

**Application Procedure
for
Foreign Student Admission
to**

**Department of Engineering
Graduate School of Sustainability Science
Master's Program, 2018
(October entrance)**

Tottori University

4-101 Koyama-Minami, Tottori, 680-8552 Japan

Phone: +81-857-31-6761

Application Procedure for Admission

1. Courses and Number of Enrollments

Courses	Number of Enrollments
Mechanical and Aerospace Engineering	a few
Information and Electronics	a few
Chemistry and Biotechnology	a few
Social Systems and Civil Engineering	a few

2. Qualifications for Application

Non-Japanese citizens who meet one of the following qualifications are eligible for application.

1. Have graduated from an accredited university abroad, or are expected to graduate by the end of September, 2018 and completed 16-years schooling in foreign countries.
2. Have been approved by the Japanese Minister of Education, Culture, Sports, Science and Technology of Japan.
3. Have been approved by Department of Engineering, Graduate School of Sustainability Science, Tottori University, as having academic ability equivalent to university graduates and will become 22 years old or more by September 30, 2018.^{※1}
4. Have completed or be expected to complete the program (limited to the ones that their graduates are regarded as completion of 16-years school education of the foreign country) provided by the educational institution that is founded as a part of the formal education system of the foreign country, and is also specified elsewhere by Minister of Education, Culture, Sports, Science and Technology of Japan, on or before September 30 of 2018.
5. Have received or be expected to receive a degree equivalent to bachelor's degree by completing the program of more than 3 years (including degrees obtained by completing the distance education program provided by the foreign university while residing in Japan, or by completing the program specified by Qualification 4 above at the educational institution founded on the formal education system of the foreign country) at university or other forms of school in foreign country (limited to the institutions specified by Minister of Education, Culture, Sports, Science and Technology of Japan, as having being assessed their activities including research and education by the body certified by the residing government or the relevant institutions, or as being equivalent), on or before September 30 of 2018.

^{※1} Applicants who fall in the qualification 3 above should submit their admission application (Form 1), past professional and research record(Form 2), Transcript of degree or graduation certificate issued by the university or college attended, and Transcript of scholastic record issued by the university or college attended. The submission should be from Monday, June 4, 2018 to Thursday, June 7, 2018. Qualification review results will be mailed to the applicants on Tuesday, June 19, 2018.

Note.

1. Most lectures in the Department of Engineering, Graduate School of Sustainability Science, Tottori University are offered in Japanese. Applicants should note that it is essential to achieve a sufficient mastery of the Japanese language before their admission.
2. Before applying to the Graduate School (master's program), applicants are advised to take one or two semesters of study as Postgraduate Research Students (non-degree program)^{※2} under a desired supervisor to fill in gaps in their engineering education and to acquire a good command of Japanese language in preparation for the entrance examinations.

3. Application Procedure

3.1 Choice of Course

The applicant must choose one of the Courses in Section 1 and write it in the appropriate columns of the application form (Form 1).

3.2 Application Period

Applications will be accepted from 9:00 to 17:00 from Monday, July 23 to Thursday, July 26, 2018 at the Student Section in the Faculty of Engineering, Tottori University. Those who send applications by mail should use registered mail and write 'Application Forms for Master's program' in red on the front of the envelope. All applications must reach Student Section in Faculty of Engineering, Tottori University, no later than 17:00 on Thursday, July 26, 2018. Any applications received after this due will not be accepted.

3.3 Application Documents

Applicants should submit the following documents to the Student Section in the Faculty of Engineering, Tottori University, during the above-mentioned application period.

1. Application Form for Admission (Form 1)
2. Admission Cards with photos (in duplicate)
3. Transcript of degree or graduation certificate issued by the university or college that you have attended.
4. Transcript of scholastic record issued by the university or college that you have attended. This should be a confidential communication between the university or college that you have attended and Tottori University.
5. Letter of Recommendation from the President, Dean or Department Chairman of the university or college that you have attended.
6. Certificate of proficiency in Japanese language made by a teacher of Japanese language or an equivalent, if any.
7. Certificate of Residence, copy of Residence Card, or copy of Passport.
(Foreigners residing in Japan should submit a copy of their Residence Card (both sides) or a Certificate of Residence issued by the city or town office you live in. Other foreigners should submit a copy of your passport.)
8. Examination fee of 30,000 yen.^{※3}

^{※2} See Appendix.

^{※3} Complete the payment at a nearby bank in Japan by the slip enclosed in this booklet. Then, stick the payment receipt slip (the right part of the form: 検定料振込済証明書) on the Application Payment Confirmation Slip part in Form 1.

Payment Period:

The First Period Application is from Friday, July 13 to Thursday, July 26, 2018.

3.4 Note

1. Incomplete or incorrect application forms and documents will not be accepted.
2. The above mentioned items of the application are not substitutable once they have been received by the Student Section in the Faculty of Engineering, Tottori University.
3. Under any circumstances, the application forms, documents and examination fee cannot be returned to the applicant once they have been received by the Student Section in Faculty of Engineering, Tottori University.
4. Application should be written either in block capitals or typed.

4. Screening

4.1 Screening Procedure

Preliminary screening for admission will be made on the basis of the submitted documents. Applicants who pass this preliminary screening will be notified to take a subsequent written examinations in the following subjects and an oral examination.

1. Course of Mechanical and Aerospace Engineering
Thursday, August 23, 2018
 - (1) Mathematics / 9:00-11:00
 - (2) Physics for Mechanical Engineering / 12:30-14:30
 - (3) Oral Examination / 15:00-

2. Course of Information and Electronics
Thursday, August 23, 2018
 - (1) Mathematics / 9:00-11:00
 - (2) Oral Examination / 14:00-

3. Course of Chemistry and Biotechnology
Thursday, August 23, 2018
Two from the following four subjects /9:00-13:00
 - Organic Chemistry, Analytical Chemistry
 - Inorganic Chemistry, Physical Chemistry
 - Microbiology, Molecular Biology
 - Biochemistry, Structural Biology※Bring a scientific calculator
 - (2) Oral Examination / 14:00-

4. Course of Social Systems and Civil Engineering
Thursday, August 23, 2018
 - (1) Mathematics / 9:00-10:30
 - (2) Social Systems and Civil Engineering / 10:45-11:55
 - (3) Oral Examination / 13:00-

Venue: Department of Engineering, Graduate School of Sustainability Science (Faculty of Engineering Building), Tottori University, 4-101 Koyama-Minami, Tottori 680-8552, Japan

Note.

1. Applicants should bring the Admission Card with them to the venue of examination. The Card should be placed on the designated desk during the written examination.
2. Applicants are requested to enter the examination room by 8:45. The information regarding examination rooms and others, will be posted on the notice board of the Department of Engineering, Graduate School of Sustainability Science (at the main entrance of the Faculty of Engineering Building) from 15:00 the day before the written examination.
3. Late-comer to the examination may be allowed to take examination only if he or she arrives the venue of examination no later than 30 minutes after the examination starting time.

4.2 Preliminary Consultation for Handicapped Applicants

Applicants with physical disabilities who need some specific assistances during the examination as well as study terms after entrance, must submit a document (written in arbitral format) including the following items and a medical certificate prepared by a physician to Student Section in Faculty of Engineering, Tottori University, by Friday, July 6, 2018, during the examination and while attending graduate school.

1. Name of applicant, address and telephone number
2. School from which you graduated
3. Course and Field of your choice
4. Type and degree of disability
5. Attention needed upon examination
6. Attention needed while attending graduate school
7. Measures and supports provided at previous schools
8. Conditions of daily life

In addition, if Tottori University sees the need, the university will have interviews with the applicants or people from their current or previous schools, or other related persons, who are able to speak on behalf of the applicants.

5. Notification of Results

The results of the screening will be put on the web page of Tottori University around 11:00 on Friday, September 7, 2018.

(<http://www.admissions.adm.tottori-u.ac.jp/>).

The notifications of acceptance will be mailed to the successful applicants, except for the student currently attending Tottori University to whom the notification will be handed directly at Student section in Faculty of Engineering. Inquiries about the results by other means such as phone and e-mail are not available.

Detailed information concerning registration after acceptance will be informed to the successful applicants in early September, 2018.

6. Admission and Tuition Fees

1. Admission Fee^{※4}: 282,000 yen (planned amount. Must be paid at the time of registration. Not refundable.)
2. Tuition Fee^{※4}: 535,800 yen for one academic year (planned amount)

Note.

1. University admission and tuition fees above are estimates only. In cases where fee adjustments are announced while students are entering university or when they are already enrolled, students will be requested to pay the adjusted fees.
2. The method for paying tuition fee will be announced later when you are guided for university entrance procedure.

^{※4} Foreign students supported by the scholarship from Japanese Government are exempt from the admission and the tuition fees.

7. Inquiries

Any inquiries related to the application to Department of Engineering, Graduate School of Sustainability Science, Tottori University, should be made by mail to Student Section in Faculty of Engineering, Tottori University, given below.

Student Section in Faculty of Engineering
Department of Engineering, Graduate School of Sustainability Science
Tottori University
4-101 Koyama-Minami, Tottori, 680-8552 Japan
Phone: +81-857-31-6761
E-mail: en-kyoumu@ml.adm.tottori-u.ac.jp

Appendix

Application Procedure for Postgraduate Research Students to Department of Engineering Graduate School of Sustainability Science, Tottori University

Those who aim to study a specific subject at the postgraduate level may be admitted as Postgraduate Research students. The students in this category are not entitled to any degrees even upon the completion of their study program. However, Graduate School would advise them to prepare for the degree program of Graduate School depending upon their qualifications. The same qualifications are required of a prospective Postgraduate Research Student as are required of a degree candidate for the Master's program. Applicants for Postgraduate Research Students should submit the following documents to Student Section in Faculty of Engineering well in advance.*¹

1. Application Form for Admission
2. Curriculum vitae
3. Transcript of degree or graduation certificate issued by the university or college you have (had) attended.
4. Transcript of scholastic record issued by the university or college attended. This should be a confidential communication between the university or college you have (had) attended and Graduate School of Tottori University.
5. Certificate of proficiency in Japanese language made by a teacher of Japanese language or an equivalent, if any.
6. Certificate of registered matters on the original registration.
7. Letter of permission for application written by the employer, if the applicant is an employee.
8. Application fee of 9,800 yen. In the case of application by mail, payment can be made by postal money order (do not fill in the remittee's name).

Selection will be made on the basis of the documents submitted.

Time of admission for Postgraduate Research Students is normally the beginning of each semester, that is, April or October. The period of registration is up to one year, but may be extended if necessary.

Successful applicants are requested to pay the following admission and research fees before admission.

1. Admission Fee: 84,600 yen (planned amount)
2. Research Fee: 29,700 yen per month (planned amount)

Applicants who wish to know more details are advised to inquire by mail to Student Section in Faculty of Engineering given below or Chairman of Course concerned. A self-addressed envelope with 362 yen stamps should be enclosed.

Student Section in Faculty of Engineering
Department of Engineering, Graduate School of Sustainability Science,
Tottori University
4-101 Koyama-Minami, Tottori, 680-8552 Japan
Phone: +81-857-31-6761
E-mail: en-kyoumu@ml.adm.tottori-u.ac.jp

*¹ About six months before the time of admission for taking ample processing time to enter into Japan are strongly recommended.

Department of Engineering,
Graduate School of Sustainability Science,
Tottori University

Outline of Courses and Fields in Master's Program

Course of Mechanical and Aerospace Engineering

Possessing the human resources necessary for meeting a wide variety of needs in engineering fields, Course of Mechanical and Aerospace Engineering nurtures high-level engineers and researchers who are able to develop technologies from an interdisciplinary perspective, rather than from a stereotyped viewpoint. They are not restricted to just mechanical engineering, but are also proficient in the fields of aerospace, material, electronic, information, and environmental engineering. This course allows students to acquire high-levels of expertise and engage in original research; this enables them to develop so that they can aggressively assume leadership in solving problems. Specifically, students are trained to acquire the following:

- (1) A broad and fundamental knowledge of mechanical engineering, and also advanced expertise in applied mathematics, mechanics, and physics, that provide a foundation for entering advanced interdisciplinary engineering fields such as space engineering
- (2) A flexible way of thinking and insight to view problems macroscopically by considering the harmony between the natural environment and human society, and also leadership to solve problems systematically.

Applicants are expected to appreciate this policy and to be highly motivated. They are required to possess academic attainments in mathematics and physics employed in engineering as well as linguistic ability.

Mechanical and Aerospace Engineering Field

Solid mechanics, Materials science and engineering, Reliability and design engineering, Precision and production engineering, Mechanical dynamics and mechatronics, Control and robotics, Thermal energy engineering, Fluid engineering, Fluid dynamics, Condensed matter physics, Non-linear dynamics, Nanomechanics, Biomechanics, Thermodynamics

Course of Information and Electronics

There are two Fields in this Course aiming to produce engineers and researchers as listed below.

Information and Knowledge Engineering Field

We aim to produce IT engineers and researchers who have the ability to create advanced information-oriented society of the future and bring it to practice. Especially, we focus on producing human resources with the balanced knowledge of both hardware and software through the education of advanced computer, its application to intelligent system, and others. We have the research and educational program from the basic to the application covering various computer related areas such as construction of intelligent system, advancement of computer system and computer aimed technology.

Electrical and Electronic Engineering Field

We cover a wide range of technologies such as highly efficient device, advanced communication technology, software and hardware, and aim to produce world class engineers. In detail, our aims can be pointed out as follows:

- ① better technical knowledge of electric and electronics
- ② basic intellectual and ethical ability
- ③ ability to discover difficult problems and their solution
- ④ spirit to serve the international society

We accept those students who are interested in electric and electronics fields.

Course of Chemistry and Biotechnology

The goal of Course of Chemistry and Biotechnology is to educate engineers and researchers who are competent in the fields of industrial chemistry and biotechnology. To this end, Course provides students with a highly specialized curriculum at the graduate level. Course is composed of two fields, Applied Chemistry and Biotechnology.

Applied Chemistry Field

We have classes that teach basic concepts in organic, inorganic, and physical chemistries, followed by advanced classes for organic and inorganic materials chemistry, organic and inorganic synthetic chemistry, catalyst chemistry, and electrochemistry. In addition, we place an emphasis on hands-on training under laboratory conditions in addition to classroom teaching to experience

and analyze various chemical processes.

Biotechnology Field

Our goal is to provide students with knowledge that would allow them to seek new ways to combine nature and human society in harmonious ways, through the discovery of novel reactive mechanisms and useful compounds at the interface of biology (the study of living organisms and living systems) and engineering (the application of scientific principles to industry). Specifically, provides classes to apply the various mechanisms in bacterial or various cellular metabolism and replication to the production of various compounds and polymers, as well as to the removal of harmful chemicals from the environment. Any student who enters this field is assigned to a laboratory, and he/she will undergo basic training to become an engineer or a researcher through performing cutting-edge research.

We welcome students who possess a demonstrable grasp of scientific principles and techniques at the university level, and who are interested in becoming an active engineer or researcher in fields related to chemical industry, nanotechnology, biotechnology, and bioscience.

Course of Social Systems and Civil Engineering

Objective of Course of Social Systems and Civil Engineering is to train engineers who not only create abundant society through wide-ranging practices of improvements to the infrastructure, creation and activation of safety local community, but also pursue soft and hard wares methodology to create comfortable and active society by the education of highly-professional knowledge/technology and researches.

Civil Engineering Field

This field cultivates skillful engineers who have knowledge of plan, design, construction and management of social infrastructures. To achieve the objective, this field seeks motivated, wide perspective and problem-solving oriented persons who are eager to learn the construction technology which supports manufacturing activities, who are interested in creating space for human living, and who consider harmony with the nature.

Social Systems Engineering Field

This field aims at training engineers who can contribute to realization of better society through planning and design of systems on urban, traffic, environment, disaster prevention, management, production, and telecommunication. Objective of the training is to provide students with the ability for solving problems with an engineering approach comprising humanities and social science, and learning systematic consideration to solve problems in the modern society. field seeks students who have a passion to realize comfortable life and abundant society, who have idea looking things analytically and also who have strong will to overcome difficulties with elaborate systematic means.

Organizational Structure of Doctoral Program

**Graduate School of Engineering,
Tottori University**

(1) Department of Mechanical and Aerospace Engineering

- (a) Mechanical Engineering Course
- (b) Applied Mathematics and Physics Course

(2) Department of Information and Electronics

- (a) Information and Knowledge Engineering Course
- (b) Electrical and Electronic Engineering Course

(3) Department of Chemistry and Biotechnology

- (a) Applied Chemistry Course
- (b) Biotechnology Course

(4) Department of Management of Social Systems and Civil Engineering

- (a) Civil Engineering Course
- (b) Social Management Engineering Course

YEAR 2018
APPLICATION FOR FOREIGN STUDENT ADMISSION
Department of Engineering,
Graduate School of Sustainability Science, Tottori University

Master's Field
(October entrance)

2018 年度鳥取大学大学院持続性社会創生科学研究科
博士前期課程工学専攻（10月入学）
外国人留学生特別入試願書

Instruction(記入上の注意)

1. Application should be written either in ink or by a ball-point pen
(either in black or blue only).
(記入にあたっては、必ずインク又はボールペン(青又は黒)を使用してください。)
2. Application should be printed either in Japanese or in Roman block capitals.
(記入にあたっては、楷書又はローマ字(大文字)を用いてください。)
3. Numbers should be written in Arabic Figures.
(数字は算用数字を用いてください。)
4. Year should be written in the Anno Domini system.
(年号はすべて西暦としてください。)
5. Proper noun should be written in full, and not be abbreviated.
(固有名詞はすべて正式な名称とし、一切省略しないでください。)

Form 1 (様式 1)

Examination ID No. (受験番号)	*
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* **Leave blank** (この欄には記入しないでください。)

YEAR 2018 APPLICATION FOR FOREIGN STUDENT ADMISSION

Department of Engineering,

Graduate School of Sustainability Science, Tottori University

Master's Program

(October entrance)

1. The Course of your choice; Select one course (志望コース名)

2. Name of desired academic supervisor (志望指導教員名)

3-1. Name in full, in vernacular (姓名 ; 自国語)

(Family name) (First name) (Middle name)
In Roman capitals (ローマ字) :

(Family name) (First name) (Middle name)

3-2. Nationality (国籍) : _____

3-3. Sex (性別) : [] **Male** (男) [] **Female** (女)

3-4. Date of Birth: Year Month Day
(生年月日) (年) (月) (日生)

4. Present address, telephone number, fax number, and e-mail address

(現住所及び電話, ファックス番号又は電子メールアドレス)

6. Academic background (学歴)

	Name of School (学校名)	Address of School (学校所在地)	Period of Attendance (在学期間)	(学位) Completed Degree
Elementary School (小学校)			From To	
Lower and Upper Secondary School(s) (中学校及び高等学校)			From To	
Undergraduate Level (大学)			From To	
Graduate Level (大学院)			From To	

Department of Engineering,
Graduate School of Sustainability Science
(大学院持続性社会創生科学研究科工学専攻)
Tottori University
(鳥取大学)
Master's Program, 2018
(博士前期課程)
October entrance
(10月入学)

Admission Card (Duplicate)
(写真票)

Examination ID No.
(受験番号)

Name
(氏名)

Photo

(写真欄)

4 cm × 3 cm

Application Payment
Confirmation Slip
(振込確認票)

Department of Engineering,
Graduate School of Sustainability Science
(大学院持続性社会創生科学研究科工学専攻)
Tottori University
(鳥取大学)
Master's Program, 2018
(博士前期課程)
October entrance
(10月入学)

Admission Card (Duplicate)
(受験票)

Examination ID No.
(受験番号)

Name
(氏名)

Photo

(写真欄)

4 cm × 3 cm

Note: (注意)

Please bring this card to the examination
(受験の際は、この受験票を必ず持参してください。)

Supervisors and their Research*

*Subject to change due to personnel changes

① Course of Mechanical and Aerospace Engineering

Field	Particular Area of Education and Research	Supervisor	Research Theme
Mechanical and Aerospace Engineering	Solid Mechanics	OBATA, Yoshihiro IWASA, Takashi	<ul style="list-style-type: none"> • Study on thermal stresses and related topics • Study on tactile warmth between human body and materials • Study on thermo property of woody materials • Study on mechanical characteristic of flexible space structures • Study on analysis method for membrane structures
	Materials Science and Engineering	CHEN, Zhongchun ONDA, Tetsuhiko	<ul style="list-style-type: none"> • Fabrication and characterization of thermoelectric materials • Additive manufacturing of high-performance materials • In-situ synthesis and multiple toughening of ceramic-matrix composites • In-situ synthesis of ceramic-reinforced aluminum-matrix composites • Development of aluminum-carbon composites with high thermal conductivity • Martensitic transformation of zirconia and its application to transformation toughening of engineering ceramics
	Reliability and Design Engineering	ONO, Yuichi NISHI, Ryosuke	<ul style="list-style-type: none"> • Study on fatigue damage evaluation of metals • Study on experimental stress analysis • Study on improving strength of gear • Study on modeling traffic flows • Study on the methodology of easing traffic jams
	Precision and Production Engineering	SATO, Masahiko MATSUNO, Takashi	<ul style="list-style-type: none"> • High precision and high efficient machining of difficult-to-cut materials • Monitoring and control of machining processes • Numerical analysis of sheared-surface properties • Ductile fracture of metals
	Mechanical Dynamics and Mechatronics	KOIDE, Takao TAMURA, Atsutaka	<ul style="list-style-type: none"> • Study on vibration and noise of machines • Development of abnormality detection method of machines • Development of high performance gears • Study on injury biomechanics • Human body modeling and mechanical characterization of biological materials
	Control and Robotics	NISHIDA, Shin-Ichiro	<ul style="list-style-type: none"> • Robots for hazardous environment • Robots for inspection, diagnostic and healthcare • Development of advanced air-vehicle
	Thermal Energy Engineering	SAKAI, Takeharu ODA, Tetsuya	<ul style="list-style-type: none"> • Development of thermal protection system for space vehicles • Ablation, radiation, and surface thermochemistry • Simulation of High-Temperature Processes • Research on liquid fuel atomization and spray combustion • Developments of spray measurement technique • Engine combustion analysis and emission reduction

Field	Particular Area of Education and Research	Supervisor	Research Theme
Mechanical and Aerospace Engineering	Fluid Engineering	KAWAZOE, Hiromitsu MATSUNO, Takashi	<ul style="list-style-type: none"> • Aerodynamic analysis of delta wings and flight vehicles in unsteady motion • Research on supersonic/hypersonic flow by experiments with shock and arc-plasma wind tunnels • Study on surface wave plasma flow characteristics and its application for material modification • Active flow control using plasma actuators • Research of flow field by numerical simulations • Research for future aircrafts and its aerodynamic characteristics
	Nonlinear Dynamics/ Continuum Mechanics	FURUKAWA, Masaru	<ul style="list-style-type: none"> • Theoretical analysis and numerical simulation of stationary states and their stability of fluids and magnetized plasmas • Structure-preserving numerical simulation algorithms
	Computational Material Science	ISHII, Akira	<ul style="list-style-type: none"> • Analysis of social big data using computational social science • Social physics for dynamics of societies • Study of epidemics by dynamical analysis of social media
	Electronic structure calculation/ Computational Physics and Engineering	KOTANI, Takao HOSHI, Takeo	<ul style="list-style-type: none"> • Methodological development of the first-principles electronic-structure calculations, especially, to include electronic correlations. • Reliable prediction of the fundamental physical properties for materials such as transition-metal compounds. • First principles study on atomic structure of materials. • In particular, surface structures and phase transition of structures. • Ultra-large-scale electronic structure theory and nano-structure process • Algorithm design for large-freedom physical simulations (ex. krylova subspace theory, parallel computation, optimality-guaranteed algorithms)
	Nano Dynamics and Tribology/ Molecular Fluid Dynamics	MATSUOKA, Hiroshige DOI, Toshiyuki	<ul style="list-style-type: none"> • Research on molecular gas/liquid-film lubrication • Research on computational tribology • Research on dynamics of information storage systems • Research on molecular interactions and surface interactions • Ultra-high accuracy measurements of tribological phenomena • Research on rarefied gas flows
	Bio and Fluid Mechanics/ Thermal and Energy System	GOTO, Tomonobu NAKAI, Tonau HARA, Yutaka	<ul style="list-style-type: none"> • Micro-flow analysis, observation and numerical simulation • Collective and cellular level behavior of micro-organisms • Aeroacoustics, sound generation mechanism and noise reduction • Research and development of advanced technology of wind turbine • Computational fluid dynamics of wind turbines

② Course of Information and Electronics

Field	Particular Area of Education and Research	Supervisor	Research Theme
Information and Knowledge Electronics	Intelligent Control	TAKEMORI, Fumiaki	<ul style="list-style-type: none"> • Control design of human power assist system • Intelligent control for mobile robot
		YOKOTA, Takayoshi ARII, Shiro	<ul style="list-style-type: none"> • Geographical information processing • Optimization of transport systems • Modeling and control of moving objects • Stereo robot vision • Optimum trajectory for flexible manipulator • Integrated design of mechanism and control system for flexible multi-body system
	Computer Science and Technology	SUGAHARA, Kazunori	<ul style="list-style-type: none"> • Embedded systems • Computer networks • Social information systems
		KAWAMURA, Takao TAKAHASHI, Kenichi	<ul style="list-style-type: none"> • Distributed systems • Social information systems • Agent system • Network and information security
		MURATA, Masaki MURAKAMI, Jinichi	<ul style="list-style-type: none"> • Natural language processing • Information retrieval, information extraction • Machine translation • Machine learning
	Knowledge Engineering	YOSHIMURA, Kazuyuki SHIMIZU, Tadaaki	<ul style="list-style-type: none"> • Nonlinear science • Information processing using nonlinear dynamics • Digital speech signal processing • Signal processing using neural networks
		KIMURA, Shuhei TOKUHISA, Masato	<ul style="list-style-type: none"> • Evolutionary computation • Bioinformatics • Semantic and emotion analysis in natural language processing • Information technology applications in tourism
		IWAI, Yoshio NISHIYAMA Masashi	<ul style="list-style-type: none"> • Computational interaction • Pattern recognition • Human media processing • Augmented reality

Field	Particular Area of Education and Research	Supervisor	Research Theme
Electrical and Electronic Engineering	Information and Control Engineering	NAKAGAWA, Tadao	<ul style="list-style-type: none"> • Wireless communications and optical wireless communications for wearable devices • Physical layer signal processing for wireless communications • Radio frequency circuit design
		ITOH, Yoshio	<ul style="list-style-type: none"> • Adaptive signal processing • Digital signal processing • Digital communication system
		SASAOKA, Naoto	<ul style="list-style-type: none"> • Speech enhancement • Digital wireless communication system • Active noise control
		KONDO, Katsuya	<ul style="list-style-type: none"> • Computer vision • Bioimage analysis and medical engineering • Development of smart measurement control system
		MISHIBA, Kazu	<ul style="list-style-type: none"> • Image processing • Computational photography • Graph signal processing
	Electrical and Electronic Systems Engineering	OHKI, Makoto	<ul style="list-style-type: none"> • Evolutionary algorithm for multi-objective symbolic optimization problems • Real-world applications of evolutionary optimizing algorithm • Self-Organizing Map applied for large-scale multi-dimensional data
		NAKANISHI, Isao	<ul style="list-style-type: none"> • Application of Digital signal processing • Biometrics person authentication • Speech signal processing
		NISHIMURA, Ryo	<ul style="list-style-type: none"> • Application of renewable energy technology, such as desalination of brackish water, for arid-land development • Application of electrostatics and high voltage technology
	Electronic Materials and Device Engineering	ICHINO, Kunio	<ul style="list-style-type: none"> • Study on wide bandgap semiconductors for optical/power devices • Study on high-efficiency solar cells • Study on high-efficiency ultraviolet/visible light-emitting devices
		ABE, Tomoki	<ul style="list-style-type: none"> • Study on crystal growth of wide bandgap semiconductors for optical devices • Development of blue-ultraviolet optical detectors • Development of blue-ultraviolet optical modulators • Study on high efficient ultraviolet light emitting devices

Field	Particular Area of Education and Research	Supervisor	Research Theme
Electrical and Electronic Engineering	Electronic Materials and Device Engineering	OHMI, Koutoku	<ul style="list-style-type: none"> • Research on electroluminescent displays • Development of wavelength conversion phosphor film for plant growth • Development of wavelength conversion phosphor film for solar panel • Research on phosphors for white LED applications
		LEE, Sang-Seok	<ul style="list-style-type: none"> • MEMS devices for bio/chemical/medical applications • Micro/nano technologies for aerospace applications • Design and application of metamaterials • RFMEMS and power MEMS devices

③ Course of Chemistry and Biotechnology

Field	Particular Area of Education and Research	Supervisor	Research Theme
Applied Chemistry	Green Catalysis Chemistry	KATADA, Naonobu TSUJI, Etsushi SUGANUMA, Satoshi	<ul style="list-style-type: none"> Principles and application of zeolites and solid acid catalysis Conversion of heavy oil components, methane and biomass into useful materials Synthesis of structured functional materials Creation of photocatalysts for use of natural energy
	Main Group Element Chemistry	NANJO, Masato	<ul style="list-style-type: none"> Synthesis of ionic liquids consisting of heavy group 14-elements and application to electrochemical devices Design and synthesis of functional organosilicon and organogermanium compounds, and development of electronic materials
	Applied Electrochemistry	SAKAGUCHI, Hiroki USUI, Hiroyuki	<ul style="list-style-type: none"> Synthesis of lithium or sodium storage intermetallic compounds and their properties as anode materials in lithium batteries Development of all solid-state secondary batteries Design, preparation and characterization of new type of high density hydrogen storage materials Development of energy storage materials based on photovoltaics
	Molecular Self-assembly	MATSUURA, Kazunori	<ul style="list-style-type: none"> Creation and application of artificial virus structures Construction of nanostructures by self-organization of biomolecules Creation of light-responsive biomolecular systems Creation of functional materials applying inner space of microtubules
	Design of Functional Molecules	KOBAYASHI, Kazuhiro	<ul style="list-style-type: none"> Synthesis of heterocyclic compounds Synthesis of biologically active compounds
	Organic Material Chemistry	SAIMOTO, Hiroyuki IFUKU, Shinsuke	<ul style="list-style-type: none"> Synthesis and reaction of polyols Synthesis and utilization of chiral compounds Efficient utilization of untapped resources Development of bionanofiber materials Preparation of functional materials from biomacromolecules
	Synthetic Organic Chemistry	ITOH, Toshiyuki NOKAMI, Toshiki	<ul style="list-style-type: none"> Development of enzymatic reaction in an ionic liquid solvent system Development of iron salts-catalyzed reaction Synthesis of partly fluorinated analogues of biologically active molecules Chemical glycosylation for oligosaccharide synthesis Organic materials for energy storage devices. Creation and application of functional ionic liquids Development of polar ionic liquids for energy-efficient biorefinery

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Applied Chemistry	Inorganic Materials Chemistry	MASUI, Toshiyuki	<ul style="list-style-type: none"> • Synthesis and application of environment-friendly color materials • Design of new phosphors based on rare earth compounds • Development of inorganic sunscreens
Biotechnology	Biomimetic Chemistry and Related Disciplines	MORIMOTO, Minoru	<ul style="list-style-type: none"> • Utilization of biopolymers • Analysis of bio-related compounds
	Applied Technology of Biological Resources	OHSIRO, Takashi SUZUKI, Hirokazu YAGI Hisashi	<ul style="list-style-type: none"> • Discovery and application of novel functions of microorganisms and marine algae • Application and development of the functions of microorganisms and marine algae to the practical production of useful substances and the solutions of environmental problems • Fundamental studies: enzymology, molecular genetics, and protein engineering of enzymes involved in the metabolisms of physiologically active substances and new generation carbon sources in microorganisms and marine algae • Directed evolution approaches to enhance enzyme stability using error-prone thermophiles • Development of new medical materials using unutilized marine resources
	Biocatalyst Engineering	OKAMOTO, Kenji HARADA, Hisashi	<ul style="list-style-type: none"> • Isolation and production of bioactive compounds from basidiomycetes • Determining the mechanism of action of bioactive compounds from basidiomycetes • Production of lignocellulose-degrading enzymes, ethanol and xylitol by basidiomycetes • Pathway engineering for the production of functional isoprenoids • Functional characterization of isoprenoid biosynthesis genes in higher plants and microalgae • Production of useful materials by microalgae
	Protein Engineering	KAWATA, Yasushi MIZOBATA, Tomohiro	<ul style="list-style-type: none"> • Structure and function of enzyme and protein • Protein folding • Protein stability and conformational change • Molecular chaperone and protein fibrillogenesis (aggregation)
	Bioorganic Chemistry	KISE, Naoki SAKURAI, Toshihiko	<ul style="list-style-type: none"> • Enantioselective synthesis of physiologically active compounds • Stereo selective synthesis using electron transfer reaction • Organic synthesis of functional biomacromolecules • Design and characterization of supramolecular biomaterials
	Biophysical Chemistry	NAGANO, Shingo HINO, Tomoya	<ul style="list-style-type: none"> • Structural biology of natural products biosynthesis • Molecular basis of nitrogen metabolism by anammox bacteria • Structural biology of thermal sensation • Structural biology of membrane proteins

④ Course of Social Systems and Civil Engineering

Field	Particular Area of Education and Research	Supervisor	Research Theme
Civil Engineering	Structural and Concrete Engineering	TANIGUCHI, Tomoyo ONO, Yusuke	<ul style="list-style-type: none"> • Structural design of infra-, mechanical and offshore structures • Earthquake-resistant performance of infra-, mechanical and building structures • Maintenance of infra-, mechanical and offshore structures • Earthquake response analysis of civil structures • Simulation of earthquake disasters
		KURODA, Tamotsu YOSHINO, Akira	<ul style="list-style-type: none"> • Self-compacting, high strength and multi-functional concrete • Application of industrial waste products to concrete • Durability assessment of concrete and concrete structures • Repair and strengthening for concrete and concrete structures • Prediction of deterioration and maintenance for concrete structures
	Geotechnical and Rock Engineering	NAKAMURA, Koichi	<ul style="list-style-type: none"> • Constitutive properties of saturated and unsaturated soils • Prevention and reduction of ground disasters • Dynamic properties of soils • Slope disaster mitigation and monitoring
		NISHIMURA, Tsuyoshi KOHNO, Masanori	<ul style="list-style-type: none"> • Mechanics and numerical modeling of discontinuous rock mass • Tunnel support/reinforcement mechanics based on the NATM concept • Rock slope stability and landslide hazard protection • Elastic property of rock
	Hydraulic and Coastal Engineering	HINOKIDANI, Osamu	<ul style="list-style-type: none"> • River and lake hydraulics • River and lake engineering • River disaster and monitoring
		MIWA, Hiroshi	<ul style="list-style-type: none"> • Sediment transport mechanism in sand and gravel mixtures • Bed deformation and channel evolution due to sediment supply to riverbed
		KUROIWA, Masamitsu KAJIKAWA, Yuki	<ul style="list-style-type: none"> • Numerical model of waves and nearshore currents • Coastal sediments and prediction of coastal geomorphological change • Maintenance of river-mouth, port and harbor • Coastal disaster and monitoring • Numerical analysis of topography change due to river flow or tsunami
	Geo-spherical Environmental and Architectural Engineering	KAGAWA, Takao SHIOZAKI, Ichiro	<ul style="list-style-type: none"> • Strong ground motion estimation • Effects of fault rupture process and surface geology on earthquake ground motion • Seismological and EM (electromagnetic) study on structure and dynamics of crust and upper mantle • EM applications on seismology and volcanology
		ASAI, Hideko	<ul style="list-style-type: none"> • Architectural planning • Architectural environment

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Social Systems Engineering	Management Systems	ITO, Kodo KOYANAGI, Junji	<ul style="list-style-type: none"> • Quantitative quality evaluation for service-oriented systems • Applied probability • Reliability and maintenance theory • Queuing system
	Regional Systems Planning	FUKUYAMA, Kei KUWANO, Masashi	<ul style="list-style-type: none"> • Institutional design and analyses of regional socio-economic systems • Economic analyses of urban systems • Public policy evaluation • Activity – travel behavior analysis • Infrastructure planning and management, transportation engineering, and urban planning • Local disaster prevention planning • Participatory risk communication
		TANIMOTO, Keishi TSUCHIYA, Satoshi	<ul style="list-style-type: none"> • Methodologies for sustainable society planning • Planning theory of local transport system • Design and analysis of daily support services • Disaster risk assessment and management for transportation system
	Disaster Prevention Planning	OTA, Takao	<ul style="list-style-type: none"> • Soft measures for disaster prevention based on evacuation simulation • Performance evaluation of coastal structures under damage progression • Maintenance management model for infrastructure
	Environmental Planning	HOSHIKAWA, Yoshiko MASUDA, Takanori	<ul style="list-style-type: none"> • Risk assessment of environmental chemicals • Application of microorganisms for establishing recycling-based society • Maintenance and management of water and waste water system • Water quality control and management • Current issues in global environmental protection