanced high voltage and plasma engineering, such as the development of pulsed power technology and its application to intense pulsed particle beam and high density plasma for material processing, and lightning discharge observations. We also study the application of atmospheric plasma, high power microwave for material, environmental and biological fields, and laboratory astrophysics.	Advanced Electric Power Engineering 1
Advanced Power System Engineering	We conduct education and research about advanced analytical techniques required for the secure operation and planning of future electric power systems. Recent interests have included the investigation of the effect of renewable energy sources (RESs) on the power system operations and stability and the development of countermeasures for the integration of RESs while maintaining secure power system operation.	Advanced Electric Power Engineering 2
Energy Conversion Engineering	We conduct education and research on applied electromagnetic technologies such as magnetic levitation, magnetic bearings, linear motors and actuators, and power electronics technologies, which are indispensable for natural energy generation and high-efficiency power conversion in the interconversion of electrical energy and mechanical energy.	Advanced Energy Conversion 1 Advanced Energy Conversion 2
Dynamical Systems and Robotics	Our education and research activities focus on dynamical systems, control and robotics. The topics include decentralized control, hybrid systems and networked control as well as autonomous mobile robots, bio-inspired robots, rehabilitation robots.	Advanced Control Systems Engineering 1 Advanced Control Systems Engineering 2
Wave Communication Engineering	Education and research are conducted in basic and applied fields of electromagnetic (EM) wave including meta-materials, interaction between human body and EM wave, radio wave anomaly associated with earthquakes, as well as their massively-parallel super-computation from nano to earth-scale ranges.	Selected Topics in Wave Communication Engineering

Communication Systems Engineering	We conduct education and research on the advanced utilization of computers and the development of new frequency resources and communication systems, such as electromagnetic field analysis, signal processing, network connection techniques, and millimeter-wave and terahertz engineering.	Advanced Communication Systems 1 Advanced Communication Systems 2
Bio-Information Engineering	We conduct education and research in a wide range of bio-information systems, such as the methods of analyzing and measuring biological information and the development of health-care devices, considering both hardware and software, which are based on measurement, control, information processing, and system engineering.	Advanced Biological Systems 1 Advanced Biological Systems 2
Measurement Systems Engineering	We conduct education and research on small and integrated measurement systems developed using advanced technologies in biotechnology and electronics, such as integrated miniature biosensors, biochips, and microarrayed chips for medical diagnostics and environmental monitors.	Measurement Systems
Nanoelectronics Engineering	We study semiconductor nanodevices, Micro Electro Mechanical Systems (MEMS), and their applications. Resonant tunneling devices and terahertz integrated circuits based on them are among the most active research subjects. We also study fabrication processes, epitaxial crystal growth, and characterization technologies for semiconductor devices in order to realize next-generation high-performance integrated circuits.	Advanced Solid State Electronics 1 Advanced Solid State Electronics 2
Electron Device Engineering	We conduct education and research in the physics and electro-optics of organic materials, the basic science and technology of electron devices, and light quantum computing applications, e.g., in liquid crystal devices, organic light-emitting devices, organic-based transistors, organic sensing devices, organic-based solar cells. The physical properties, crystal structure and its applications of single crystals, thin films and nanomaterials of ferroelectrics and oxide semiconductors are also investigated.	Advanced Electronic Devices 1 Advanced Electronic Devices 2
Organic Optical Device Engineering	We conduct education and research on optical and electrical properties, structure control, electro-optical conversion, optical-electrical conversion of organic electronic materials, and their applications based on optical control, e.g. organic light-emitting devices, organic photodiodes, organic photovoltaic cells, and other organic optical devices.	Fundamental Material Engineering

(2) Intellectual Information Engineering

We offer education and perform research on information and communication technologies, including software, hardware, communication, internet, multimedia, artificial intelligence, medical applications, and quantum information. The education and research of our division also address the science of recognition, human senses, and sensibility, such as vision and hearing, computation of the brain and nerves, and technology for building a ubiquitous society.

Educational field	Overview	Specialized subjects
Computer Software System	We conduct education and research on digital signal processing and its applications. Signals of interest include audio, imaging, economics, finance, cosmic rays, biological signal, and, many others. The processing of such signals includes denoising, compression, visualization techniques, and brain-computer interfaces.	Advanced System Engineering 1 Advanced System Engineering 2

Medical Information Sensing	We conduct education and research on the theory and applications of noninvasive ultrasonic imaging and sensing of morphological and functional information of biological bodies. In particular, we develop advanced signal- and image-processing techniques, such as ultrasonic beamforming, target motion estimation, and tissue viscoelasticity estimation, for ultrasonic measurements.	Advanced Medical Information Sensing
Media Information Communication Technology	We conduct education and research on media information communication technology. Our aims are to elucidate the basis of the quality of experience for visual media using signal processing techniques. We also work to develop intelligent transport system applications.	Advanced Media Information Communication
Simulation Engineering	Education and research on simulations of physical processes by computational means. Particle simulations for plasmas is performed.	Advanced Simulation Engineering
Biological Information Processing	We conduct education and research in bioinformatics. We investigate the relationship between gene sequence, protein structure/function, neural/cardiac function, behavior, and disease using computer protein structure modeling, in-silico pathogenicity prediction, and electrophysiological/behavioral measurements. We also conduct education and research on visual information processing engineering, color engineering, evaluation and analysis of CG/3-D visible images, optical and visual environment engineering, traffic visual environment engineering, urban landscape lighting, and the development of universal designs for elderly persons and people with synesthesia.	Advanced Neural Information Processing Advanced Visual Information Processing
Information Communication Networks	We conduct education and research on optical signal processing, transmission systems for the signals of emergency events such as earthquakes, modulation systems, transmission systems, optical communication systems, and information communication networks.	Advanced Communication Theory
Artificial Intelligence	We conduct education and research on the design, analysis, and evaluation of various artificial intelligent methodologies, including the artificial neural networks which are inspired by the human brain's architecture and information processing mechanisms, the deep learning which is able to learn by itself, particle swarm optimization, ant colony optimization, error back-propagation method, genetic algorithm, evolutionary strategy, and other machine learning technologies.	Advanced Artificial Intelligence 1 Advanced Artificial Intelligence 2
Quantum Information	We are working on quantum information where application of quantum mechanics offers revolutionary improvements to information processing. In particular, we are aiming at the realization of quantum communication, such as quantum key distribution and quantum repeaters. We also apply Shannon's classical information theory to modern sensing and communications issues.	Quantum Information Processing Modern Statistical Sciences
Computational Biophotonics	We conduct research and education aimed at creating basic principles of next-generation medical measurement and diagnostic technology and building an academic system by combining photon science, laser spectroscopy, optical communication technology and information science.	Advanced Computational Biophotonics Advanced Clinical Informatics Engineering

(3) Mechanical and Intellectual Systems Engineering

In this department, research is focused on the global topics of energy conservation, environmental load reduction, and the realization of a safe, secure, and comfortable society infrastructure. This includes ongoing research on the structure and performance of machinery and its efficiency, the development of consistent production systems with optimized cycles from design to value-added machinery with improved reliability. The field involves experimental and numerical analyses of a range of fluid mechanics phenomena from high-efficiency energy conversion to its effective utilization, as well as the analysis of combined heat and fluid phenomena with the aim of producing low-energy-loss machinery from the micro-to macro-scale. Education and research are also conducted on the strength evaluation and analysis of physical phenomena related to high machine intelligence, the development of micro-scale mechanisms, design of control systems, non-destructive measurement technologies, and computing and simulation technologies.

Educational field	Overview	Specialized subjects
Solid Mechanics	We focus on mechanical structures under complex physical conditions. Their behaviors are linked to stresses, displacements, and fracture thresholds of the structures. We conduct education and research based on the quantitative evaluation of the fracture process and the investigation of fracture mechanisms using experimental methods, observations, and numerical analysis.	Advanced Physics of Elasticity Advanced Physics of Plasticity
Strength and Fracture of Materials	Based on theory that combines micro- and macro-scale approaches to the strength and fracture mechanisms of machinery, education and research on reliability design methods is conducted for structural and functional materials, including new materials. The construction of a database on strength design is performed together with the development of environmental strength design methods.	Advanced Strength Design Engineering Advanced Element Design Engineering Advanced Structural Design
Advanced Materials and Forming	We conduct education and research on the optimal design and applications of machining tools, based on improving the required plasticity characteristics and working processes of various structural and functional materials, involving the control of materials compositions and the analysis of plastic deformation.	Advanced Mechanical Material Processing Advanced Technology of Plasticity Advanced Precision Machining
Thermal Engineering	We conduct education and research on the basics and applications of thermal energy, concentrating on micro- and macro-scale thermodynamics, heat engine engineering, and understanding the combustion process in terms of its application. The thermal physical properties of various materials are measured and analyzed and mathematical analyses of heat conduction are performed. In applications to the global environment, heat transfer phenomena with phase changes, latent heat storage, and energy utilization from natural sources are studied.	Advanced Technical Thermodynamics
Fluid Engineering	We conduct education and research on the efficiency improvement and the noise reduction in the turbo machinery such as a fan, the effective utilization of natural energy, the macro flow structure around various objects, and the energy transfer phenomena in the heat exchanger and heat sink.	Advanced Fluid Dynamics
Intelligent Machine	For the development of advanced mechatronics intended to create high-precision, high-speed, high-response machinery, we conduct education and research on dynamical analysis and the configuration and design of new mechanical systems.	Advanced Dynamics of Mechanical Systems Advanced Robotics

Control System	We conduct education and research on development of control systems such as human cooperation robot systems considering human emotion, visual servo systems based on image processing technology, and swarm systems using evolution and learning approaches.	Advanced Autonomous Systems Engineering Advanced Control Equipment
Mechanical Information and Instrumentation	Our aim is image-position measuring of large-scale environments and force sensing for micro-handling. We conduct education and research on the development of new measuring methods, systems, and sensors. We also focus on robotic vision systems including 3D measurement and object recognition based on image processing.	Advanced Measurement Systems Advanced Image Measurement Systems
Applied Mechano-Informatics	We conduct education and research on numerical analysis and simulation technology utilizing computers, to clarify and control various physical phenomena/property in mechanical engineering problems such as atomic and molecular motion, a multiphase flow, and a turbulent flow.	Advanced Nano-mechanical Systems Advanced Fluid Engineering Advanced Mathematical and Numerical Analysis for Environment

(4) Life Sciences and Bioengineering

The research conducted at the department of Life Sciences and Bioengineering covers a diverse range of areas working at the interfaces between biology, pharmacology, medicine and engineering. The goal is to provide an educational framework that will encourage graduate students who contribute to human society through multidisciplinary activities that integrate biological phenomena with advanced knowledge in engineering. Our courses have been specifically designed to study organic synthesis, molecular biology, genetic engineering, protein engineering, pharmacology, bioelectronic engineering, brain science, regenerative medicine engineering and biochemical process engineering. Through this multi-disciplinary training, graduates will be able to contribute to society as leaders and innovators in bioengineering by producing solutions that meet specified needs for public health and welfare.

Educational field	Overview	Specialized subjects
Engineering based on Genetic Information	We conduct education and research to understand the molecular bases of human diseases from molecular-genetic and immunological viewpoints. We apply this knowledge to the development of biotechnology.	Advanced Molecular Biology Advanced Radiation Bioengineering
Pharmacology	Our aim is to provide researchers and engineers with the knowledge and technology of pharmacology and genetic engineering. Our research group aims to elucidate the mechanisms of chronic pain and neuropsychiatric disorders and develop new medications against them.	Advanced Pharmacology and Genetic Engineering
Biological Chemistry	We investigate the relationship between the metabolism of a drug or toxin and the expression of drug efficacy or toxicity, the purification of metabolic enzymes, the conversion of environmental pollutants to useful materials using enzymes or microorganisms, and the application of enzymes to organic syntheses and analytical chemistry.	Advanced Metabolic Engineering
Bioelectronics and Bioelectrical Engineering	Research and education concerning the interdisciplinary region between bioscience and electrochemical or electrical engineering are conducted. Enzyme sensors and cell-based biosensors for medical diagnostics and pharmaceutical tests are studied. Basic and applied research of various electrical treatments of microorganisms and mammalian cells are also studied.	Advanced Bioinformation Engineering

Brain and Neural Systems Engineering	From a biophysical view, we research the rules underlying the functions of the brain and neural system and utilize these rules for engineering applications. Focusing on the mechanisms of learning and memory, we investigate network dynamics using neural recording and pharmacological techniques and conduct education and research on engineering applications of neural network dynamics.	Advanced Neural Systems
Biomedical Engineering for regenerative medicine	We are conducting education and research on advanced tissue engineering and regenerative medicine based on biomaterial, biomedical engineering and other multi-disciplinary approaches. We are particularly focusing on the development of advanced methodologies for organ engineering and organ regeneration.	Advanced Biomedical Engineering
Bio-functional Molecule Engineering	The principal focus of this group is the development of the design and synthesis procedure of small molecules, as well as their biological evaluation as candidates in drug discovery.	Advanced Synthetic Organic Chemistry
Biochemical Reaction Engineering	We conduct education and research on the understanding of metabolic mechanisms, the biochemical reaction functions of biocatalysts such as microorganisms, plants, and animals and the industrial production of useful metabolites and biochemicals for human life.	
Process Systems Engineering	We conduct education and research on process systems engineering, which addresses the optimal design, operation, and control of complex systems, such as chemical, biochemical, petrochemical, and pharmaceutical processes.	Advanced Process Systems Engineering
Protein System Engineering	Proteins are necessary for virtually every activity in the human body. Our goal is to understand how proteins are produced and degraded in the cell in terms of protein science and biophysics. Based on the above knowledge, we also aim to develop novel technologies that can regulate the lifespans of proteins for various practical applications.	Advanced Protein System Engineering

(5) Environmental Applied Chemistry

Chemistry is an academic discipline that aims to create and design new materials and systems based on chemical reactions and elucidate the properties of these materials from atomic and molecular perspectives. Applied chemistry is an academic field derived from chemistry that aims to produce new technologies. A broad range of chemical education and research related to physics and biology is conducted in this major to cultivate human resources capable of creating new functional materials and the technology to produce these materials. The research subjects listed below cover a wide range of chemistry specialties, including the syntheses of highly functional materials and molecules and the elucidation of their reaction mechanisms, development of complicated biofunctions and elucidation of their mechanisms, environmental assessment of chemical materials, and novel energy science.

Educational field	Overview	Specialized subjects
Catalysis, Energy and Material Engineering	We research the development of environmentally friendly catalysis processes, the green utilization of natural resources including biomass and sunlight, the development of alternative energy instead of petroleum, and novel nanomaterials.	Catalysis and Surface Science Industrial Organic Chemistry Catalysis Materials Chemistry

Environmental and Functional Molecular Chemistry	Education and research are conducted on the following: 1) synthesis of materials containing functional molecules and polymers, 2) establishment of techniques using these materials for separation and preconcentration of elements, and 3) application of the techniques to environmental analysis, treatment of wastewater, and recovery of rare elements. Research on the adsorption and desorption behaviors of materials at the solid-liquid interface, including the development of surface modification techniques and antifouling materials, is also conducted.	Advanced Environmental Analytical Chemistry Advanced Interfacial Analytical Chemistry
Applied Inorganic Chemistry	Physiological and pharmacological studies have revealed the sophisticated functions of metal complexes, which may be related to their molecular structures and electronic states. From the perspective of the engineering applications of such functions, education and research are performed to develop highly functionalized materials and chemicals produced with metal complexes and their aggregates.	Reaction of Coordination Compounds Advanced Crystallography for Molecular Solid State Materials
Computers and Applied Chemistry	The recent rapid development of computer technology has enabled us to analyze and predict various chemical reactions and molecular dynamics based on computational chemistry. This class summarizes the basic theory of ab initio electronic structure calculations, such as molecular orbital and density functional methods.	Advanced Computational Molecular Science
Biomolecular Chemistry	Organic chemistry has been vigorously applied to molecular biology. Our objectives are to reveal the properties of biomolecules using various methods based on chemical biology. We also engage in the development of new techniques for the analysis of intermolecular interactions, such as protein-protein interactions.	Biochemical Engineering
Synthetic and Medicinal Chemistry	This field focuses on creation of novel “functional organic molecules” based on the advanced synthetic organic chemistry. The newly designed organic molecules possess some potential to contribute to various fields of science such as discovery of novel medicines and agrichemicals. Research in our group is primarily aimed toward the development of catalytic reactions and methods for organic synthesis for the functional organic molecules.	Advanced Synthetic Chemistry for Drug Discovery Advanced Organic Reaction
Environmental Analytical Chemistry	We conduct educational research on the design and synthesis of highly functional optical sensor molecules for the sensing of metabolites, such as glucose or lactate, and ions, such as potassium or sodium, in the human body, and the application of such molecules to a novel optical sensing system for the minimally invasive monitoring of vital ions and metabolites as a tool for biochemical and clinical analyses.	Advanced Electroanalytical Chemistry
Colloid and Interface Chemistry	We focus on teaching the basic theory on the interfaces that form common boundaries between two phases, such as gas/liquid, liquid/solid, and solid/gas. Basic studies investigating unknown phenomena in dispersions of nanometer- to micrometer-sized particles and applied research in the development of new optical materials and porous materials are conducted.	Colloid and Interface Chemistry

Biomaterial Designing and Engineering	Education and research are conducted on the design of biomaterials for contributing to regenerative medicine, based on protein engineering, polymer science, cell biology, and molecular biology. We aim to construct functional biomaterials such as screening devices for various diseases and supporting materials for cell transplantation to cure otherwise intractable disorders.	Biomaterial Engineering and Biomedical Science
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(6) Materials Science and Engineering

Our purpose for education in the acquisition of extensive knowledge and the improvement of problem-solving abilities for society through educational research from fundamentals to the advanced development of new functional materials.

Educational field	Overview	Specialized subjects
Materials Forming and Engineering	We conduct education and research related to the processing and design of fabricated materials based on the phase transition from liquid to solid, through the development and application of melting, casting, and solidification techniques of metal and the forming of materials, to produce high-performance and high-function fabricated materials.	Materials Forming and Engineering
Microstructure Control Engineering	The microstructure control engineering course is focused on establishing and designing new metallic materials for energy saving and environmental conservation. Research topics also include advanced microstructure control technologies using high-resolution transmission electron microscopy and scanning electron microscopy.	Materials Science for Controlling of Micro- and Nanostructures in Metals and Materials
Functional Material Design Engineering	Education and synthetic research and development are conducted on the functional materials of ceramics, metals, and new complex materials through designing, structural control, combining additives such as rare earth metals, improving fabrication processes, and evaluating their properties and applications.	Functional Material Design Engineering
Materials Environment and Surface Processing	In order to improve the corrosion resistance of metal materials, we investigate and instruct about electrochemical methods in various alloys. We focus especially on the characterization of passivation films and functional films that are fabricated by electrochemical methods.	Materials Environment and Surface Engineering
Solid State Engineering	We conduct education and research on the electric, magnetic, and thermal properties of superconductors, magnetic materials, and cryogenic materials of alloys, intermetallic compounds, and conductive oxides to achieve improved performance and applications of the materials.	Solid State Engineering
Materials Processing Engineering	Targets of education and research in this laboratory are the key fundamental processes for industrial products, starting from the designing of materials addressing the control of phenomena in materials through elucidating their mechanisms, and optimizing their related production processes. The main subjects are 1)heat and mass transfer phenomena, 2)visualization techniques, 3)surfaces and interfaces, and 4)joining and welding.	Advanced Course of Materials Process Engineering

Metallurgical Engineering of Iron and Steel Materials	Targets of education and research are elemental technologies of the production of high performance iron and steel materials. The main subjects are 1) energy saving and reduction of environmental loads in iron- and steel-making processes, 2) development of high purity refining method, 3) control of inclusions in steel, and 4) Recycling of ferrous scraps.	Advanced Metallurgical Engineering of Iron and Steel Materials
Computational Materials Engineering	In order to understand and apply the diversity and complexity of the microscopic structure of materials, we conduct education and research on material design, structural analysis and functional prediction from atomic scale using computer simulation.	Advanced Course of Computational Materials Engineering
Engineering for Reaction Design	We conduct education and research related to the design of reactions for the highly effective conversion and utilization of petroleum-derived materials from engineering perspective.	Reaction Design and Engineering

2. Supervisors and Educational field

(1) Electric and Electronic Engineering

Educational field	Supervisors	Remarks
Electric Power System Engineering	Prof. Hiroaki Ito	
Advanced Power System Engineering	Prof. Kazuyuki Tanaka	
Energy Conversion Engineering	Prof. Takahisa Ohji Associate Prof. Kenji Amei	
Dynamical Systems and Robotics	Prof. Kenji Hirata Associate Prof. Hideki Toda	
Wave Communication Engineering	Associate Prof. Masafumi Fujii	
Communication Systems Engineering	Associate Prof. Tatsuo Nozokido Lecturer Kazuhiro Honda	
Bio-Information Engineering	Prof. Kazuki Nakajima Lecturer Juhyon Kim	
Measurement Systems Engineering	Prof. Masayasu Suzuki	
Nanoelectronics Engineering	Prof. Koichi Maezawa Associate Prof. Masayuki Mori	
Electron Device Engineering	Prof. Hiroyuki Okada Associate Prof. Toshio Kikuta	
Organic Optical Device Engineering	Prof. Shigeki Naka	

(2) Intellectual Information Engineering

Educational field	Supervisors	Remarks
Computer Software System	Prof. Shigeki Hirobayashi Associate Prof. Tadanobu Misawa	
Medical Information Sensing	Prof. Hideyuki Hasegawa	
Media Information Communication Technology	Prof. Yuukou Horita	
Simulation Engineering	Associate Prof. Takayuki Haruki	
Biological Information Processing	Prof. Toshihide Tabata Associate Prof. Mamoru Takamatsu	
Information Communication Networks	Prof. Koji Kikushima	

Artificial Intelligence	Prof. Zheng Tang Associate Prof. Shangce Gao	
Quantum Information	Prof. Kiyoshi Tamaki Lecturer Tatsuto Murayama	
Computational Biophotonics	Prof. Takashi Katagiri Associate Prof. Yusuke Oshima	

(3) Mechanical and Intellectual Systems Engineering

Educational field	Supervisors	Remarks
Solid Mechanics	Prof. Katsuyuki Kida Associate Prof. Koshiro Mizobe	
Strength and Fracture of Materials	Prof. Noriyasu Oguma Lecturer Kenichi Masuda	
Advanced Materials and Forming	Prof. Tetsuo Aida Prof. Tomomi Shiratori Lecturer Noboru Takano	
Thermal Engineering	Prof. Atsumu Tezaki(*) Associate Prof. Koichi Kasaba	
Fluid Engineering	[UNDECIDED]	☆
Intelligent Machine	Lecturer Masahiro Sekimoto	☆
Control System	Prof. Mitsuru Jindai Associate Prof. Toshiyuki Yasuda	
Mechanical Information and Instrumentation	Prof. Tohru Sasaki Associate Prof. Kenji Terabayashi	
Applied Mechano-Informatics	Prof. Takeshi Seta Lecturer Daisuke Watanabe Lecturer Tatiana N. Zolotoukhina	

(4) Life Sciences and Bioengineering

Educational field	Supervisors	Remarks
Engineering based on Genetic Information	Prof. Masaharu Isobe(*) Prof. Nobuyuki Kurosawa	
Pharmacology	Associate Prof. Ichiro Takasaki	
Biological Chemistry	Lecturer Michio Sayama	☆
Bioelectronics and Bioelectrical Engineering	Prof. Hiroaki Shinohara	
Brain and Neural Systems Engineering	Prof. Shigenori Kawahara	
Biomedical Engineering for regenerative medicine	Prof. Makoto Nakamura	
Bio-functional Molecule Engineering	Prof. Naoki Toyooka	
Biochemical Reaction Engineering	[UNDECIDED]	☆
Process Systems Engineering	Associate Prof. Taketoshi Kurooka	
Protein System Engineering	Associate Prof. Tomonao Inobe	

(5) Environmental Applied Chemistry

Educational field	Supervisors	Remarks
Catalysis, Energy and Material Engineering	Prof. Noritatsu Tsubaki Associate Prof. Yoshiharu Yoneyama Associate Prof. Guohui Yang	

Environmental and Functional Molecular Chemistry	Prof. Shigehiro Kagaya Associate Prof. Makoto Gemmei	
Applied Inorganic Chemistry	Prof. Sen-ichi Aizawa Associate Prof. Akira Miyazaki	
Computers and Applied Chemistry	Associate Prof. Tatsuya Ishiyama	
Biomolecular Chemistry	Associate Prof. Masafumi Sakono	
Synthetic and Medicinal Chemistry	Prof. Hitoshi Abe Associate Prof. Yoshikazu Horino	
Environmental Analytical Chemistry	Prof. Koji Tohda	
Colloid and Interface Chemistry	Associate Prof. Kensaku Ito	☆
Biomaterial Designing and Engineering	Associate Prof. Tadashi Nakaji	

(6) Materials Science and Engineering

Educational field	Supervisors	Remarks
Materials Forming and Engineering	Prof. Seiji Saikawa	
Microstructure Control Engineering	Prof. Kenji Matsuda Associate Prof. Seungwon Lee	
Functional Material Design Engineering	Prof. Atsushi Saiki	
Materials Environment and Surface Processing	Associate Prof. Masahiko Hatakeyama	
Solid State Engineering	Prof. Katsuhiko Nishimura Associate Prof. Takahiro Namiki	
Materials Processing Engineering Laboratory	Prof. Toshiya Shibayanagi Associate Prof. Masamichi Yoshida	
Metallurgical Engineering of Iron and Steel Materials	Prof. Hideki Ono	
Computational Materials Engineering	Prof. Norio Nunomura	
Engineering for Reaction Design	Prof. Satoru Murata	☆

(Notes)

1. The “field of education” filled in on the application form etc. should be chosen from this list.
2. We are not inviting applicants for the 2021 academic year for the fields of education marked with a star (☆) in the “Remarks” column.
3. Supervisors marked * are due to retire in March 2022.
4. If you have any questions, please contact the person in charge of admissions at the Admission Office (Educational Affairs Division) of the School of Engineering of this University.

3. Degree Requirements and Completion

A master's degree will be conferred to those who have attended our graduate school for at least two years, earned more than 30 credits of compulsory subjects specified by each major, and passed the thesis review and final examinations. However, the term of residence may be reduced to a minimum of one year for those students who have showed excellent research performance.

4. Long-term Curriculum Program

A long-term curriculum program is a program intended for those who cannot complete the curriculum under the standard course term because the curriculum hours for classes and research instruction are limited due to reasons such as they are working (full-time) and they intend to complete educational courses in a planned manner during a certain period longer than the standard course term. In our Master's program, the student's school days are accepted up to

a total of 4 years. If permitted at the time of admission, the total amount of tuition to be paid in the standard course term(2 years) can be paid evenly for each school term during the period accepted as a long-term curriculum period.

Note:

1. Details, including the method of application for this program, shall be notified to applicants when the documents for admission procedures are sent.
2. Please note that not every applicant is necessarily permitted to enter this program.

5. Courses and Credits

(1) Electric and Electronic Engineering

Subjects (○ : Compulsory Subjects)	Credits
Advanced Electric Power Engineering 1	2
Advanced Electric Power Engineering 2	2
Advanced Energy Conversion 1	2
Advanced Energy Conversion 2	2
Advanced Control Systems Engineering 1	2
Advanced Control Systems Engineering 2	2
Selected Topics in Wave Communication Engineering	2
Advanced Communication Systems 1	2
Advanced Communication Systems 2	2
Advanced Biological Systems 1	2
Advanced Biological Systems 2	2
Measurement Systems	2
Advanced Solid State Electronics 1	2
Advanced Solid State Electronics 2	2
Advanced Electronic Devices 1	2
Advanced Electronic Devices 2	2
Fundamental Material Engineering	2
Special Lecture	4
○ Advanced Exercises for Creative Designing toward Problem Solving	1
○ Advanced Exercises in Electric and Electronic Engineering	3
○ Special Study of Electric and Electronic Engineering	10
Internship I	1
Internship II	2
Advanced Lecture for Intellectual Property	2
Laboratory Safety	2
Professional Education Lecture	4

(2) Intellectual Information Engineering

Subjects (○ : Compulsory Subjects)	Credits
Advanced System Engineering 1	2
Advanced System Engineering 2	2
Advanced Medical Information Sensing	2
Advanced Media Information Communication	2
Advanced Simulation Engineering	2

Advanced Neural Information Processing	2
Advanced Visual Information Processing	2
Advanced Communication Theory	2
Advanced Artificial Intelligence 1	2
Advanced Artificial Intelligence 2	2
Quantum Information Processing	2
Advanced Computational Biophotonics	2
Advanced Clinical Informatics Engineering	2
Modern Statistical Sciences	2
Special Lecture	4
○ Advanced Exercises in Intellectual Information Engineering	3
○ Advanced Exercises for Creative Designing toward Problem Solving	1
○ Special Study of Intellectual Information Engineering	10
Internship I	1
Internship II	2
Advanced Lecture for Intellectual Property	2
Laboratory Safety	2
Professional Education Lecture	4

(3) Mechanical and Intellectual Systems Engineering

Subjects (○ : Compulsory Subjects)	Credits
Advanced Physics of Elasticity	2
Advanced Physics of Plasticity	2
Advanced Strength Design Engineering	2
Advanced Element Design Engineering	2
Advanced Structural Design	2
Advanced Precision Machining	2
Advanced Mechanical Material Processing	2
Advanced Technology of Plasticity	2
Advanced Technical Thermodynamics	2
Advanced Fluid Engineering	2
Advanced Fluid Dynamics	2
Advanced Mathematical and Numerical Analysis for Environment	2
Advanced Dynamics of Mechanical Systems	2
Advanced Robotics	2
Advanced Autonomous Systems Engineering	2
Advanced Control Equipment	2
Advanced Measurement Systems	2
Advanced Image Measurement Systems	2
Advanced Nano-mechanical systems	2
Special Lecture	4
○ Advanced Exercises in Mechanical and Intellectual Systems Engineering	2
○ Advanced Exercises for Creative Designing toward Problem Solving	2
○ Special Study of Mechanical and Intellectual Systems Engineering	10

Internship I	1
Internship II	2
Advanced Lecture for Intellectual Property	2
Laboratory Safety	2
Professional Education Lecture	4

(4) Life Sciences and Bioengineering

Subjects (○ : Compulsory Subjects)	Credits
Advanced Molecular Biology	2
Advanced Radiation Bioengineering	2
Advanced Pharmacology and Genetic Engineering	2
Advanced Metabolic Engineering	2
Advanced Bioinformation Engineering	2
Advanced Neural Systems	2
Advanced Biomedical Engineering	2
Advanced Process Systems Engineering	2
Protein System Engineering	2
Special Lecture	4
Special Seminar on Life Sciences and Bioengineering	4
○ Advanced Exercises of Life Sciences and Bioengineering I	2
○ Advanced Exercises for Creative Designing toward Problem Solving	2
Advanced Exercises of Life Sciences and Bioengineering II	2
○ Special Study of Life Sciences and Bioengineering	10
Internship I	1
Internship II	2
Advanced Lecture for Intellectual Property	2
Laboratory Safety	2
Professional Education Lecture	4

(5) Environmental Applied Chemistry

Subjects (○ : Compulsory Subjects)	Credits
Catalysis and Surface Science	2
Advanced Lecture for Fine Organic Synthesis	2
Advanced Industrial Organic Chemistry	2
Advanced Crystallography for Molecular Solid State Materials	2
Reaction of Coordination Compounds	2
Advanced Electroanalytical Chemistry	2
Advanced Environmental Analytical Chemistry	2
Colloid and Interface Chemistry	2
Advanced Computational Molecular Science	2
Advanced Technology for Synthetic and Medicinal Chemistry	2
Advanced Analytical and Interfacial Chemistry	2
Bioengineering	2

Biomaterial Engineering and Biomedical Science	2
Catalysis Materials Chemistry	2
Special Lecture	4
Special Seminar on Environmental Applied Chemistry	4
○ Advanced Exercises of Environmental Applied Chemistry I	2
Advanced Exercises of Environmental Applied Chemistry II	2
○ Advanced Exercises for Creative Designing toward Problem Solving	2
○ Special Study of Environmental Applied Chemistry	10
Internship I	1
Internship II	2
Advanced Lecture for Intellectual Property	2
Laboratory Safety	2
Professional Education Lecture	4

(6) Materials Science and Engineering

Subjects (○ : Compulsory Subjects)	Credits
Advanced Course of Materials Process Engineering	2
Reaction Design and Engineering	2
Materials Forming and Engineering	2
Materials Science for Controlling of Micro- and Nanostructures in Metals and Materials	2
Functional Material Design Engineering	2
Materials Environment and Surface Engineering	2
Solid State Engineering	2
Advanced Metallurgical Engineering of Iron and Steel Materials	2
Advanced Course of Computational Materials Engineering	2
Global Advanced Materials Science and Engineering I	*1 2
Global Advanced Materials Science and Engineering II	*1 2
Global Advanced Materials Science and Engineering III	*1 2
Global Advanced Materials Science and Engineering IV	*1 2
Global Advanced Materials Science and Engineering V	*1 2
Special Lecture	4
Special Seminar on Materials Science and Engineering	*2 4
○ Advanced Exercises for Creative Designing toward Problem Solving	*2 2
○ Advanced Exercises of Materials Science and Engineering I	*2 2
Advanced Exercises of Materials Science and Engineering II	*2 2
○ Special Study of Materials Science and Engineering	*2 10
Internship I	1
Internship II	2
Advanced Lecture for Intellectual Property	2
Laboratory Safety	2
Professional Education Lecture	4

Note: The subjects marked *1 are conducted in English. The subjects marked *2 are conducted in Japanese and English

Read the instructions before completing and submitting.

1. Overall

- (1) Use a black ballpoint pen and write clearly in block letters. Please leave the sections with *(asterisk marks) blank.
- (2) Circle the applicable item(s), and affix your photo in the space provided.
- (3) Use Arabic numerals.
- (4) No changes are allowed in application documents once submitted.
- (5) Any information found to be incorrect at any stage will automatically lead to cancellation of the admission.

2. Application form, Examinee ID card, and Photo ID card

(1) Name of applicant

Fill in your name exactly the same as is on your passport.

(2) Major and field of education

Please fill in your intended major by referring to the section 1 “Admission quota” and areas of study by referring to “Overview of the Master’s Programs of Graduate School of Science and Engineering”. Please indicate your first, second, and third choice for study area. Draw a diagonal line if you have no second or/and third choice.

(3) Eligibility

Please fill in the name of university, faculty, and major you attend(attended) as well as the month and year of your graduation.

(4) Personal history

Fill in your academic and work history. For the academic history, please indicate all the names of school you attend (including elementary school) in chronological order.

(5) Mailing address

Please fill in the address and telephone number where you can be reached during application and admission procedure. If any change occurs after submitting the application, please notify the university immediately.

(6) Language in short essay

Please circle the applicable item(s).

