Master's Courses

2025 October (Fall) Admission
2026 April (Spring) Admission

Akita University
Graduate School of Engineering Science
Master's Courses
Application Guidelines

[For Special Entrance Examination for International Students]

Admission Schedule

Event	Date
Prior Screening of Application Eligibility (applicable applicants only)	July 7, 2025 - July 11, 2025
Application Period	July 31, 2025 - August 6, 2025
Examination Date	August 27, 2025
Announcement of Results	September 8, 2025

May 2025

Akita University

Admission Policy

The Graduate School of Engineering Science, Akita University welcomes applications from candidates who meet the following criteria.

The Graduate School of Engineering Science aims to educate people who can systematically master a body of highly specialized knowledge and technology from first principles and will make a positive contribution to the energization of local communities and the sustainable development of the country as a whole with flexibility, an international perspective, and a strong sense of ethics.

We are looking for new students who are motivated to create new inventions based on expertise in science and engineering, who are driven to contribute to the development of local communities and the resolution of their numerous issues, and who will aim to use their scientific learning to help find solutions to the problems confronting all of humankind. We are actively looking to attract students from different backgrounds and with different aims. To this end, we have established a framework for flexible learning to allow working people to accommodate their studies into their working lives, and an international environment that welcomes students from countries around the world.

For the Master's Degree Program, we look to admit candidates who aspire to use their expertise to find solutions to the issues confronting local communities and our global society.

For more details on the admission policies of individual departments, see page 13 of these guidelines.

Basic Policy for Selection of Students

Screening for admission will be determined by the combined results of an academic ability test (interview) and a document review.

Confidentiality of Applicant Information

The personal information of applicants from submitted documents and from entrance examinations is used by Akita University solely for the following purposes:
・In matters related to selecting successful applicants (including related matters such as statistical processing)
・In the case of students who have completed enrollment procedures, post-admission enrollment management, academic guidance, matters related to student support and matters related to the collection of tuition fees.

Special Entrance Examination for International Students

1. Admission Numbers

Department (Major)	Fall Admission	Spring Admission
Life Science	a few	a few
Materials Science	a few	a few
Mathematical Science and Electrical-Electronic-Computer Engineering	a few	a few
Systems Design Engineering	a few	a few
Cooperative Major in Sustainable Engineering	a few	a few

If you have any questions or concerns about the educational system in the field of education/research you wish to pursue, or about the faculty you wish to have as your advisor, describe relevant items such as

- the area(s) of education and research of interest and
- the name(s) of faculty member(s) you wish to have as your advisor(s),

and contact us at the address below:

Admissions Office, Akita University　nyushi@jimu.akita-u.ac.jp

2. Application Eligibility

Applicants seeking admission in October 2025 (fall admission) must meet all of requirements (1) to (4) below.

(1) Persons whose resident status is designated as “college student” under the Immigration Control and Refugee Recognition Act, or who are able to obtain this status at time of entry to the University (resident status will be “college student” upon entry into the University).

(2) Persons who do not hold Japanese nationality.

(3) Persons who have sufficient Japanese language ability to pursue academic studies.

(4) Persons who meet one of the following conditions:

1) Persons who have completed 16 years of academic education outside of Japan or will complete it by September 30, 2025.

2) Persons who have completed 16 years of formal education in foreign countries by taking a correspondence course through a non-Japanese school while residing in Japan or will complete it by September 30, 2025.
3) Persons who have completed or will have completed 15 years of academic education outside of Japan, and are recognized by the graduate school to have received all the required credits with an excellent academic record.
4) Persons who have earned a degree from a program established by a foreign educational institution in Japan that has been designated by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) to be equivalent to an undergraduate program of a foreign university.
5) Persons recognized, based on individual screening, by the graduate school, as having an academic ability equal to or surpassing that of students who have graduated from a Japanese university, and who will be at least 22 years of age by September 30, 2025.

Notes: i) Persons who do not hold Japanese nationality but who have graduated from a Japanese university (including persons expected to graduate in September 2025) are not eligible to apply as an international student.

ii) Prior eligibility screening of persons wishing to apply under Application Eligibility (4) 3) will be conducted. Please submit to the Application for Prior Screening form (included in these Guidelines), Certificate of (prospective) Graduation/Completion from Highest Educational Institution, and Academic Record Transcript or any other materials related to research which may serve as a reference during the screening process to the Admissions Office during the period from July 7 to no later than July 11, 2025. Applicants will be personally informed of results of screening by July 25, 2025.

iii) Application Eligibility (4) 5) includes persons who have graduated from a junior college or higher technical school, or who have completed programs at other educational institutions.

iv) Prior eligibility screening of persons wishing to apply under Application Eligibility (4) 5) will be conducted. Please submit to the Application for Prior Screening form (included in these Guidelines), Certificate of (prospective) Graduation/Completion from Highest Educational Institution, and Certificate of Employment or any other materials related to research or employment history which may serve as a reference during the screening process to the Admissions Office during the period from July 7 to no later than July 11, 2025. Applicants will be personally informed of results of screening by July 25, 2025.

Applicants seeking admission in April 2026 (spring admission) must meet all of requirements (1) to (4) below.

(1) Persons whose resident status is designated as "college student" under the Immigration Control and Refugee Recognition Act, or who are able to obtain this status at time of entry to the University (resident status will be "college student" upon entry into the University).

(2) Persons who do not hold Japanese nationality.

(3) Persons who have sufficient Japanese language ability to pursue academic studies.

(4) Persons who meet one of the following conditions:

1) Persons who have completed 16 years of academic education outside of Japan or will complete it by March 31, 2026.
2) Persons who have completed 16 years of formal education in foreign countries by taking a correspondence course through a non-Japanese school while residing in Japan or will complete it by March 31, 2026.
3) Persons who have completed or will have complete 15 years of academic education outside of Japan, and are recognized by the graduate school to have received all the required credits with an excellent academic record.
4) Persons who have earned a degree from a program established by a foreign educational institution established in Japan that has been designated by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) to be equivalent to an undergraduate program of a foreign university.
5) Persons recognized, based on individual screening, by the graduate school, as having an academic ability equal to or surpassing that of students who have graduated from a Japanese university, and who will be at least 22 years of age by March 31, 2026.

Notes: i) Persons who do not hold Japanese nationality but who have graduated from a Japanese university (including persons expected to graduate in March 2026) are not eligible to apply as an international student.

ii) Prior eligibility screening of persons wishing to apply under Application Eligibility (4) 3) will be conducted. Please submit to the Application for Prior Screening form (included in these Guidelines), Certificate of (prospective) Graduation/Completion from Highest Educational Institution, and Academic Record Transcript or any other materials related to research which may

serve as a reference during the screening process to the Admissions Office during the period from July 7 to no later than July 11, 2025. Applicants will be personally informed of results of screening by July 25, 2025.

iii) Application Eligibility (4) 5) includes persons who have graduated from a junior college or higher technical school, or who have completed programs at other educational institutions.

iv) Prior eligibility screening of persons wishing to apply under Application Eligibility (4) 5) will be conducted. Please submit to the Application for Prior Screening form (included in these Guidelines), Certificate of (prospective) Graduation/Completion from Highest Educational Institution, and Certificate of Employment or any other materials related to research or employment history which may serve as a reference during the screening process to the Admissions Office during the period from July 7 to no later than July 11, 2025. Applicants will be personally informed of results of screening by July 25, 2025.

3. Application Period and Mailing Address

(1) Application Period:

From July 31, 2025 to no later than August 6, 2025.

Notes: i) If brought in person or by proxy, application documents will be accepted at the Admissions Office between 9:00 a.m. and 4:00 p.m.(Japan time), except on Saturdays, Sundays, and national holidays.

ii) If mailed, application documents must be sent by **registered mail or international mail** and **"Application to Master's Course, Special Entrance Examination for International Students, Graduate School of Engineering Science" written in red** on the front side of the envelope. The documents must reach the Admissions Office **no later than 4:00 p.m.(Japan time) on August 6, 2025.** Special care should be taken to allow sufficient time for international delivery.

(2) Mailing address:

Admissions Office
Akita University
1-1, Tegata Gakuen-machi
Akita-shi 010-8502 Japan
Tel: +81-18-889-2313

4. Application Procedures

(1) Documents to be submitted

Documents for Submission	Points to Note
Application for Admission Examination Admission Slip Photo ID card	Complete the required fields on the designated Application for Admission form (included in these Guidelines). A frontal-view photograph of the applicant's face, without a hat, 4.5 cm x 3.5 cm in size and taken within three months prior to this application must be pasted in the designated area.
Certificate of Graduation or Prospective Graduation	Must be prepared by the president of the school or the dean of the faculty attended.
Academic Record Transcript	Must be prepared by the president of the school or the dean of the faculty attended.
Evaluation Fee Payment (Proof of Evaluation Fee Payment Form)	The evaluation fee is 30,000 yen. Remittance Period: July 11, 2025 - August 6, 2025 by 4:00p.m. (Japan time) How to make a payment: ・At the below, first enter your payment amount and country of origin to initiate your payment booking. [http://akita-u.flywire.com] ・Follow instructions to send payment funds to Flywire. For debit/credit card payments,enter your card details online to complete your payment in your home currency. (Additional local payment options may be available depending on the country you are paying from.) ・Receive text and e-mail status updates each step of the way, including a confirmation when your payment has been delivered to your institution. If you have created a Flywire account, then you are also able to track your payment any time by logging into your account. Flywire Customer Support Information (24hrs): E-mail: support@flywire.com Web: flywire.com/help Notes: i) <u>After remitting the evaluation fee, send an e-mail notifying the Admissions Office as soon as possible. [E-mail : nyushi@jimu.akita-u.ac.jp]</u> ii) If the evaluation fee received does not meet the required amount of 30,000 yen, the application procedure will be considered incomplete, and the application will not be accepted. The Evaluation Fee will be returned to the applicant, but the remittance fee will be withheld. iii) The Evaluation Fee will not be refunded for any reason after the application documents have been received. The Evaluation Fee is non-refundable in the case of disqualification or withdrawal of entrance by the applicant. iv) <u>In case of remitting the evaluation fee from within Japan, please e-mail the address of Admissions Office before remitting the fee. Admissions Office will give instructions to you. Please don't remit the fee before receiving instructions.</u>

Other	Please submit either a certificate of residence (*Juminhyo*) indicating your resident status, issued by the mayor of your residing municipality, or a copy of your passport.
Label Slip	Please fill in your details on the designated Label Slip (included in these Guidelines).

Note: Applicants who are permitted to apply on the basis of the Application Eligibility requirements (4) 3) are exempt from submitting a graduation or completion certificate and Academic Record Transcripts.

Note: Applicants who are permitted to apply on the basis of the Application Eligibility requirements (4) 5) are exempt from submitting a graduation or completion certificate, but must submit Academic Record Transcripts issued by the most recent school attended.

(2) Important notices for submitting documents

i) Applications will not be accepted unless all documents mentioned above are fully and accurately completed. Please ensure all required documents are in order.
ii) Once submitted, documents will not be returned to applicants for any reason.
iii) Applicants are not allowed to change departments or courses after submission of application.
iv) If the Contact Address entered in the application form changes after submission, the Admissions Office must be promptly notified of such change.
v) When preparing the designated forms, a word processing software may be used.
vi) If the certificate is written in other than Japanese or English, attach the Japanese translation. Note, however, that the applicant's own translation will not be accepted.

5. Evaluation of Applicants

(1) Screening for admission will be determined by the combined results of an academic ability test (interview) and a document review.

(2) Date of examination: August 27, 2025

(3) Place of examination:

Graduate School of Engineering Science, Akita University
1-1, Tegata Gakuen-machi Akita-shi 010-8502 Japan
We will send you an examination admission slip notifying you of the place and time of your interview.
If you have not received your examination admission slip by August 22, please contact the Admissions Office immediately.

6. Academic Ability Test (Interview)

Date, etc.		**August 27, 2025**
Major/Course (Field)		Academic Ability Test (Interview)
Life Science	Life Science Course	Interview (includes oral examination and Japanese conversational proficiency test)
Materials Science	Applied Chemistry Course	Interview (includes oral examination and Japanese conversational proficiency test)
	Materials Science and Engineering Course	Interview (includes oral examination and Japanese conversational proficiency test)
Mathematical Science and Electrical-Electronic-Computer Engineering	Mathematical Science Course	Interview (includes oral examination testing fundamental and specialist knowledge of mathematical science)
	Electrical and Electronic Engineering Course	Interview (includes oral examination and Japanese conversational proficiency test)
	Human-Centered Computing Course	Interview (includes oral examination testing English ability, fundamental and specialist knowledge of computing)
Systems Design Engineering	Mechanical Engineering Course	Interview (includes oral examination and Japanese conversational proficiency test)

Systems Design Engineering	Civil and Environmental Engineering Course	Interview (oral examination testing specialized foundation knowledge)
Cooperative Major in Sustainable Engineering	Electromobility Course	Interview (includes oral examination)
	Social Environment Systems Course	Interview (includes oral examination)

7. Prior Consultation for Applicants with Disabilities

Applicants with physical or mental disabilities such as health issues, injury, or developmental disabilities who may require special consideration during either the application process or the course of study itself should contact the Admissions Office no later than July 15, 2025 before application, submitting the designated form with all required fields completed together with a medical certificate prepared by a doctor. If special consideration is required during the examination process, for example if the applicant makes use on an everyday basis of a hearing aid, crutches, wheelchair, or similar device, or if such needs arise following application due to accident or other contingency, please contact the Admissions Office immediately.

Depending on the severity of the disability, special arrangements may be required in advance. If you are unsure whether to apply to Akita University given your condition, please contact the Admissions Office. Please inform the Admissions Office if special arrangements are no longer required due to selection of an alternate institution or other reason.

Please note that details of prior consultation will in no way influence judgment when determining acceptance to the graduate school.

Contact: Admissions Office, Akita University
Tel: +81-18-889-2313
E-mail: nyushi@jimu.akita-u.ac.jp

8. Acceptance Notification

The examination numbers of successful applicants will be posted on the Akita University website at **3:00 p.m. on September 8, 2025,** and successful applicants will be sent a letter of acceptance and documents with regard to the procedure of enrollment. Additionally, a Letter of Acceptance will be sent to successful applicants.

Please note that we are unable to respond to telephone inquiries.

9. Admission Procedures

Students admitted in October 2025 (fall admission)

Since we will mail enrollment documents to successful applicants, please pay the entrance fee during the entrance procedure below and submit the application procedure documents.

(1) Admission Procedure Period

September 10, 2025 to September 18, 2025 (must arrive)

(2) School Fees

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

ii) Tuition: 267,900 yen for the second semester (535,800 yen for the full academic year) (subject to change)

Notes: i) Admission fee paid will be not refunded for any reason.

ii) The above school fees are projected amounts and are subject to change before or during the course of study. Revised admission fee will apply to all new students if the revision takes place before the end of the Admission Procedure Period. If the tuition is revised at the time of admission or during the course of study, the new tuition takes effect at the time of revision.

iii) If a candidate cancels his/her admission before September 30, 2025 at 5:00 p.m. after completion of the Admission Procedures due to unavoidable circumstances, the tuition paid will be refunded upon request only after designated procedures are completed.

(3) Other information

1) Those with an excellent academic standing yet who have difficulty paying the admission fee due to financial circumstances and those who demonstrate other financial needs may be eligible upon screening to apply for financial aid. Those accepted will be either exempt from paying all or half of the admission fee, or may be allowed to pay the fee at a later date.

2) Those with an excellent academic standing yet who have difficulty paying the tuition due to financial circumstances and those who demonstrate other financial needs may be eligible upon screening to apply for financial aid. Those accepted will be either exempt from paying all, half or a third of the tuition, or may be allowed to pay the fee at a later date.

3) If the applicant is employed as a teaching assistant (TA), a stipend will be paid.

Students admitted in April 2026 (spring admission)

Since we will mail enrollment documents to successful applicants, please pay the entrance fee during the entrance procedure below and submit the application procedure documents. Regarding payment of tuition fees,we will notify you again in mid-February 2026.

(1) Admission Procedure Period

September 10, 2025 to September 26, 2025 (must arrive)

(2) School Fees

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

ii) Tuition: 267,900 yen for the first semester (535,800 yen for the full academic year) (subject to change)

Notes: i) Admission fee paid will be not refunded for any reason.

ii) The above school fees are projected amounts and are subject to change before or during the course of study. Revised admission fee will apply to all new students if the revision takes place before the end of the Admission Procedure Period. If the tuition is revised at the time of admission or during the course of study, the new tuition takes effect at the time of revision.

iii) If a candidate cancels his/her admission before March 31, 2026 at 5:00 p.m. after completion of the Admission Procedures due to unavoidable circumstances, the tuition paid will be refunded upon request only after designated procedures are completed.

(3) Other information

1) Those with an excellent academic standing yet who have difficulty paying the admission fee due to financial circumstances and those who demonstrate other financial needs may be eligible upon screening to apply for financial aid. Those accepted will be either exempt from paying all or half of the admission fee, or may be allowed to pay the fee at a later date.

2) Those with an excellent academic standing yet who have difficulty paying the tuition due to financial circumstances and those who demonstrate other financial needs may be eligible upon screening to apply for financial aid. Those accepted will be either exempt from paying all, half or a third of the tuition, or may be allowed to pay the fee at a later date.

3) If the applicant is employed as a teaching assistant (TA), a stipend will be paid.

10. Other Matters

(1) Please be sure to bring your examination admission slip with you on the day of examination.

(2) Please direct any inquiries related to the admission process to:

Admissions Office, Akita University
1-1, Tegata Gakuen-machi
Akita-shi 010-8502 Japan
Tel: +81-18-889-2313

(3) Japanese will be the main language used in the courses.

(4) Akita University has established the university's Rules on Security Export Control in accordance with the Foreign Exchange and Foreign Trade Act, and conducts strict examinations for acceptance of international students, etc. Therefore, please be advised that international applicants may be unable to receive their desired education or conduct their desired research due to the restriction by the above regulations.

Graduate School Outline

1. Organization

The Graduate School of Engineering Science consists of a two-year Master's Degree Program and a three-year Doctor's Degree Program.

The Master's Degree Program consists of 5 departments (8 courses), the Doctor's Degree Program consists of 1 department (4 fields). The 4 departments in the Master's Degree Program are related to the 4 departments in the undergraduate program.

[Master's Degree Program]

Department (Major)	Course
Life Science	Life Science
Materials Science	Applied Chemistry
	Materials Science and Engineering
Mathematical Science and Electrical-Electronic-Computer Engineering	Mathematical Science
	Electrical and Electronic Engineering
	Human-Centered Computing
Systems Design Engineering	Mechanical Engineering
	Civil and Environmental Engineering
Cooperative Major in Sustainable Engineering	

[Doctor's Degree Program]

Department	Field
Integrated Engineering Science	Life Science
	Materials Science
	Mathematical Science and Electrical-Electronic-Computer Engineering
	Systems Design Engineering

2. Admission Policy for Majors

《Department of Life Science》

The department seeks applicants with a keen interest in life sciences and a determination to help solve the medical, food, and environmental issues required to achieve a sustainable society, and those with the desire to acquire a broad specialist knowledge and outstanding research capabilities in the life science field and thereby conduct research and development that will contribute to the solving of critical issues in the life science field.

A strong sense of ethics and responsibility and the desire to find and implement solutions to regional or international problems, either individually or as part of a group, are also required.

1) Life Science Course

Applicants considered include persons with a keen interest in scientific fields related to life sciences and the various fields of biological science, and a desire to utilize their high level of knowledge of life sciences, intellectual capacity, and research capability in occupational fields in future. Applicants should be both locally- and internationally-minded, observe ethical principles as an engineer and researcher, and possess a desire to improve their practical and communication skills.

《Department of Materials Science》

In line with its mission of fostering scientists with a sound understanding of material design from the molecular/atomic level as well as production techniques, and the capability to conduct research and development in order to generate new functional materials and new chemical processes, the department seeks applicants with the following attributes:

1) Applied Chemistry Course

Applicants considered include persons with a desire to pursue academic study and research into fields such as the development, recycling, and regeneration of new functional materials, effective use of chemical energy sources, and utilization of biological functions, and who aim to become researchers or engineers with the ability to conduct environmentally friendly manufacturing and to develop new technologies, as well as those seeking to hone their practical problem-solving ability in order to advance regional and international society. Applicants should also have a fundamental understanding of physics and chemistry.

2) Materials Science and Engineering Course

Applicants considered include persons with a desire to pursue academic study and research of the functional materials that support the earth's environment and the foundations of society, such as metals, semiconductors, and ceramics, and those who hold the aim of becoming researchers or engineers capable of pursuing advanced technical development in these materials.

《Department of Mathematical Science and Electrical-Electronic-Computer Engineering》

The department seeks applicants with a desire to contribute to the advancement of basic industries, find solutions to energy problems, and achieve harmony between humans and computers by identifying new problems in a range of societal fields and proactively using their acquired specialist knowledge and skills to solve them, as well as persons who aspire to attain specialized knowledge, skills, and insight in mathematics, theoretical physics, and computer science.

In addition, prospective students should possess a desire to acquire the skills for dealing with unanticipated problems by fulfilling their responsibilities and exercising leadership based on recognition of the importance of teamwork.

1) Mathematical Science Course

Applicants considered for this course include persons who possess an understanding of the fundamentals of mathematical science and have a desire to proactively acquire knowledge and skills in advanced specialist fields, those who have an interest in mathematical science and would like to study a certain topic related to the field, and those who aim to use specialist knowledge and skills related to mathematical science to contribute to society.

2) Electrical and Electronic Engineering Course

Applicants should have a desire to attain specialist knowledge in advanced technologies, including electrical energy, photonic and electronic devices, electronics, information communications, and systems control, and aspire to contribute to society as a future researcher or engineer by solving global problems or generating new findings and technologies.

3) Human-Centered Computing Course

Applicants considered include persons with a desire to generate new technologies and value to support an aging society through the realization of harmony between humans and computers, those with a desire to utilize ICT to solve regional societal issues such as healthcare, welfare, the environment, and disaster prevention and mitigation. A desire to develop the cross-cultural understanding and language ability

necessary to play a leading role in global society and solve social issues with high ethical standards are also attributes that will be considered.

《Department of Systems Design Engineering》

The Department of Systems Design Engineering seeks applicants aiming to become researchers and engineers equipped with specialized knowledge in the fields of mechanical engineering, and civil and environmental engineering, as well as knowledge across the fields of system design, and who are able to actively contribute to manufacturing based on their understanding of the needs of regional and international society. Graduates will be expected to acquire knowledge and approaches to fields such as manufacturing in order to achieve a sustainable society, creative manufacturing, construction and maintenance of urban and regional infrastructure with a focus on environmental protection and disaster mitigation, as well as the ability to communicate this information to the world.

1) Mechanical Engineering Course

Basic mechanical engineering consists of four kinds of dynamics-material, thermal,fluid, and mechanical-plus control engineering. Those who have sufficient knowledge of basic mechanical engineering, capability of project management, communication skills as an engineer, and eagerness and capability to contribute on establishment of sustainable society are welcomed.

2) Civil and Environmental Engineering Course

Applicants considered include persons with a desire to acquire specialized knowledge in such areas as structural engineering, hydraulic engineering, geotechnics, urban and traffic engineering, and concrete engineering, and to identify and solve problems in cooperation with others, as well as those possessing a willingness to tackle the challenge of forming the infrastructure for a sustainable society with a strong sense of purpose by applying appropriate technologies based on a sound understanding of regional characteristics and conditions, both within Japan and overseas.

《Cooperative Major in Sustainable Engineering》

Applicants considered include persons with basic knowledge in engineering fields and aim to realize a sustainable society by integrating expertise in multiple engineering fields; who are willing to contribute to the revitalization of local industries by conducting research on the electrification of power systems in mobility, the use of renewable energy, and environmentally friendly design; and who are aware of problems on a global scale and are willing to solve problems from an international perspective.

3. Master's Degree Program Department Outline (as of April 2025)

《Department of Life Science》

The results of research in the life sciences have led to breakthroughs that brought about many new advances in science and technology, as these fields can be seen as carving out the future of human society. This department therefore seeks to develop scientists able to unravel the elaborate workings of life phenomena; human resources who will play core and leading roles in their future professions taking advantage of their high level of knowledge, insight, and research skills in life science; and human resources who, with their grounding in science, will lead research and development in crossdisciplinary and academic fields related to medicine, pharmacology, engineering, agriculture, and other areas, and be active in many different fields related to life science including medicine, pharmaceuticals, food production, and development of bioenergy resources.

1) Life Science Course

This course consists of the Biomolecular Chemistry field, covering areas including structural biology, protein chemistry, analytical chemistry, supramolecular chemistry, organic chemistry, electrochemistry, and computational chemistry, and the Molecular Cell Biology field covering areas such as biochemistry, molecular biology, cell biology, and disease biology. In addition to helping students systematically acquire fundamental knowledge in both fields, the course fosters engineers and scientists capable of independently pursuing research and development based on a high level of specialized expertise.

Course	**Life Science**		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Chemistry and Chemical Biology	Structural and functional analyses of industrially and/or medically important proteins	Prof. Masafumi Odaka	Advanced Bioinorganic Chemistry
	Total synthesis of biologically active natural products	Prof. Kenshu Fujiwara [28]	Synthetic Medicinal Chemistry I, II
	Supramolecular chemistry based on macrocyclic compounds	Associate Prof. Yoshihiko Kondo	Advanced Structural Organic Chemistry I, II
	Exploiting sensing techniques for biomolecules and biological calls	Associate Prof. Hirotoshi Matsumura	Advanced Spectrochemistry I, II
Molecular Cell Biology	Study for neurodegenerative disease and protein aggregation	Prof. Hiroshi Kubota [28]	Frontier in Cell Biology
	Studies on immune responses and molecular physiology in the immune cells	Prof. Masaki Hikida	Molecular Cell Physiology
	Molecular mechanisms of planar cell polarity	Prof. Masakazu Yamazaki	Tissue and Cell Biology I, II
	The opposing hedonic systems driving innate and learned behaviors in fruit flies	Associate Prof. Nobuhiro Yamagata	Advanced Physiology I,II
	Biological functions of p53 and its isoforms in cellular senescence and aging-associated diseases	Lecturer Kaori Fujita	Molecular Cell Physiology II, III

Note: [28] indicate faculty members scheduled to retire in March 2028.

《**Department of Materials Science**》

Today, as energy problems, environmental degradation, resource depletion, and other global issues become increasingly severe, demands are heightening for technology development toward the promotion of green innovation and highly efficient infrastructure systems. The role to be played by materials science, based on applied chemistry and on materials science and engineering, is becoming more important than ever before. Responding to these needs of society, it is essential that we bring together scientific knowledge across the basic fields of physics, chemistry, and mathematics, pursuing the limits of the potential in materials while aiming to create new materials and functions. This department develops engineers, scientists, and educators equipped with a strong sense of ethics, who are able to deal with various issues relating to materials science facing modern society. The department consists of the Applied Chemistry Course and the Materials Science and Engineering Course, playing a closely interrelated role in the education and research of the Graduate School.

1) Applied Chemistry Course

With chemistry-related knowledge as a foundation, the necessary curriculum is provided for linking material design and synthesis from the atomic and molecular level to creation of original materials. Human resources are fostered who can exercise agility in creating environmentally harmonious materials, such as through the development of new functional materials, effective use of chemical energy in recycling and regeneration, and advanced use of biological functions, and in conducting research and development on leading-edge technologies.

2) Materials Science and Engineering Course

Based on materials science and materials engineering, the necessary curriculum is provided for gaining practical experience in creating new materials and new functions, with the main focus on metals, semiconductors, and ceramics. In this way, human resources are fostered who are able to clarify the expression mechanisms of material properties based on simulations and on organizational and structural analysis from the nanoscale to the macro scale, and to contribute to developing technologies for producing and manufacturing nextgeneration functional materials in harmony with human society.

Course	**Applied Chemistry**		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Chemistry of Organic Materials	Synthesis and Properties of Organic Functional Materials	Prof. Mitsutoshi Jikei	Advanced Molecular Science and Technology
		Associate Prof. Kazuya Matsumoto	Functional Polymer Chemistry I, II
		Associate Prof. Manabu Yamada	Molecular Recognition Chemistry
Applied Physical Chemistry	Design and Application of Environmental Advanced Materials from the Viewpoint of Physical Chemistry	Prof. Kenji Murakami	Advanced Surface Chemistry I, II
		Lecturer Yukihiko Inoue [28]	Chemistry of Polymer Functionalities
		Lecturer Ayano Nakamura	Advanced Applied Physical Chemistry I, II
Inorganic Materials Chemistry	Synthesis and Characterization of Inorganic Advanced Materials such as Porous Material, Catalytic Materials and Ceramics	Prof. Sumio Kato	Advanced Inorganic Materials Chemistry
		Associate Prof. Masataka Ogasawara	Advanced Characterization of Inorganic Materials
		Lecturer Kanji Saito	Advanced Inorganic Nanospace Materials Science I, II
Organometallic Chemistry	Development of Transition Metal Complex Catalysts Utilized for Organic Syntheses and Bio-inspired Methods of Molecular Transformation	Associate Prof. Hidetake Seino (Faculty of Education and Human Studies)	Advanced Organometallic Chemistry
Energy Chemical Engineering	Process Design of Heterogeneous Reaction for Efficient Utilization of Energy and Resources	Prof. Hirokazu Okawa	Advanced Electrochemistry
		Associate Prof. Takahiro Kato	Energy Chemical Engineering I, II
Bioprocess Engineering	Bioprocess design and development by integrating biological and biochemical technologies, and creation and application of new functional biomaterials	Prof. Takeshi Gotoh [26] Associate Prof. Ikki Horiguchi	Nanobiotechnology
Environmental material sciences	Education and research about development and utilization of the environmental harmony type composite material using the materials that put low stress on environment superior in a physicochemical characteristic	Lecturer Hideki Murakami (Mathematical Science Course)	Advanced Industrial Raw Materials Science

Note: [26] and [28] indicate faculty members scheduled to retire in March 2026 and March 2028, respectively.

Course	**Materials Science and Engineering**		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Physical Properties of Materials	Research and education on the structural analysis of materials and the development of structural and functional materials by microstructure control	Prof. Kaichi Saito [29]	Diffraction Physics I, II
Fabrication Engineering of Inorganic Materials	Fabrication processes, microstructural control and evaluation of inorganic materials via powder processes	Prof. Shigeo Hayashi [28]	Design of Inorganic Materials I, II
Microstructure Design of Materials	Education and research on numerical simulation for structure formation	Prof. Yukinobu Natsume	Microstructure Design of Materials I, II
Physical Properties of Solids	Research and education on the atomic structure and physical properties of metals and alloys	Associate Prof. Yeong-Gi So	Physical properties of Solid I, II
Magnetic Materials	Development of nano magnetic materials and thin films	Associate Prof. Takashi Hasegawa	Applied Magnetics I, II
Material Science with Quantum Beams	Research and education on the development of phosphor materials for radiation measurements	Associate Prof. Naoki Kawano	Material Science with Quantum Beams I, II
Molecular Electronics	Education for understanding into the basic concepts involved in the field of molecular electronics, and research on phenomenon concerning about electron and photon in molecular structure and their assembly, by understanding of the electrical conduction in single-mole cule circuits, and by introducing to the experimental techniques and theoretical concepts	Lecturer Yutaka Tsujiuchi [29]	Molecular Electronics I, II
Mechanics of Materials	Evaluation of structure and mechanical properties and material design for plastic base, metal base and ceramic base composites	Prof. Ken-ichi Ohguchi	Mechanics of Composite Materials I, II
Thin Film Materials	Fabrication and evaluation of thin film materials for electronic device application	Prof. Satoru Yoshimura	Physical Properties of Thin Film Materials
Ceramic Materials	Physical, mechanical and electrical properties of ceramics and their application to energy generation and use	Associate Prof. Akihiro Nino	Physical and Mechanical Properties of Ceramics Materials I, II
Surface Modification	Modifying process for the functional surface of materials	Associate Prof. Michihisa Fukumoto	Surface Modification I, II
Foundry Engineering	Education and research on fusion and solidification processing for highly functional materials	Associate Prof. Ikuzo Goto	Fusion and Solidification Processing I, II
Electrochemistry of Materials	Education and research on the electrode materials in electrochemical system	Associate Prof. Hiroki Takahashi	Materials for Electrochemistry I, II
Mechanical Materials	Development of metal matrix composites and evaluation of the material properties	Lecturer Kohei Fukuchi	Design of Composite Materials I, II

Note: [28] and [29] indicates faculty members scheduled to retire in March 2028 and March 2029, respectively.

《**Department of Mathematical Science and Electrical-Electronic-Computer Engineering**》

The human resources to be developed in this department include those who will contribute to the advance of basic industries, solutions to energy problems, and harmony between humans and computers, driving revolutions in technology development, as well as educators and others equipped with highly specialized knowledge, skills, and insight in mathematics, theoretical physics, and computer science, and with advanced knowledge in the field of mathematical science.

Also to be fostered are human resources able to develop technologies for solving regional issues faced by Akita Prefecture with its advanced state of aging, and to communicate these to the world. In addition, they will acquire the skills for exercising leadership based on recognition of the importance of teamwork, and for dealing with unanticipated problems. That is, human resources will be fostered who, with their overview of the enormous specialized knowledge in the fields of mathematical science, electrical and electronic engineering, and computer engineering, are able to create new technologies and value for a highly aging society.

1) Mathematical Science Course

Education and research are carried out concerning advanced mathematical concepts and structures, and for clarifying and investigating the mathematical structures of physical and other phenomena. In this course whose main features include a focus on a systematic curriculum and qualifying examinations, students study advanced mathematics and related areas in order to acquire the ability to solve problems by logical thinking and from a mathematical science perspective.

2) Electrical and Electronic Engineering Course

Along with studies for systematically understanding knowledge in a wide range of specialized fields including electrical energy and equipment, electronics, photonic and electronic devices, and information communications and systems control, students engage in research for creating new applications and technologies by focusing on a particular field or integrating these fields. Through this experience, human resources are developed with creative thinking and flexible application skills.

3) Human-Centered Computing Course

The Human-Centered Computing Course develops human resources who, majoring in computer engineering, are equipped with creative thinking and flexible application skills enabling (i) the use of information and communication technologies (ICT) for supporting healthy longevity and home healthcare of the elderly in regional society, (ii) advancement of technologies and development of application systems related to environmental monitoring, disaster prevention and mitigation, and human sensing, and (iii) use of information networks, ICT, and other tools for realizing a safe and secure society.

Course	Mathematical Science		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Discrete Mathematics	Algebra, Discrete Mathematics, Foundations of Computer Science and their Applications	Prof. Akihiro Yamamura [28]	Advanced Algebra I, II, V, VI Information Mathematics I, II
		Associate Prof. Szilard Fazekas	Advanced Discrete Mathematics I, II
		Associate Prof. Masaya Ouchi (Faculty of Education and Human Studies)	Advanced Algebra III, IV
		Associate Prof. Shigeo Sasaki (Faculty of Education and Human Studies)	Lecture for Computer Science I, II
Continuous Mathematics	Analysis, Geometry, Topology and their Applications	Associate Prof. Mahito Kobayashi [29]	Advanced Geometry I, II Advanced Topology III, IV
		Associate Prof. Dingqun Deng	Advanced Analysis I, II , IV, VI
		Lecturer Yasuharu Nakae	Advanced Topology I, II
		Prof. Chikara Uno (Faculty of Education and Human Studies)	Statistical Mathematics I, II
		Associate Prof. Junichi Harada (Faculty of Education and Human Studies)	Advanced Analysis III, V
Theoretical Physics	Fundamental theories for phase transition and transport phenomena in quantum many-body systems such as electron systems in solids and their applications to novel phenomena	Prof. Masaru Onoda	Quantum Many-Body Theory I, II
		Lecturer Yoshito Kuno	Quantum Theory of Many Particle Systems I, II
		Prof. Masahiko Hayashi (Faculty of Education and Human Studies)	Condensed Matter Physics I, II, III, IV
Teaching Profession	Training of mathematics teachers in high schools	Lecturer Shinichi Kato (Faculty of Education and Human Studies)	Advanced Study of Mathematics Education

Note: [28], and [29] indicate faculty members scheduled to retire March 2028, and March 2029, respectively.

Course	**Electrical and Electronic Engineering**		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Electric Energy and Electrification Engineering	Education and researches on generation, conversion and storage of electric energy, and engineering design oriented to human and environment, contributing to a sustainable society	Prof. Seiji Kumagai	Advanced Materials for Electrical Engineering I, II
		Associate Prof. Mahmudul Kabir	Bio Electromagnetic Engineering I, II
		Lecturer Shotaro Takahashi	Advanced Power Electronics I, II
Electronic Device and Measurement Engineering	Education and researches on developments of electronic devices including magnetic, optical, photoelectric conversion, high-frequency electromagnetic and piezoelectric devices, and advancements of sensing, signal processing, information analysis and diagnosis technologies, intended for high speed and large capacity telecommunication and aging society	Prof. Rumiko Yamaguchi [27]	Electronic Display Engineering I, II
		Prof. Marenori Kawamura	Optical Device Engineering I, II
		Prof. Nobuaki Kikuchi	Electron Devices
		Prof. Motoshi Tanaka	Advanced Communication Engineering I, II
		Associate Prof. Yuichi Sato [28]	Advanced Semiconductor Device I, II
		Associate Prof. Makoto Fukuda	Applied Piezoelectric Device Engineering I, II
		Lecturer Shinichi Yodokawa	Advanced Ultra-High-Freguercy Electronics I, II
		Lecturer Ai Hosoki	Signal Processing for Instrumentation I, II

Note: [27] and [28] indicate faculty members scheduled to retire in March 2027 and March 2028,respectively.

Course	**Human-Centered Computing**		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Biomedical and Welfare Engineering	Study on Applied Evaluation and Welfare Support Systems for Elder People,Disabilities by Virtual Reality Technology and Design of Computer and Software Systems.	Prof. Kazutaka Mitobe	Virtual Reality I, II
		Prof. Katsuya Fujiwara	Software System I, II
		Assoiciate Prof. Sawako Nakajima	Well-being Information Engineering with Spoken and Natural Language Processing I, II
Image Information System Engineering	Human sensing focusing on analysis of lip movement and facial expression, remote sensing (Satellites and UAV), image processing, image information applications, visual recognition, affective engineering, behavior analysis, and computer security.	Prof. Yoichi Kageyama	Image Information I, II
		Prof. Chikako Ishizawa	Security System I, II
		Associate Prof. Hikaru Shirai	Remote Sensing Engineering I, II
Spatial Informatics	Modelling, data management, analysis, sharing, simulation and human-centered design for the real world and spatial information communication	Prof. Masatoshi Arikawa [28]	Spatial Informatics I, II
Computer System Engineering	Study on dependable computer systems and design of testable logic circuits	Assoiciate Prof. Hiroshi Yokoyama (Center for Information Technology and Management)	Advanced Digital Logic Design I, II

Note: [28] indicate faculty members scheduled to retire in March 2028.

《**Department of Systems Design Engineering**》

In parallel with rapid advances in science and technology, society is facing problems such as global warming from CO_2 emissions and the need to develop renewable energy sources. Here the role of mechanical engineering is of growing importance, in such areas as improving the technologies needed to enhance the functionality of equipment. Meanwhile, in Japan there have been major advances in the aerospace field, and in technologies for recycling of waste materials, while the need for creative engineering capable of creating and nurturing new industries has grown. The aging of society has also created an urgent need for technology advances, not only in the health and welfare area but in creating civil engineering technologies in harmony with the environment and improving the functions of urban and regional systems to build and maintain better communities.

The Department of Systems Design Engineering, through education and research on the design and development of these complex and large-scale systems, aims to nurture researchers, developers, and engineers equipped with fundamental knowledge in the specialized fields of mechanical engineering, creative mechanical engineering, and civil and environmental engineering, as well as having knowledge across the fields of system design, and who, with their accurate awareness of regional needs, are able to contribute to local society and to the world. To meet these aims, education and research are carried out in tandem in the following two areas.

1) Mechanical Engineering Course

Our Mechanical Engineering Course provides education and research in the following areas: Aerospace System, Medical System Engineering, and Environmentally Friendly System that will be necessary in the future. Our goal is to foster R&D/Engineers who have both fundamental knowledge in each specialised field and skills to integrate cross-disciplinary ideas to contribute in solving local and international problems.

2) Civil and Environmental Engineering Course

Research and education are aimed at acquiring advanced specialized knowledge in such areas as structural engineering, hydraulic engineering, geotechnics, urban and traffic engineering, and concrete engineering, and on this foundation to build up individual knowledge and skills for applying these to problem solving, while also fostering communication skills for cooperative problem solving, in order to contribute to formation of safe, reliable, and convenient infrastructure for society.

Course	Mechanical Engineering		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Aerospace System Field	Creation and evaluation of micro/nano materials, solid mechanics, analysis on the surface structure, and its application to electric-driven, highly efficient and low environmental impact technologies of transportation machineries	Prof. Mikio Muraoka [26]	Overview of Nanotechnology for Mechanical Systems Introduction to Fundamental Physics for Aircraft Systems Engineering
		Prof. Makoto Yamaguchi	Characterization of Subsurface Structure
		Associate Prof. Xu Zhao	Advanced Thin-film Material Engineering
Medical System Engineering Field	Controller design for mechatronics devices with sensors and actuators, human motion measurement and analysis of its mechanism, applications of magnetic fluids in medicine, the influence of surface environment in microfabrication and biomaterials, and its applications to medical and welfare engineering	Prof. Akihiro Naganawa	Advanced Control Engineering I, II
		Prof. Takehiro Iwami	Clinical Biomechanics Health Care Movement Sensing Science
		Associate Prof. Yoshiyuki Yamamoto	Advanced Applied Electromagnetism Physical Properties of Living Organisms
		Associate Prof. Mamoru Takahashi	Micro Processing Biomaterial Processing
		Associate Prof. Yoshihiro Sasaki	Actuator Engineering I, II
		Lecturer Takeshi Seki	Design of Digital Control Systems Optical and AI Therapeutic Engineering
Environmentally Friendly System Field	Ice melting and water freezing, theory and application of renewable energy conversion, basic study for rarefied gas dynamics and its application, measurements for the mechanical design, and its application to sustainable mechanical engineering	Prof. Eiki Okuyama [26]	Ultraprecision Mechanism Design I, II
		Associate Prof. Yoshimi Komatsu	Computational Thermodynamics and Fluid Dynamics
		Associate Prof. Yasuyuki Miyano	Advanced Technology for System Design I, II
		Lecturer Wataru Sugiyama	Kinetic Theory for Molecular Gas

Note: [26] indicates faculty members scheduled to retire in March 2026.

Course	**Civil and Environmental Engineering**		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Structural Mechanics	Linear and nonlinear mechanics and theory of structural design of steel and timber structures	Prof. Humihiko Gotou	Advanced Structural Mechanics
Hydraulics and Hydraulics Engineering	Measurements and numerical modeling of natural disaster in rivers and coastal area	Associate Prof. Kazuya Watanabe	Coastal and river Engineering
Soil Mechanics and Geotechnical Engineering	Physicochemical and mechanical properties of soft soil	Associate Prof. Toshihiro Ogino	Advanced Soil Mechanics
	Methods, and analytical techniques used in traffic engineering and planning	Prof. Hidekatsu Hamaoka	Advanced Traffic Engineering
	Philosophy, methods, and analytical techniques used in urban and traffic planning with emphasis on the logic and assumption on which these are based	Associate Prof. Satoru Hino	Advanced Urban Planning
Concrete Engineering	Design of construction materials, maintenance of concrete structures and structural analysis for concrete structures	Prof. Hidenobu Tokushige	Construction Material Design

《**Cooperative Major in Sustainable Engineering**》

Industrial development has brought about economic growth and technological innovation, and production activities have increased the emission of greenhouse gases such as carbon dioxide, causing global climate change such as global warming and torrential rains, and industrial waste from factories has destroyed the natural environment. The unplanned consumption of energy resources threatens the future survival of society. Greenhouse gases and industrial wastes are undesirable effects of human activities and are considered as environmental burdens that cause problems in environmental conservation, and it is the responsibility of mankind to manage them in a rational manner. In 2015, the United Nations Summit adopted the "2030 Agenda for Sustainable Development" and the Sustainable Development Goals (SDGs). Japan has also set a policy goal of achieving carbon neutrality by 2050, and in the future, industrial technologies that reduce the environmental burden and form a sustainable society while maintaining economic growth will be emphasized. Industry can reduce its environmental impact through environmentally conscious design (life cycle design) that considers the environmental impact of products throughout their life cycle, from resource extraction to refining, transportation, manufacturing, use, and disposal (recycling and reuse), and by rationalizing energy use. In the future, it will be necessary to break away from the industrial technology that was suitable for the industrial revolution and the subsequent era of mass production and mass consumption, and to develop environmentally friendly design throughout the industrial world to enable a sustainable society. In particular, we will promote the electrification of power systems to break away from dependence on fossil fuels for mobile vehicles. The potential for renewable energy in the Akita region is high, and the development of the region will also require the advancement of technology to realize the rationalization of energy use. The study that aims to develop new industrial technology based on environmentally friendly design that promotes production activities while taking the environment into consideration, as well as breaking away from dependence on fossil fuels and the rational use of renewable energy, will be called Sustainable Engineering. The Cooperative Major in Sustainable Engineering has been established as a joint graduate school of Akita University and Akita Prefectural University based on such social needs, and aims to contribute to the sustainable development of the region through education and research in sustainable engineering, and to contribute to the reduction of environmental load and the promotion of industry in Japan and the region by acquiring advanced expertise in sustainable engineering.

The Cooperative Major in Sustainable Engineering aims to bring harmony between the environment and social systems by reducing the environmental load through education and research in the fields of electrification of power systems, environmentally friendly design, and renewable energy utilization in sustainable engineering, and to achieve sustainable development in Japan and the region. However, since the

amount of knowledge to be acquired is enormous, specialization will be given to the main education and research fields of electrification of power systems in mobility and environmentally friendly design and use of renewable energy, with the former set as the Electromobility Course and the latter as the Social Environment Systems Course.

Main Features of the Cooperative Major in Sustainable Engineering, and Matters to Note in Taking Entrance Exam

1. The degree granted carries the names of both Akita University and Akita Prefectural University.
2. Students are resident in both Akita University and Akita Prefectural University, but the official university of residence is that of the main supervisor providing primary research guidance.
3. Because students are enrolled in both Akita University and Akita Prefectural University, they can use the facilities and resources of both universities. (Some facilities and resources may not be available due to circumstances of each university.)
4. When the official university of residence is Akita University, research guidance may be received also from sub-supervisors of Akita Prefectural University.
5. Classes taken are those of the joint graduate school consisting of Akita University and Akita Prefectural University.
6. If the faculty member desired as the main supervisor belongs to Akita University, the student makes application to Akita University and takes the entrance examination given by Akita University. In this case, the official university of residence after admission to the major is Akita University, and payment of tuition and charges as well as application for scholarships, etc., is made as a student of Akita University.

Note that for this major it is not possible to apply to both Akita University and Akita Prefectural University.

Course	**Electromobility**		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Heat and Fluid Flow, Atomization, Two-phase flow, Heat Exchanger	Environmental control system for electric aircraft, fluid dynamics and heat transfer	Prof. Takahiro Adachi	Advanced Course for Energy of Heat and Fluid Flow
Electromagnetic Energy Conversion Engineering	Development of new machines and improvement of conventional machines for electromagnetic energy conversion	Prof. Katsubumi Tajima	Electromagnetic Energy Conversion Engineering
Stability and transition in shear flows, Heat and mass transfer, Biofluid mechanics	Hybrid laminar flow control for airfoils, seawater greenhouses for SDGs, Inertial migration in particle-laden flows	Associate Prof. Takeshi Akinaga	Integrated modeling and simulation for design optimisation
Control Engineering, System Engineering	Mathematical model construction and development of analysis methods for various systems	Associate Prof. Takeshi Miura	Advanced Control System Engineering I, II
Electromechanical Energy Conversion	Analysis and design of magnetic devices in electric drive systems	Associate Prof. Yukihiro Yoshida	Modelling and Analysis of Electrical Machinery I, II
Measurement Engineering	Development of surface analysis techniques for revealing quantitative surface nano-scale physical properties on advanced electronic/ magnetic materials	Lecturer Yukinori Kinoshita	Advanced mechanical measurement
Aerospace Engineering	Electric aircraft control, aerospace dynamics, spacecraft, space exploration, space debris	Lecturer Hiroshi Hirayama	Aircraft system control
Fluid Engineering, Multiphase Flow, Turbulence Control	Optimization of flow and heat dissipation in electrified aircraft systems, flow control of pseudo-atmospheric turbulence in wind tunnel	Lecture Kotaro Takamure	Advanced Course on Control and Optimization of Fluid Dynamics and Fluid Machinery

Course	**Social Environment Systems**		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Life Cycle Design Engineering (Design Engineering, Quality Engineering, Value Engineering)	Design methodology studies and eco-efficiency analysis of products or product service systems considering the life cycles	Prof. Nozomu Mishima [28]	Life cycle design engineering basics
Computation of Materials	Research and education of materials computation based on molecular orbital method and molecular dynamics method	Associate Prof. Yoshiyuki Sato [29]	Materials Computation for Molecules I, II
High-temperature physical properties of matter	Studies of fundamental properties of inorganic high-temperature materials, and their applications to high-level radioactive waste treatment and environmentally friendly glass production	Associate Prof. Toru Sugawara	High-temperature physical properties of matter
Chemical Engineering (Unit operation, Separation engineering)	Development of novel chemical processes for resources and their systematization using IoT technology	Associate Prof. Hiroshi Takahashi [28]	Chemical Process Design
Earth Science (Petrology, Geochemistry, Isotope chemistr)	Research of mass transfer and chemical reaction in the earth environmental system, development of analytical techniques	Associate Prof. Mayuko Fukuyama	Earth and Environmental analytical science
Energy systems analysis	Design and analysis of the regional energy systems consisting of resources, conversion technologies, and demand for a sustainable decarbonized society	Associate Prof. Takaaki Furubayashi	Special Theory on Regional Energy Systems

Note: [28] and [29] indicates faculty members scheduled to retire in March 2028 and March 2029, respectively.

4. Requirements for Completion of the Master's Course

A Master's degree is awarded if the student has satisfied the following requirements: have at least two years' residence in the Master's program; acquire a minimum of 30 course credits shown in the chart below; have an acceptable Master's thesis; pass the final comprehensive examination.

Students who demonstrate exceptional achievement may receive the degree with a residence period of as short as 1 year.

Credits Required for Completion of the Master's Program (Except for Cooperative Major in Sustainable Engineering)

Subjects	Credits Required	Remarks
Common Subjects	3 credits (Mandatory)	
Specialized Subjects	13 credits (Mandatory)	
Common Subjects and Specialized Subjects	14 credits or more (Elective)	(1) 10 or more credits from Specialized Subjects of the affiliated course and 2 or more credits from Specialized Subjects of the relevant courses shall be required. (2) Specialized Subjects of Graduate School of Advanced Healthcare Engineering are also available as Specialized Subjects of the relevant course.
Total	30 credits or more	

Credits Required for Completion of the Master's Program (Cooperative Major in Sustainable Engineering)

Subjects	Credits Required	Remarks
Common Subjects	2 credits or more (Mandatory)	(1) 1 or more credits shall be obtained from either Subjects of Foreign Language, etc. or Specialized Subject "Aero-Space Engineering I / II". (2) 1 or more credits shall be obtained from Subjects of Ethics, etc.
Specialized Subjects	15 credits (Mandatory)	
	8 credits or more (Elective)	(1) Students in the Electromobility course must take at least 4 credits from the Electeromobility course, Credits of Aero-Space Engineering I and II completed as foreign language subjects in the Common Subjects are not counted in this requirements. (2) Students in the Social Environment Systems course must take at least 4 credits from the Social Environment Systems course.
Common Subjects and Specialized Subjects	5 credits or more (Elective)	Up to 4 credits obtained through subjects of different Division at Graduate School of Akita University shall be included to the requirements for completion.
Total	30 credits or more	Students must take at least 10 credits from the courses offered at the graduate school of Akita Prefectural University, provided that "Seminar on Sustainable Engineering" and "Special Research of Sustainable Engineering" must be taken from students' own university.

Master's Course

2025 October (Fall) Admission, 2026 April (Spring) Admission

Graduate School of Engineering Science, Akita University

Application for Admission

Application Category	Special Entrance Examination for International Students	Application Number	※
Admission Category	1. 2025 October Admission 2. 2026 April Admission Circle the option that applies		
Name		Date of Birth	month day year
		Sex	Male・Female
Application Eligibility	University: Department: Graduated / Expect to Graduate from: year month		
Desired Department (Major)			
Desired Course			
Desired Supervisor			
Contact Address	Address: (Tel: – –) (E-Mail:) postal code country		

(continue to next page)

Note:

1. ※ Official use only
2. Please use BLOCK LETTERS and BLACK INK. Do not use erasable ink.
3. Please read the Admission Guidelines carefully and enter all the information requested.
4. In the Desired Supervisor column, write the faculty member in charge of the course you wish to apply for.
5. In the Contact Address column, write the address at which you wish to receive correspondence prior to admission. Any changes to this address must be reported immediately.
6. Detailed information is requested in the Curriculum Vitae (next page).

Curriculum Vitae

Education List all educational institutions starting with elementary school.	From:	To:	
	From:	To:	
	From:	To:	
	From:	To:	
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	From:	To:	
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Master's Course

2025 October (Fall) Admission, 2026 April (Spring) Admission

Graduate School of Engineering Science, Akita University

Examination Admission Slip

Application Category	Special Entrance Examination for International Students
Admission Category Circle the option that applies	1. 2025 October Admission 2. 2026 April Admission
Application Number	※
Name	
Desired Department (Major)	
Desired Course	

For inquiries, contact:
Admissions Office Akita University
1-1, Tegata Gakuen-machi Akita-shi 010-8502 Japan
Tel: +81-18-889-2313

Master's Course

2025 October (Fall) Admission, 2026 April (Spring) Admission

Graduate School of Engineering Science, Akita University

Photo ID Card

Application Category	Special Entrance Examination for International Students
Admission Category Circle the option that applies	1. 2025 October Admission 2. 2026 April Admission
Application Number	※
Name	
Desired Department (Major)	
Desired Course	

Please paste ID photo

(4.5cm×3.5cm)

Special Entrance Examination for International Students
For prior screening based on Application Eligibility (4) 3) and 5) for fall and spring admission

Date: month day year

Application for Prior Screening

To: Dean, Graduate School of Engineering Science, Akita University

Name of Applicant:

Date of Birth: month day year

I wish to be granted admission to the Master's Course administered
by the Graduate School of Engineering Science, Akita University
(Department [Major]: Course [Field]:).
I have enclosed the designated documents, and hereby apply for prior screening.

Postal Address for Receiving
Notification of Screening Results

□□□-□□□□

Address

Tel: (– –)

Name:

Prior Consultation Form for Applicants Requiring Special Consideration During Examination or Study

Date: month day year

Application Category	Special Entrance Examination for International Students	
Desired Department (Major)/ Course (Field)	Department (Major)	Course (Field)
Name (Age)		(years)
Contact Address	E-Mail: Tel: – –	
Type/Severity of Disability Note: Please enclose a certificate from a doctor or other document detailing the applicant's condition		
Consideration Requested During Examination		
Consideration Requested During Study Note: After the University has approved admission, the Student Support Center may contact the applicant regarding consultation details.		
Special Arrangements at School Last Attended, etc.		
Impact on Day-to-Day Life		
School Last Attended, etc.	Name of Institution	
	Address and Telephone No.	Tel: – –

Return Contact Label Slip

The Label Slip below will be used to address Notification of Acceptance and Documents for Admission Procedures, etc. to successful applicants. Please write your postal code, address, name, and other details clearly.

※ The Application Number field is for official use only

□□□-□□□□

Address:

Name:

Tel: – –

Desired Department (Major), etc.
Department (Major) :
Course :

Application Number※

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Address:

Name:

Tel: – –

Desired Department (Major), etc.
Department (Major) :
Course :

Application Number※