

**Master's Courses**  
**2015 April (Spring) Admission**  
**Affiliated School Recommendation**

# **Application Guidelines**

Application Period:  
October 23, 2014 — October 31, 2014

**Akita University**  
**Graduate School of Engineering and Resource Science**

<http://www.eng.akita-u.ac.jp/>

## Overseas Affiliated Universities

Akita University is actively working with international exchange activities.

Inter-University Agreements 51 Universities (27 Countries and Regions) As of March 21, 2014

Countries, Regions	Universities	Date of Conclusion
India	Indian Institute of Technology Madras	Mar 21, 2014
Indonesia	Faculty of Earth Sciences and Technology, Instisut Teknologi Bandung	Jul 12, 2012
Korea	Hanbat National University	Jun 8, 2001
	Wonkwang University	Oct 12, 2007
	Kangwon National University	Mar 24, 2008
	Pohang University of Science and Technology	Oct 22, 2009
Thailand	Faculty of Science, Chulalongkorn University	Nov 28, 2012
Taiwan	Lunghwa University of Science and Technology	Jul 15, 2005
	National Taipei University of Technology	Jul 18, 2005
China	Heilongjiang University	Oct 19, 1988
	China Medical University	Oct 6, 1989
	Central South University	Aug 24, 2004
	Liaoning Technical University	Apr 20, 2005
	Dalian Nationalities University	Jun 27, 2005
	Lanzhou University	Aug 1, 2005
	Xinjiang Medical University	Feb 20, 2006
	Jilin University	Feb 6, 2007
	Northeastern University	Aug 9, 2007
	Donghua University	Dec 3, 2009
	Tongji Medical College Huazhong University of Science and Technology	Mar 24, 2010
	Chang'an University	Nov 18, 2010
	Beihua University	Nov 20, 2012
	Philippines	University of the Philippines Diliman
University of the Philippines Manila		Feb 4, 2013
Bhutan	Royal University of Bhutan	Jul 6, 2012
Vietnam	Hanoi University of Technology	Dec 2, 2008
	University of Transport and Communications	Dec 3, 2008
Malaysia	University of Malaya	Nov 20, 2013
Mongolia	Mongolian University of Science and Technology	Oct 22, 2009
	Ikh Zasag University named after Chinggis Khaan	Jul 22, 2010
	Mongolian State University of Education	Jul 23, 2010
	Mongolia National University	Jun 19, 2013
Israel	University of Haifa	Sep 24, 2010
Botswana	Botswana International University of Science and Technology	Oct 23, 2009
	University of Botswana	Mar 31, 2011
Kenya	Kenyatta University	Mar 2, 2010
Mozambique	Universidade Eduarde Mondlane	Jan 12, 2014
Australia	Griffith University	Jun 29, 1996
	Curtin University	Aug 1, 2013
USA	St. Cloud State University	Jul 24, 1996
	Missouri University of Science and Technology	Mar 7, 2011
Canada	Memorial University of Newfoundland	Jun 17, 2013
Chile	Universidade de Santiago de Chile	Nov 21, 2013
Italy	University of Cagliari	Dec 9, 2009
Netherlands	University of Twente	Oct 23, 2007
Kazakhstan	East Kazakhstan State Technical University	Jun 8, 2011
Sweden	Lulea University of Technology	May 9, 2013
Germany	Technische Universitat Bergakademie Freiberg	Jul 4, 2012
Finland	Kemi-Tornio University of Applied Sciences	Oct 23, 2009
Belarus	Belarussian State Medical University	Jul 26, 2004
Romania	University of Bucharest	Sep 28, 2010

## Inter-Faculty Agreements 15 Faculties ( 8 Counties and Regions) As of Nov 27, 2012

Faculties	Countries, Rejjons	Faculties, Universities	Date of Conclusion
Graduate School of Medicine	China	Beijing Hospital, Ministry of Health	Nov 14, 1995
	France	The Faculty of Medicine of Lille 2 University	Apr 13, 2011
Graduate School of Engineering and Resource Science	Thailand	Faculty of Engineering, Chiang Mai University	Jul 12, 1999
		Faculty of Science, Chiang Mai University	Jul 12, 1999
	Taiwan	College of Engineering, Minghsin University of Science and Technology	Apr 12, 2010
	China	Department of Precision Instruments and Mechanology, Tsing Hua University	Mar 1, 2007
		Department of Chemistry, Tsing Hua University	Jan 17, 2008
		School of Materials Science and Engineering, Tongji University	May 24, 2010
		Shanghai Key Lab of D&A for Metal Functional Materials, Tongji University	May 24, 2010
	Zambia	School of Mines, University of Zambia	Jan 20, 2003
		School of Engineering, University of Zambia	Mar 12, 2003
	Tunisia	Faculty of Technology, University of Sfax	Dec 18, 2003
	New Zealand	Auckland University of Technology	Nov 27, 2012
USA	Montana College of Mineral Science and Technology	Jun 24, 1982	
Venture Business Laboratory	China	Shanghai Key Lab of D&A for Metal Functional Materials, Tongji University	Sep 2, 2011



**Master's Courses**  
**2015 April (Spring) Admission**  
**Affiliated School Recommendation**  
**Graduate School of Engineering and Resource Science**  
**Akita University**

**Application Guidelines**

The Master's Courses are offered by Akita University Graduate School of Engineering and Resource Science to international students having a recommendation from one of Akita University's overseas affiliated schools, either currently enrolled or have graduated from it during the 2010 academic year. These courses provide the students with the opportunity to obtain a Master's Degree in either Resource Science or Engineering. **Japanese will be the main language used in the courses.**

**1. Number to be Admitted**

Major	Fall	Spring
Earth Science and Technology	a few	a few
Applied Chemistry	a few	a few
Life Science	a few	a few
Materials Science and Engineering	a few	a few
Computer Science and Engineering	a few	a few
Mechanical Engineering	a few	a few
Electrical and Electronic Engineering	a few	a few
Civil and Environmental Engineering	a few	a few
Cooperative Major in Life Cycle Design Engineering	a few	a few

**2. Application Qualifications**

- The status of residence of a incoming student must be "College Student."
- All of the qualifications below must be satisfied, and the enrollement at Akita University must be promised once the candidate is accepted.
  - (1) Applicants must have received higher education in the field of related their desired major.
  - (2) Applicants must have achieved the excellent academic performance.
  - (3) Applicants need to be people of integrity.
  - (4) Applicants must be recommended by either the president of their school or the dean of the faculty attended.
  - (5) Applicants must be able to graduate or have graduated from one of Akita University's overseas affiliated universities between April 1, 2013 and March 31, 2015.

**Note :**

Applicants who are accepted based on the qualifications above, yet are later confirmed as not being able to complete the admission procedures by the deadline will not be admitted. Details on admission procedures will be sent to all accepted students along with a Letter of Acceptance.

### **3. Application Period and Mailing Address**

(1) Application Period:

From October 23, 2014 to no later than October 31, 2014.

- 1) 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.
- 2) If mailed, application documents must be sent by registered mail and “Application to Master’s Course, Admission by Recommendation, Graduate School of Engineering and Resource Science” must appear in red on the front side of the envelope. The documents must reach the Admissions Office no later than 4:00 p.m. on October 31, 2014. Special attention should be paid in estimating the days needed for overseas delivery.

(2) Mailing address:

Admissions Office  
Graduate School of Engineering and Resource Science  
Akita University  
1-1, Tegata Gakuen-machi  
Akita-shi 010-8502 Japan  
Tel: +81-18-889-2313  
Fax: +81-18-889-2300  
E-mail: [kn08@jimu.akita-u.ac.jp](mailto:kn08@jimu.akita-u.ac.jp)

### **4. Application Procedures**

(1) Documents to be submitted

① Letter of Recommendation

Recommendations must be written by the applicant’s supervising instructor and be issued by the president of the school or the dean of the faculty of the affiliated university.

② Application for Admission

Requested information must be entered on the designated form (attached herein).

③ ID Photo Card

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 of the ID photo Card (attached herein).

④ Certificate of Completion or Prospective Completion or Certificate of Graduation

Must be prepared by the president or the dean of the school attended.

⑤ Academic Record Transcripts

Must be prepared by the president or the dean of the school attended and sealed in an envelope.

⑥ Proof of Evaluation Fee Payment

Evaluation Fee is 30,000 yen.

When depositing from an overseas bank, please make sure that the fee is sent by Telegraphic Transfer to the (below) bank account in yen. Payment made by other currency will not be accepted. Any cost for the transfer is to be paid by the applicant. Please enclose a copy of “application for remittance” when mailing the admission application documents.

1. Amount: 30,000 yen (The fee must be received in yen)
2. Remittance Method: Telegraphic Transfer
3. Remittance Fee: to be paid by the payer
4. Remittance Period: October 9, 2014 - October 31, 2014  
Japan time must be observed.
5. Remittance Information:

Bank Name: Akita Bank, Ltd.

Branch: Tegata Branch

Address: 160-1, Aza-Yamazaki, Tegata, Akita-shi, Akita, 010-0851 Japan

Account Number: 688502

Recipient: Akita University

Bank Identifier Code (SWIFT): AKITJPJT

**Note:**

- a) When filling out the “Application for Remittance,” please enter “Evaluation fee” as “Purpose of Remittance,” and enter “applicant’s name” in the message box.
- b) After remitting the evaluation fee, Please send an e-mail to that effect to Admission office as soon as possible.
- c) In case of remitting the evaluation fee from the interior of Japan, Please send an e-mail to that effect to Admission office.  
Admission office will give instructions to you.  
Please don’t make a remittance before receiving instructions.
- d) 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.

⑦ Other

- Applicants who live in Japan and do not have Japanese citizenship must submit a certified copy of Alien Registration issued by the municipality where they reside.
- Applicants residing overseas must submit an authorized certificate of his/her family register or proof of citizenship in home country.

**Note:** Important notices for submitting documents

- a) No application will be accepted unless all documents mentioned above are fully and accurately completed.
- b) Once submitted, documents will not be returned to applicants for any reason.
- c) Applicants are not allowed to change majors after submission of application.
- d) If Contact Address entered in the application form changes after submission, the Admissions Office must be promptly notified of such change.  
E-mail: [kn08@jimu.akita-u.ac.jp](mailto:kn08@jimu.akita-u.ac.jp)
- e) Attached forms may be either hand-written or typed.

## 5. Evaluation of Applicants

Screening for admission will be conducted based on analysis of all documents submitted.

## 6. Pre-consultation for Disabled Applicants

As a preliminary step in the application process, disabled applicants (refer to the chart below) who need special consideration during either the application process or the course itself must submit a document detailing the items listed below (form not designated) together with a medical certificate prepared by a doctor no later than October 3, 2014. Early consultation is recommended since advance preparation may be needed in cases of severe disability.

- ① Name, age, contact address, telephone number, and desired department(major).
- ② Type and degree of disability.
- ③ Detailed explanation of care needed during application and course study.
- ④ Special preparation and care taken at the university last attended.
- ⑤ Description of everyday life.
- ⑥ Name, address, and telephone number of the university last attended.

If needs arise after the deadline of October 3, 2014 due to accident or other contingency, please contact the Admissions Office immediately.

Type of Disability	Extent of Disability
Visual	Those with eyesight of less than 0.3 with both eyes (Universal Eyesight Test Chart) or who have ophthalmologic functional disorders that do not allow easy recognition of normal size letters or diagrams, even with the use of a magnifying glass.
Hearing	Those with an auditory capacity of more than 60 decibels (Audiometer testing) who have difficulty listening to normal talking even with a hearing aid.
Physical	1. Those who are not capable of performing basic daily tasks such as walking or writing even with the use of orthopedic or prosthetic devices. 2. Those with physical disabilities not as severe as the above but who need constant medical assistance and/or observation.
Health	1. Those who are under constant medical restrictions due to prolonged chronic respiratory, kidney, nervous system illness, malignant growth, or other disorder. 2. Those placed under medical restrictions due to prolonged weak or feeble health.
Other	Those not specifically mentioned above, yet require special consideration when either applying for admission or attending classes during the course of study.

Translated from the original by the Graduate School of Akita University.

**Note:**

- a) The above are in conformity with Article 22-3 of the School Education Law Enforcement Regulations.
- b) The above required information (items ①-⑥) are also requested if the applicant uses, on an everyday basis, such common tools as a hearing aid, crutches, or a wheelchair.

## 7. Acceptance Notification

Results are tentatively scheduled to be e-mailed to all applicants at 1:00 p.m on November 17, 2014.

Therefore telephone inquiries will not be honored. A letter of Acceptance will be sent to a successful applicant.

## 8. Promise of Enrollment

Accepted students must submit the Promise of Enrollment upon receipt of the Letter of Acceptance (a form enclosed with the Letter of Acceptance) to the Admission Office no later than December 11, 2014. If this promise is not received by the deadline, it will be understood that enrollment will not take place.

## 9. Admission Procedures

- (1) Details for Admission Procedures will be sent to all who are accepted along with the Letter of Acceptance. Accepted students are strongly advised to come to Japan in time to complete the Admission Procedures in person.



(2) School Fees (must be paid in Japanese currency)

- ① Admission fee: 282,000 yen (subject to change)
- ② Tuition: 267,900 yen for the first semester (535,800 yen for the first academic year) (subject to change)

**Note :**

- a) Admission fees paid will be not refunded for any reason.
- b) The above school fees are projected amounts and are subject to change before or during the course. Revised admission fees 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, the new tuition takes effect at the time of revision.
- c) If a candidate cancels his/her admission before March 31, 2015 after completion of the Admission Procedures due to unavoidable circumstances, the tuition paid may be refunded upon the payer's 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 all owed 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.

Admissions Office  
Graduate School of Engineering and Resource Science  
Akita University  
1-1, Tegata Gakuen-machi  
Akita-shi 010-8502 Japan  
Tel: +81-18-889-2313 Fax: +81-18-889-2300  
E-mail: [kn08@jimu.akita-u.ac.jp](mailto:kn08@jimu.akita-u.ac.jp)

## 10. Obtaining a Visa

The first step in obtaining a visa is to apply for a Certificate of Eligibility at the Ministry of Justice, Immigration Bureau in Japan. On behalf of these students who reside overseas, who have been

accepted after the evaluation, and who are confirmed to have completed all the admission procedure requirements, Akita University will apply for the Certificate of Eligibility. Upon receipt of the Certificate of Eligibility from the Immigration Bureau, Akita University will then mail it to the student's address. The student is to submit his/her passport and the certificate to a Japanese diplomatic office (Japanese Embassy or Japanese Consulate) in his/her home country. A visa will be issued approximately one week after submitting the above documents.

**Note :**

- a) Akita University International Exchange Center (hereafter referred to as International Exchange Center) will request the residential status of "College Student" when applying for the Certificate of Eligibility.
- b) Admission may be turned down by the student under unavoidable circumstances, but the student will be required to send the Certificate of Eligibility immediately back to the International Exchange Center along with a letter stating the reason for the cancellation.
- c) To ensure a prompt application process, applicants who commission the International Exchange Center to apply for the Certificate of Eligibility must make sure that all documents (explained below) are completely filled out and are submitted at the time of applying for the course. However, the immigration office may find it necessary to request additional documents.

**Flow chart on how the college student visa is obtained:**

- ① Submission of documents necessary for Certificate of Eligibility at the time of application for the course  
(applicant → International Exchange Center)
- ② Completion of admission procedures after having been accepted  
(accepted student → Graduate School of Engineering and Resource Science)
- ③ Application for Certificate of Eligibility  
(International Exchange Center → Sendai Regional Immigration Bureau)
- ④ Issuance of Certificate of Eligibility  
(Sendai Regional Immigration Bureau → International Exchange Center)
- ⑤ Mailing of Certificate of Eligibility  
(International Exchange Center → accepted students)
- ⑥ Applying and obtaining of college student visa in the students' home country.  
(Accepted student → Japanese Embassy or Japanese Consulate)
- ⑦ Entry into Japan under college student status

## Application Documents for Certificate of Eligibility

\* Designated forms are available.

		Documents	No.of copies	Notes
*	(1)	Application for Certificate of Eligibility	1	Application forms and instructions are found at the following URL site:  <a href="http://www.moj.go.jp/ONLINE/IMMIGRATION/16-1-1.html">http://www.moj.go.jp/ONLINE/IMMIGRATION/16-1-1.html</a>
*	(2)	Photo (40mm x 30mm)	1	The same photo used on the application form for the course must be pasted on the designated place of the Application for Certificate of Eligibility form.
	(3)	Copy of passport (if issued)	1	All the pages where the applicant's information is entered must be photocopied and submitted.

For any questions about a certificate of eligibility:

Akita University International Exchange Center

1-1, Tegata Gakuen-machi

Akita-shi 010-8502 Japan

Tel: +81-18-889-2258

E-mail: [ryugaku@jimu.akita-u.ac.jp](mailto:ryugaku@jimu.akita-u.ac.jp)

# Graduate School Outline

## 1. Organization

The Graduate School of Engineering and 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 eight departments (22 divisions), the Doctor's Degree Program consists of five departments (11 divisions). The eight departments in the Master's Degree Program are related to the eight departments in the undergraduate program.

### [Master's Degree Program]

Department (Major)	Division
Earth Science and Technology	Applied Earth Sciences
	Geo-Engineering
Applied Chemistry	Molecular Chemistry
	Chemical Engineering
Life Science	Life Science
Materials Science and Engineering	Materials Science
	Functional Materials
	Advanced Materials for Energy
	Materials Processing
Computer Science and Engineering	Information Technology
	Mathematical Science
Mechanical Engineering	Mechanical Engineering Science
	Mechanical Dynamics
	Systems Design
	Robotics and Welfare Engineering
Electrical and Electronic Engineering	Electric Energy Engineering
	Photonic and Electronic Device Engineering
	Intelligent Information Communication Engineering
	Control System Engineering
Civil and Environmental Engineering	Welfare Environment Engineering
	Structures and Materials Engineering
	Regional Environment Engineering
Cooperative Major in Life Cycle Design Engineering	Life Cycle Design Strategies
	Systems Engineering for Environment

### **[Doctor's Degree Program]**

Department (Major)	Division
Geosciences, Geotechnology, and Materials Engineering for Resources	Earth Sciences
	Technology for Resources and Environment
	Environmental and Resource Recycle Technology
Department of Life Science	Division of Life Science
Advanced Materials Engineering	Advanced Materials Engineering
	Environmental Chemistry and Chemical Engineering
Production and Civil Engineering	Production System Engineering
	Civil Engineering
	Welfare System Engineering
Electrical, Electronic and Computer Systems Engineering	Electrical and Computer Systems Engineering
	Electronic and Computer Systems Engineering

## **2. Master's Degree Program Department Outline**

### **[Department of Earth Science and Technology]**

In order to turn out capable engineers for developing mineral and energy resources and utilizing underground space, the department aims to provide students with quality education and research in the following fields: 1) exploration of mineral and energy resources, 2) exploitation and transportation of underground resources, 3) underground environments, 4) utilization of underground space, and 5) prevention measures for disasters caused by earthquakes, landslides and volcanic eruption. Furthermore, the department aims to create sophisticated engineers who can work internationally in the survey and development of natural resources that exist unevenly throughout the earth, and who can join in mining projects with international collaboration.

The research organization of the department has two divisions called Applied Earth Science and Geo-Engineering in order to achieve the above-mentioned objects.

The Division of Applied Earth Science focuses on fundamental earth science and its applications in such areas as exploration of mineral and energy resources, environmental issues, and prevention of natural disasters.

The Division of Geo-Engineering covers the fields of Water Resource and Environmental Engineering, Engineering Rock Mechanics, Petroleum and Geothermal Engineering, and Resource System Engineering.

Division	Applied Earth Sciences		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Energy Geology	Stratigraphy, Sedimentology, Micropaleontology, Historical Geology and Paleoenvironments as a basis for the Genesis, and Exploration of Energy resources such as Petroleum, Coal and Natural Gas	Prof. Tokiyuki Sato	Advanced Energy Geology
		Associate Prof. Makoto Yamasaki	Applied Micropaleontology
Quaternary Geology	Quaternary and Environmental Geology, especially based on Sedimentology, Tephrochronology, and Geomorphology		Advanced Quaternary Science
Sedimentology	Modes of sediment transportation and formations of sedimentary layer	Prof. Takashi Uchida	Applied Sedimentology
Economic Geology	Geological and physicochemical approaches to Ore Genesis, especially on Igneous Activities, Hydrothermal Processes and Mineralization, and on Methodology of Mineral Exploration	Prof. Akira Imai	Advanced Economic Geology
Petrology	Petrogenesis and Isotopic Age Determination on Plutonic and Volcanic Rocks in Orogenic Belts and other continental regions, and Disaster Prevention Geology based on the Petrological point of view	Prof. Tsukasa Ohba	Advanced Petrology II
		Associate Prof. Masatsugu Yamamoto	Advanced Petrology I
		Lecturer Hideki Murakami	Advanced Mineralogy of Rock-forming Minerals
			Applied Geology
Applied Geophysics	Theoretical and observational research for the Geological and other Subsurface Interpretation by processing Geophysical Data such as Seismic Waves and Electromagnetic and Gravity Fields	Prof. Tadashi Nishitani ⑩	Advanced Applied Geophysics I
			Advanced Applied Geophysics III
		Associate Prof. Tomoki Tsutsui	Advanced Applied Geophysics II
Stratigraphy and Volcanic Stratigraphy	Stratigraphy of the Cenozoic Volcanic Sequences in the northeast Honshu arc, Japan, and Tectonics of the Earth's Crust		Advanced Structural Geology I
		Lecturer Osamu Nishikawa	Advanced Structural Geology II
			Green-tuff Geology

Geothermal Geology	Geological and Geochemical Applications to Geothermal Resource Exploration and Genesis, especially based on Alteration Mineralogy, Age Determination and Remote Sensing		Geothermal Geology
Geochemistry	Education and Study on Circulation of Geochemical Materials through the Surface and Interior of the Earth, especially Understanding of the Properties of Water, Gas and Magma for Mineral, Geothermal and Water Resources, Natural Hazards, Environmental Impacts and Resource Utilization	Prof. Daizo Ishiyama	Advanced Geochemistry I
		Associate Prof. Toru Sugawara	Advanced Geochemistry II
		Associate Prof. Yasumasa Ogawa	Advanced Geochemistry III

Division	Geo-Engineering		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Water Resources and Environmental Engineering	Studies on Advanced Water Resources and Waste Water Treatment	Prof. Takaho Otomo <sup>⑮</sup>	Advanced Waste Water Treatment
Engineering Rock Mechanics	Basics and Application of Rock Mechanics for Excavation	Prof. Fumio Sugimoto <sup>⑮</sup>	Advanced Rock Engineering Numerical Analysis for Resource Development
		Prof. Tadao Imai	Mechanics for Geological Disasters
Petroleum and Geothermal Engineering	Theoretical and Applied Studies on the Development of Energy Resources, such as Petroleum, Natural Gas, Geothermal and Ground Water	Prof. Hikari Fujii	Advanced Reservoir Engineering
			Advanced Geothermal Engineering
Resource Systems Engineering	Transportation Technology and Systems Engineering for Mineral Resources		Transportation Technology in Mine Design
			Advanced Design Engineering of Systems for Mineral Transportation
			Advanced Prospect Technology of Mineral Resources

<sup>⑮</sup> These professor will retire by the mandatory retirement regulation in March 2015.

<sup>⑯</sup> This professor will retire by the mandatory retirement regulation in March 2016.

## **[Department of Applied Chemistry]**

The courses offered in this department cover a wide range of science and engineering relevant to development, regeneration and application of new functional materials, the effective utilization of chemical energy, and the utilization of bio-systems. It includes fundamentals and a wide range of applications in chemistry, resources engineering and physics as they relate to materials. We aim at the development of newly advanced technologies which are in harmony with the environment. To realize our purpose, two divisions provide training for students to become sharpened engineers in each research field.

- 1) Division of Molecular Chemistry
- 2) Division of Chemical Engineering



<b>Division</b>	<b>Molecular Chemistry</b>		
<b>Field of Instruction and Research</b>	<b>Quality</b>	<b>Faculty Member</b>	<b>Instruction Subject</b>
Chemistry of Organic Materials	Synthesis and Properties of organic Functional Materials	Prof. Mitsutoshi Jikei	Advanced Organic and Polymeric Materials
		Lecturer Kazuya Matsumoto	Synthetic Functional Polymers
Applied Physical Chemistry	Design and Application of Environmental Advanced Materials from the Viewpoint of Physical Chemistry	Prof. Kenji Murakami	Advanced Surface Chemistry
		Associate Prof. Kiyoshi Fuda	Advanced Engineering Physical Chemistry
Inorganic Materials Chemistry	Molecular Design through Synthesis, Characterization, Investigation into Function Expression, and Practical Evaluation of Inorganic Advanced Materials such as Porous Materials, Catalytic Materials and Ceramics		Molecular Engineering
		Associate Prof. Sumio Kato	Properties of Inorganic materials
		Lecturer Masataka Ogasawara	Advanced Characterization of Inorganic Materials
Functional Surface Chemistry	Surface Processes for Environments and for a Production of Value-added Materials with Specific Functions	Prof. Takayoshi Shindo	Advanced Chemistry of Organic Resources
		Lecturer Yukihiko Inoue	Chemistry of Polymer Functionalities
Supramolecular Advanced Chemistry	Development of Supramolecular Assembly Based on Macrocyclic Molecules by Solid and Solution Chemistry	Prof. Fumio Hamada <sup>15</sup>	Advanced Synthetic Organic Chemistry

<b>Division</b>	<b>Chemical Engineering</b>		
<b>Field of Instruction and Research</b>	<b>Quality</b>	<b>Faculty Member</b>	<b>Instruction Subject</b>
Resources Separation and Treatment Technology	Technology of Mineral Processing and Recycle Process including Minerals and Wastes, and wastewater treatment and soil remediation	Prof. Atsushi Shibayama	Resource Processing and Engineering
Chemical Reaction Engineering	Research and Education on Design, Optimization, Prediction and Sophistication of Chemical Processes by Means of Advanced Numerical Analysis Based on a Methodology of Systematic Fusion of Chemical Reaction Engineering, Transport Phenomena and Chemical Thermodynamics.	Prof. Kenzo Munakata	Advanced Transport Phenomena
Environmental Energy Engineering	Process Design of Heterogeneous Reaction Including Solids with Due Consideration of Efficient Utilization of Energy and Resources	Prof. Katsuyasu Sugawara	Advanced Energy Chemical Engineering
		Lecturer Hirokazu Okawa	Advanced Electro Chemistry
Bioprocess Engineering	The Design and Development of Chemical and Biochemical Processes and Related Equipment	Prof. Takeshi Gotoh	Advanced Biochemical Engineering
		Associate Prof. Hiroshi Takahashi	Advanced Chemical Process Design

<sup>15</sup> This professor will retire by the mandatory retirement regulation in March 2015.

## [Department of Life Science]

Fully human genomic DNA sequence has been decoded to date. Research in life science fields, such as specification of various disease genes and development of new medicine, has also been greatly developed. The Department of Life Science consists of one division: Life Science. This department provides education and study related to the following variety of subjects by combining analytical life science and molecular cell biology. The department aims at training researchers and scientists who contribute to the world by life science.

Division	<b>Life Science</b>		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Analytical Life Science	Chemical Analysis of Spectroscopic Phenomenon and Electrode Reaction for Biological Materials and organic Substances.	Prof. Nobuaki Ogawa ⑯	Advanced Analytical Chemistry
		Associate Prof. Yoshiaki Amatatsu	Advanced Theoretical Life Science
		Associate Prof. Uichi Akiba	Advanced Bio-Electronic Chemistry
		Associate Prof. Kazuhiko Fujiwara	Advanced Spectrochemistry
		Lecturer Yoshihiko Kondo	Structural Organic Chemistry
Molecular Cell Biology	Molecular Biological Characterization of Disease Genes and Proteins, and Study of Physiological Functions of Molecular Chaperones in Protein Folding.	Prof. Hiroshi Kubota	Cell Biology
		Prof. Hideaki Itoh	Molecular Biological Chemistry
		Prof. Hideki Wakui	Advanced Biology of Disease
		Associate Prof. Wataru Nunomura	Bio-Organic Chemistry

⑯ This professor will retire by the mandatory retirement regulation in March 2016.

## [Department of Materials Science and Engineering]

In order to invent the seeds of a new industry and to succeed in the breakthrough of engineering reformation, the development of newly advanced materials is indispensable. The development of materials related to energy such as a superconducting material and such intelligent materials as sensors and information-recording mediums are especially necessary. In order to respond to today's demands, this department educates students who have wide knowledge in materials science and engineering, as well as abilities in the development of advanced materials, and understanding in the material industry of the present situation.

With this in mind, our department has four divisions : Physics and Chemistry of Materials, Intelligent Materials, Advanced Materials for Energy, and Materials Processing and Development.

Division	<b>Materials Science</b>		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Physical Makeup of Materials	Characterization of the lattice defect and its effect on physical properties in materials	Prof. Kaichi Saito	Advanced Physics of Materials
Crystal Engineering	Optical properties and Structure of Functional Crystalline Materials	Prof. Nobuhiro Kodama	Properties of Crystalline Solids
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-Molecule Circuits, and by Introducing to the Experimental Techniques and Theoretical Concepts.	Lecturer Yutaka Tsujiuchi	Molecular Electronics
Thin Film Materials	Fabrication and evaluation of thin film materials and their application	Associate Prof. Satoru Yoshimura	Physical Properties of Thin Film Materials

Division	<b>Functional Materials</b>		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Physics of Intelligent Materials	Physics properties of intelligent materials and their application for magnetic, electronic and optical devices	Prof. Shunji Ishio ⑩	Advanced Physical Properties of Intelligent Materials
Surface and Interface Engineering	Processing and Evaluation for Appearance of Intelligent Function at Surface and Interface of Materials	Prof. Motoi Hara	Surface and Interface Engineering
Advanced Electronic Materials	Physical properties and their Application of advanced electronic materials	Prof. Hitoshi Saito	Advanced Lecture of Electronic Materials
Material Design	Research and Education of Materials Design and its Applications Based on the Molecular Orbital Method	Associate Prof. Yoshiyuki Sato	Intelligent Material Design
Chemically Functional Materials	Chemical and electrochemical properties of materials and their application	Lecturer Akihiro Nino	Advanced Chemistry of Functional Materials
Surface Modification	Modifying Process for the Functional Surface of Materials	Lecturer Michihisa Fukumoto	Surface Modification

Division	<b>Advanced Materials for Energy</b>		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Ceramic Materials	Chemical, mechanical and electrical properties of ceramics and their application to energy generation and use	Prof. Hitoshi Taimatsu	Advanced Ceramic Materials
Energy Chemistry of Materials	Research and education on the development of functional chemical materials for energy transformation/storage and industrial electrolytic processing	Prof. Masami Taguchi	Advanced Energy Chemistry of Materials
Fabrication Engineering of Inorganic Materials	Fabrication processes, microstructural control and evaluation of inorganic materials via powder processes	Prof. Shigeo Hayashi	Design of Inorganic Materials

Division	<b>Materials Processing</b>		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Solidification Processing	Education and Research on Solidification Processing and Application of Manufactured Composite Materials and Structural Controlled Multi-phase Alloys	Prof. Setsuo Aso	Advanced Solidification Processing
Microstructure Design of Materials	Education and Research on Numerical Simulation for Structure Formation	Prof. Ken-ichi Ohsasa	Microstructure Design of Materials
Structural Materials	Deformation Mechanism, Strengthening Method and Evaluation of Mechanical Properties of Materials, including Their Application for Manufacturing Processes in High Strength Structural Materials	Lecturer Yukinobu Natsume	Physics of Strength for Structural Materials
Composite Materials	Evaluation of Structure and Mechanical Properties and Material Design for Plastic Base, Metal Base and Ceramic Base Composites	Associate Prof. Ken-ichi Ohguchi	Advanced Composite Materials

⑩ This professor will retire by the mandatory retirement regulation in March 2016.

## [Department of Computer Science and Engineering]

The Department of Computer Science and Engineering consists of three divisions: Computer Science for Humans, Applied Information Technology, and Mathematical Design. The department provides education and does research on the technologies of computer systems and information system networks. The above versatile applied technologies include industrial information processing, remote sensing, image information processing, biological information processing, speech and character information processing, processing of physical properties analysis, geometry and topology of graphics, and mathematical engineering. Due to the recent remarkable progress in the technologies of information system networking and their applications, it is expected that in the 21st century the social life style will be changed on a large scale. This department will also timely introduce new programs for education and research concerning the technologies of newly appearing information communication system networks and their new various applications.

Division	<b>Information Technology</b>		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Network and Computer System Engineering	Information Network System and Highly Reliable Computing System	Lecturer Hiroshi Yokoyama	Advanced Logic Circuit Design
Biomedical and Welfare Engineering	Study on Applications of Information Technology to biological System and Welfare Systems	Prof. Kazutaka Mitobe	Sensory Information Engineering
Image Information System Engineering	Analysis and Algorithms of Remote Sensing Data, and Image Information Applications	Prof. Makoto Nishida	Image Information
		Prof. Yoichi Kageyama	Remote Sensing Engineering
Digital System Engineering	Digital Signals, Systems, and Application of Stochastic Processes	Prof. Ryuji Igarashi	Digital Signal Measurement
Communication System and Network Engineering	Traffic Engineering, Application Layer Flow Control and Network Topology Design	Associate Prof. Masashi Hashimoto	Networking Technology and Traffic Engineering

Division	Mathematical Science		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Mathematical Engineering	Cryptology, Information Security, Algorithmic Problems in Algebraic Systems, Inverse problems and Applications of Geometry	Prof. Akihiro Yamamura	Information and Computation
		Prof. Hajime Kawakami	Programming
		Lecturer Yasuharu Nakae	Advanced Mathematics of Information
	Electron Tunneling Phenomena in Solids and Optical and Electrical Properties in Layered Compounds	Associate Prof. Kunihiko Yamaguchi	Fundamentals of Applied Condensed Matter Physics
Geometry and Topology of Graphics (GTG)	Computer Aided Geometric Design, Shape Detection by Mappings	Associate Prof. Mahito Kobayashi	Topics in Computer Vision

## [Department of Mechanical Engineering]

It is needless to say that Mechanical Engineering is a fundamental field of engineering, supporting the activities of industries at any age and any place. However, together with the recent remarkable development of computers, electronics and its applied technologies, mechanical industries have been abruptly oriented to information, reduction of labor, and automation concerns. Today, industries are required to make products having a high value reasonably and effectively while using less energy, by developing and applying highly functional materials. Furthermore, Mechanical Engineering is expected to contribute to aging and welfare community issues in order to make our lives more comfortable.

To meet the above needs, this department provides education and study related to the following wide variety of subjects by combining the former mechanical engineering, electronics-information technology, and bioengineering. The subjects covered by the department are automation and the high reliability of design and production systems, the development of optimum control technology for human-mechanical systems, the development of technologies for transport, conversion and application of thermal and fluid energy, the development of new engineering materials and their evaluation and manufacturing methods, new aspects of micro-engineering based on quantum mechanics and atomic physics, as well as assistive technology for the disabled, and sports engineering. Thus, the department aims at training researchers and engineers who contribute to the human society.

Division	<b>Mechanical Engineering Science</b>		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Microscopic Mechanism of Materials	Applications of Atomic Physics on Microscopic Mechanisms and Materials, Micro-behavior of Materials, and Computational Analysis in Solid Mechanics for the Evaluation of Advanced Composite Materials	Prof. Eiji Uegaki ⑮	Basic Atomic Technology
		Prof. Yotsugi Shibuya	Advanced Solid Mechanics
		Prof. Mikio Muraoka	Micro/Nano Materials
		Associate Prof. Yoshiyuki Yamamoto	Advanced Applied Electromagnetism
		Associate Prof. Makoto Yamaguchi	Characterization of Subsurface Structure

⑮ This professor will retire by the mandatory retirement regulation in March 2015.



Division	<b>Mechanical Dynamics</b>		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Thermal and Fluid Engineering	Ice Melting and Water Freezing, Theory and Application for Energy Conversion and Basic Investigation for Non-Newtonian Fluid and its Application	Prof. Masahide Nakamura	Computational Heat Transfer and Fluid Mechanics
		Prof. Makoto Tago	Advanced Natural Convection Heat Transfer
		Associate Prof. Hiroaki Hasegawa	Unsteady Fluid Dynamics and Flow Control
		Associate Prof. Takahiro Adachi	Heat Transfer Enhancement
		Lecturer Yoshimi Komatsu	Computational Thermodynamics and Fluid Dynamics
Vacuum System Engineering	Analysis and Practical Application for the Mechanism of Rarefied Gas Flow	Lecturer Wataru Sugiyama	Molecular Gas Motion

Division	<b>Systems Design</b>		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Engineering Materials	Materials Science from Micro to Macro Aspects and Joining of Materials and Estimation of Strength and Fracture Toughness	Prof. Osamu Kamiya	Advanced Engineering Materials
			Advanced Mechanics of Materials
		Associate Prof. Mamoru Takahashi	Micro Processing
Elastic Systems of Dynamics for Design	Applied Mathematical Design for Environmental Oriented Elastic Systems	Associate Prof. Yasumasa Miyano	Applied Mathematics for Mechanical Design
Nano-Metrology	Ultra-Precision Measurement using Software Datum	Associate Prof. Eiki Okuyama	Advanced Sensors Engineering
Surface Engineering	Synthesization and Design of Micro-Nano Fabricated Surface and its Protect Coating	Associate Prof. Takayuki Tokoroyama	Advanced Course on Functional Surface Engineering
Engineering of Waves	Propagation Behavior of Elastic Waves for Composite Material and Application to the Non-Destructive Inspection		Advanced Dynamics of Mechanical Waves

Division	<b>Robotics and Welfare Engineering</b>		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Vibration-Control Engineering	Dynamics of Mechanical Systems and its Application to Welfare Problems, and Vibration Engineering, Wind and Seismic Problems	Prof. Hitoshi Doki	Advanced Vibration Control
		Associate Prof. Yoshiki Sugawara	Advanced Vibration Engineering
Computer Controlled Systems	Controller Design for Electro Mechanical Systems	Prof. Akihiro Naganawa	Advanced Control Engineering
		Lecturer Takeshi Seki	Design of Digital Control System
Intelligent Control Engineering	The Theory of Control Design of Intelligent Mechanical Systems and the Application to Medical Devices	Associate Prof. Yoshihiro Sasaki	Actuator Engineering
		Lecturer Kiyoshi Hirose	
Bio-welfare Engineering	The Education and Research on the Elucidation of a Physical Movement Mechanism, and the Application to its Medical Treatment and Welfare Field	Associate Prof. Takehiro Iwami	Biomedical Engineering

## [Department of Electrical and Electronic Engineering]

The Department of Electrical and Electronic Engineering was established with the aim of nurturing far-sighted and talented students to be fully competent to meet the requirements of today's highly-technological and information-oriented world. Research and instruction are performed based on four main branches : Electric Energy Engineering, Photonic and Electronic Device Engineering, Intelligent Information Communication Engineering, and Control System Engineering. These four areas cover the entire principal fields in the present technological world.

Division	<b>Electric Energy Engineering</b>		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Environmental Energy Engineering	Study on fundamental characteristics of organic and non-organic electric materials, application of computer engineering including computer graphics, bioelectromagnetism including handling techniques of cells.	Prof. Masafumi Suzuki	Measurement and Instrumentation Engineering
			Applied Electromagnetic Engineering
		Associate Prof. Seiji Kumagai	Advanced Materials for Electrical Engineering
		Lecturer Mahmudul Kabir	Bio Electromagnetic Engineering
Power System Engineering	Study on high voltage engineering, power systems and fuel cells.	Associate Prof. Masashi Sato	Advanced Electric Power System Engineering
			Advanced High Voltage Engineering
Quantum Electronic Engineering	Study on theory and applications of quantum phenomena in solid state devices.	Prof. Masaru Onoda	Quantum Physics

Division	<b>Photonic and Electronic Device Engineering</b>		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Optical Device Engineering	Study on the optical and electronic materials and their application to optoelectronic devices, liquid crystal engineering and application to optical devices.	Associate Prof. Rumiko Yamaguchi	Electronic Display Engineering
		Lecturer Marenori Kawamura	Optical Device Engineering
Electromagnetic Wave Engineering	Theoretical and experimental studies of Tera-Hz wave generation and propagation, and applications to electronic devices.	Prof. Toru Kurabayashi	Advanced Electromagnetism ----- Advanced Electromagnetic Wave Engineering
Electron Device Engineering	Study on electronic properties of semiconductors, semiconductor thin films and insulators, and its applications to electron devices.	Prof. Seiji Horiguchi	Advanced Electron Device Engineering
		Associate Prof. Yuichi Sato	Advanced Semiconductor Device

Division	<b>Intelligent Information Communication Engineering</b>		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Electronic Application and Electronic Measurement Instrumentation	Study on measurements, signal processing and application of electromagnetic compatibility, biomedical and living environment using electromagnetism and electronic devices.	Associate Prof. Motoshi Tanaka	Advanced Communication Engineering
		Lecturer Yoshiki Kayano	Signal Processing Engineering for Measurement
Wave Information Engineering	Study on signal analysis and processing in acoustic waves.	Prof. Kazuhiko Imano	Advanced Electroacoustics
		Lecturer Makoto Fukuda	Applied Piezoelectric Device Engineering
Information Communication Engineering	Study on high performance broadband communications systems.	Prof. Hitoshi Obara	Information Communication System
			Digital Signal Processing Engineering

Division	<b>Control System Engineering</b>		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Electronic Control Engineering	Application of control engineering and research on electric servo systems.	Associate Prof. Takeshi Miura	Advanced Control System Engineering
Electrical Machinery Engineering	Study on development and analysis of electromechanical energy conversion systems and its control techniques.	Prof. Katsubumi Tajima	Advanced Electrical Machinery Engineering
			Electromagnetic Energy Conversion
Quantum Control Engineering	Study on theory and applications of quantum states control in solid states engineering	Associate Prof. Yasunari Tanuma	Advanced materials physics

## [Department of Civil and Environmental Engineering]

This department carries out instructions and research on the technology for construction and maintenance of infrastructure as the base for human life and production activities.

The main subjects offered are in fields of advanced hardware technology, such as the development and preservation of the water environment and water resources, the geotechnical disaster prevention, the design and execution of works, maintenance and control considering the durability decrease of structures, and for such fields of software technology as planning for regional development and environment preservation. The instruction and research on hardware and software technologies are carried out together, with a focus on realistic and pertinent results.

Division	<b>Welfare Environment Engineering</b>		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Urban and Traffic Planning and Water front Engineering	Philosophy, Methods, and Analytical Techniques used in Urban and Traffic Planning with emphasis on the Logic and Assumption on which these are based		Advanced Urban Planning for Caring Society
		Prof. Hidekatsu Hamaoka	Advanced Traffic Engineering
		Associate Prof. Satoru Hino	Advanced Urban Planning

Division	<b>Structures and Materials Engineering</b>		
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	Associate Prof. Humihiko Gotou	Advanced Structural Mechanics
Concrete Engineering	Design of Construction Materials, Maintenance of Concrete Structures and Structural Analysis for Concrete Structures	Prof. Hidenobu Tokushige	Construction Material Design
			Advanced Structural Design

Division	<b>Regional Environment Engineering</b>		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Hydraulics and Hydraulics Engineering	Theoretical and Applied Study by Hydraulics on Preservation of Water Environment and Prevention of Disaster in Rivers and Coasts	Prof. Hideo Matsutomi	Advanced Hydraulics
	Measurements and Numerical Modeling of Natural Disaster in rivers and coastal area	Lecturer Kazuya Watanabe	Coastal and river Engineering
Soil Mechanics and Geotechnical Engineering	Physicochemical and Mechanical Properties of Soft Soil	Prof. Hiroshi Oikawa ⑮	Advanced Geotechnical Engineering
		Associate Prof. Toshihiro Ogino	Advanced Soil Mechanics

⑮ This professor will retire by the mandatory retirement regulation in March 2015.

## [Cooperative Major in Life Cycle Design Engineering]

In highly advanced industrial society, the reduction of environmental load and establishing the sustainable society are needed. This major was organized at such social requests.

Life cycle design engineering is one field in engineering and to reduce the environmental load for all cycles ranging from mining resources, product planning, designing, manufacturing, waste and recycling, and closely associated with various fields of engineering, materials engineering, computer engineering, mechanical engineering, electrical engineering, civil engineering, and management engineering, and so on.

We aim at the development of human resources, which have broad vision and ethics, contribute to the establishing the sustainable society on the international perspective and the community revitalization. For this purpose, we have two divisions in the major, “ Life Cycle Design Strategies ” and “ Systems Engineering for Environment” keeping close cooperation each other.

Division	<b>Life Cycle Design Strategies</b>		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Life cycle design engineering and evaluation studies	Educations and studies on designs and evaluations covering life cycles of products, businesses and social systems	Prof. Nozomu Mishima	Life cycle design engineering basics
Electrical Energy Engineering	Conversion, Storage and Delivery of Electrical Energy	Associate Prof. Masashi Sato	Advanced Life Cycle Design Engineering
Management Science, Corporate strategy and business administration	An effective business administration through Management Science such as strategic business formation and evaluation Cooperation for the creation of local industrial clusters	Akita Prefectural University Prof. Tsutomu Mishina ⑮	Creation and Promotion of Local Industries Basics in Life Cycle Design
Resources Recycling Technology Life Cycle Assessment	Development of resources recycling technology Development of separation technology for recycling of powder waste Life Cycle Assessment (LCA) of products and services using Process Analysis and Input-Output Analysis	Akita Prefectural University Associate Prof. Ruilu Liang	Life Cycle Assessment Basics in Life Cycle Design

Division	Systems Engineering for Environment		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Thermal and fluid dynamical energy engineering	Education and research on the transfer and conversion of the heat and fluid dynamical energy such as the renewable energy. Education and research on the evaluation of sensibility and its application to the industrial design	Prof. Masahide Nakamura	Transfer and Conversion of Heat and Fluid Dynamical Energy
Electromagnetic energy conversion machine engineering	Development of new machines and improvement of conventional machines for electromagnetic energy conversion	Prof. Katsubumi Tajima	Electromagnetic energy conversion engineering
Engineering Materials and Manufacturing	Materials Science from Micro to Macro Aspects and Effect of Surface Conditions in Machining	Associate Prof. Mamoru Takahashi	Micro Processing
Advanced Functional Materials	Research and education on materials design, functional properties and applications of shape memory alloys, damping alloys and superconducting materials	Associate Prof. Xiaoye Lu	Advanced Course of Functional Materials
Condensed matter physics	Electron tunneling phenomena in solids, physical properties of layered compounds	Associate Prof. Kunihiko Yamaguchi	Fundamentals of Applied Condensed Matter Physics
Mechanical engineering, Automotive engineering	Technology development and evaluation of next generation vehicles and driver support systems with mechatronics and intelligence technology Effectiveness evaluation of active safety systems by accident analysis Development of the system aiming at quality improvement and labor saving of medical care, welfare and care	Akita Prefectural University Prof. Tetsushi Mimuro	Next-Generation Vehicle Engineering
Electromagnetic Compatibility, Communication Engineering	Estimation and suppression method of undesired electromagnetic radiation from printed circuit boards, Analysis of crosstalk between micro-strip lines on a printed circuit board, Estimation of equivalent radiation sources and measurement of near electromagnetic fields on a printed circuit board, Education and research of the electromagnetic compatibility of printed circuit boards in microwave frequency	Akita Prefectural University Associate Prof. Teruo Tobana	Electromagnetic Compatibility
Built Environment, Geographic Information Systems	Evaluation of thermal environment in external built space. Collaboration method of architect and building engineer. Installation, management and cost-benefit-effectiveness of municipal geographic information systems in normal and disaster period. Development of building life-cycle assessment tool reflected family configuration change and repair work.	Akita Prefectural University Associate Prof. Koichi Asano	Advanced Course in Urban Environment

⑮ This professor will retire by the mandatory retirement regulation in March 2015.



### 3. Requirements for Completion of the Master's Course

A Master's degree either in Engineering or Resource Science 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 Needed for the Completion of the Master's Program]

Courses	Credits Required	Remarks
Specialized Subjects	A minimum of 16 credits (elective)	A minimum of 10 credits in the major and a minimum of 6 credits from the major and/or other majors combined.
Intensive Lectures	2 credits (required)	A minimum of 2 credits are required from the following lectures: Engineering & Resource Science                      1 credit Marketing Theory    1 credit Venture Establishment Theory                      1 credit International Relations                                      1 credit Resource Industry Management                      1 credit Risk Management    1 credit
Intensive Training	2 credits (required)	
Graduation Thesis	10 credits (required)	
Total	A minimum of 30 credits	

**Master's Course**  
**2015 April (Spring) Admission**  
**Affiliated School Recommendation**  
**Graduate School of Engineering and Resource Science, Akita University**  
**Application for Admission**

<b>Application No.</b>	※
<b>Name of Applicant</b>	
<b>Date of Birth</b>	_____ / _____ / _____ month                      day                      year
<b>Sex</b>	<b>Male</b> / <b>Female</b>
<b>Application Qualification</b>	
<b>Desired Department (Major)</b>	
<b>Desired Division</b>	
<b>Desired Supervisor</b>	Cooperative Major in Life Cycle Design Engineering only
<b>Desired Field of Study</b>	Department of Earth Science and Technology only
<b>Contact Address</b>	Address: _____ Tel: _____                      postal code                      country Mail address: _____
<b>Educational and Employment History</b>	

Note:

1. ※ Official use only.
2. Please use BLOCK LETTERS and BLACK INK
3. Please read the Admission Guidelines carefully and enter all the information requested.
4. Contact Address is where applicant wishes to receive correspondence.  
 Any changes must be reported immediately.

**Master's Course**  
**2015 April (Spring) Admission**  
**Affiliated School Recommendation**  
**Graduate School of Engineering and Resource Science**  
**Akita University**

## ID Photo Card

Classification	Recommendation by Affiliated School
Application No.	※
Name	
Desired Department (Major)	
<div style="border: 1px dashed black; padding: 10px; width: fit-content; margin: 0 auto;"><p>Please paste ID photo. (4.5cm x 3.5cm) Upper frontal view of applicant without a hat.</p></div>	

Note:

1. ※ Official Use Only
2. Photo must be taken within 3 months prior to application.

Date: \_\_\_\_\_  
month                  day                  year

## Pre-evaluation Request for Application Qualification

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

Name of Applicant: \_\_\_\_\_

Date of Birth: \_\_\_\_\_  
month                  day                  year

I intend to apply for the Master's Course offered by Akita University, Graduate School of Engineering and Resource Science. I hereby request for the pre-evaluation based on the documents attached.

Desired Department (Major): \_\_\_\_\_

Please mail the pre-evaluation result to:

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Tel. Number: \_\_\_\_\_

Name: \_\_\_\_\_

E-mail address: \_\_\_\_\_

# Proof of Evaluation Fee Payment Form

Application Number: ✖

Applicant's Name:

Desired Graduate School:

Desired Department (Major):

Please paste  
Proof of Payment for Evaluation

Note: 1. ✖ Official Use Only  
2. Please make sure the Proof of Payment is securely pasted and the date of payment is visible.